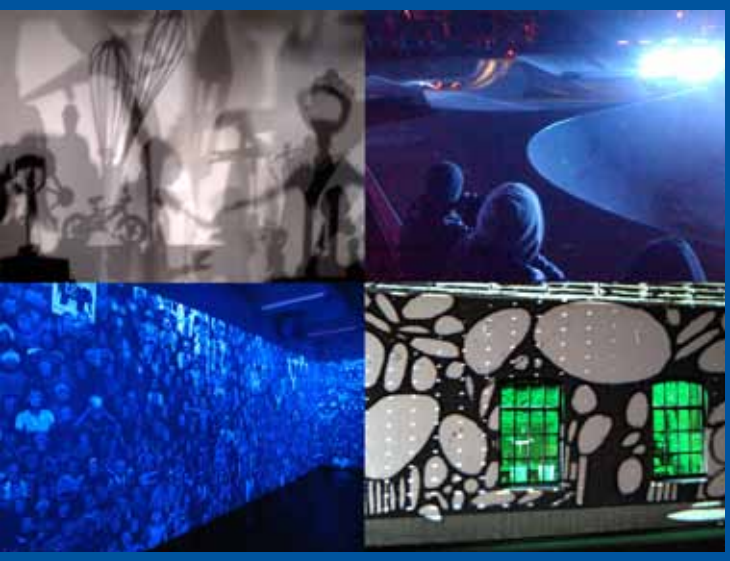
International Specialised Skills Institute

Victoria
The Place To Be

Colour Relationships Using Traditional, Analogue and Digital Technology



Peter Burke
Skills Victoria (TAFE)/Italy (Veneto)
ISS Institute Fellowship

Fellowship funded by Skills Victoria,
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ISS Institute Inc
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Executive Summary

This Fellowship study explored the use of analogue and digital technologies to create colour surfaces and sound experiences. The research focused on art and design activities that combine traditional analogue techniques (such as drawing or painting) with print and electronic media (from simple LED lighting to large-scale video projections on buildings).

The Fellow's rich and varied self-directed research was centred in Venice, Italy, with visits to France, Sweden, Scotland and the Netherlands to attend large public events such as the Biennale de Venezia and the Edinburgh Festival, and more intimate moments where one-on-one interviews were conducted with renown artists in their studios. The research itinerary included local industries in the Veneto region of Italy, attending workshops and conferences in Paris and Alingsås (Sweden), guided tours of museum collections and exhibitions, and alternative sound/visual performances on the streets of Paris and Amsterdam.

In particular, the Fellow investigated:

1. How a knowledge and understanding of colour theory can be applied to produce colour surfaces that combine digital-imaging techniques and traditional hand-painted techniques.
2. The ways in which luminous colour relationships can be created using digital and analogue technologies and light.
3. How to produce colour and sound relationships by combining digital and analogue technologies.

The Fellow's research in art and design extended to architecture, landscape design and public art (illuminated building façades and gardens in Alingsås, Sweden, and Eindhoven, the Netherlands) and interior design (installations within churches and domestic spaces) with numerous applications for other industries.

The need for multiskilling emerged as important for artists—the ability to not only work with several media, but also to be able to work across media using analogue and digital technologies. Rather than abandon 'old' technologies (such as drawing or the camera obscura), the Fellow found that contemporary artists continue to use traditional skills and then develop these further by incorporating new technologies and digital media. While some artists and designers choose to move between disciplines, others collaborate with experts in a particular field.

When artists and designers are able to move fluidly between 'handmade' and 'digital' technologies, new techniques and new paradigms evolve. Similarly, through collaboration with others, new, innovative ways of 'seeing' have become significant points of departure for further exploration and discussion.

The Fellow found that traditional 'hand' skills (such as observational drawing or colour study) should not be abandoned, but rather, be maintained, and that digital technologies benefit from the conceptual skills associated with 'handmade' studies (in drawing, painting or colour).

Artists and designers who use these skills require opportunities—in the form of space, time and support—to develop new ideas through collaboration and interaction.

Through a series of seminars and/or workshops, the Fellow will initiate a range of activities to facilitate the collaboration of ideas through combining cross-media or cross-disciplinary practices. For example: artists working beside writers, or painters developing an exchange with musicians, to create a singular or shared outcome. More specifically, artists and musicians may be invited to produce 'colours' that can be both 'heard' and 'seen', or similarly, sounds that can be seen and heard.

These exciting ventures, which have evolved out of the Fellow's research, will act as a catalyst for new developments in the education sector, with tangible benefits for the industry and the Fellow's own ongoing research and art practice.

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Abbreviations/Acronyms

3D	Three dimensional
ACMI	Australian Centre for the Moving Image
ACP	Australian Centre for Photography
AIMIA	Australian Interactive Media Industry Association
CCP	Centre for Contemporary Photography
CEO	Chief Executive Officer
CMYK	Cyan, Magenta, Yellow and Black
DPI (or dpi)	Dots per inch
LED	Light-emitting diode
NAVA	National Association for the Visual Arts
NCS	Natural Colour System
NIMk	Nederlands Instituut voor Mediakunst
OZCO	Australian Council of the Arts
PDF	Portable Document Format
PDLA	Professional Lighting Designers Association
RMIT	Royal Melbourne Institute of Technology
TAFE	Technical and Further Education
VET	Vocational Educational and Training

Definitions

Affinate

A Spanish-Mexican term referring to the sound of a tweaking a guitar

agIdeas

Annual international design event, held in Melbourne

Anaglyph

A 3D 360° photographic view of large scenes/subjects

Centrum Kunstlicht in de Kunst

The Light Art Museum, Eindhoven, Netherlands.

Choreutoscope

A projection device developed around 1886 used to create the illusion of movement, enabled slightly different painted still images to merge into one another on screen.

CMYK

The CMYK color model (process color, four color) is a subtractive color model used in color printing, and is also used to describe the printing process.

Design

Design is problem setting and problem solving. Design is a fundamental economic and business tool. It is embedded in every aspect of commerce and industry and adds high value to any service or product—in business, government, education and training, and the community in general.[1]

Gouache

Gouache is a type of paint consisting of pigment colour suspended in water. Gouache differs from watercolor in that the particles are larger, the ratio of pigment to water is much higher, and an additional, inert, white pigment such as chalk is also present.

Innovation

Creating and meeting new needs with new technical and design styles. (New realities of lifestyle).[2]

JPEG

JPEG compression is the most common image format used by digital cameras and other photographic image capture devices.

LED

A light-emitting diode (LED) is a semiconductor light source. LEDs are used as indicator lamps in many devices.

Megalethoscope

An optical apparatus designed by Carlo Ponti of Venice circa 1870, in which photographs are viewed through a large lens, that creates the optical illusion of depth and perspective.

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[1] 'Sustainable Policies for a Dynamic Future', Carolynne Bourne AM, ISS Institute 2007.

[2] Ibid.

Definitions

NIMk

Nederlands Instituut voor Mediakunst (NIMk) is an institute in Amsterdam that encourages the free development, application, distribution and reflection of new technologies in the visual arts. NIMk supports media art presentation, collection and research. It offers extensive services for artists and institutions, including post-production, conservation and advice on technical questions. It also develops educational programs for all activities.

Oscilloscope

An oscilloscope (also known as a scope, CRO, DSO or, an O-scope) is a type of electronic test instrument that allows observation of constantly varying signal voltages, usually as a two-dimensional graph of one or more electrical potential differences using the vertical or 'Y' axis, plotted as a function of time, (horizontal or 'x' axis). Although an oscilloscope displays voltage on its vertical axis, any other quantity that can be converted to a voltage can be displayed as well. In most instances, oscilloscopes show events that repeat with either no change, or change slowly.[3]

Phantasmagoria

A constantly changing medley of real or imagined images.

Skill deficiency

A skill deficiency is where a demand for labour has not been recognised and training is unavailable in Australian education institutions. This arises where skills are acquired on-the-job, gleaned from published material or from working and/or studying overseas.[4]

There may be individuals or individual firms that have these capabilities. However, individuals in the main do not share their capabilities, but rather keep the intellectual property to themselves. Over time these individuals retire and pass away. Firms likewise come and go.

Sustainability

The ISS Institute follows the United Nations for Non-Governmental Organisations' definition on sustainability: *"Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs".*[5]

VET

Vocational Educational Training

WYSIWYG

What you see is what you get

[3] http://en.wikipedia.org/wiki/Oscilloscope

[4] 'Directory of Opportunities. Specialised Courses with Italy. Part 1: Veneto Region', ISS Institute, 1991.

[5] http://www.unngosustainability.org/CSD_Definitions%20SD.htm

Acknowledgements

Peter Burke would like to thank the following individuals and organisations who gave generously of their time and their expertise to assist, advise and guide him throughout the Fellowship program.

Awarding Body – International Specialised Skills Institute (ISS Institute)

The International Specialised Skills Institute Inc is an independent, national organisation that for over two decades has worked with Australian governments, industry and education institutions to enable individuals to gain enhanced skills and experience in traditional trades, professions and leading-edge technologies.

At the heart of the ISS Institute are our Fellows. Under the **Overseas Applied Research Fellowship Program** the Fellows travel overseas. Upon their return, they are required to pass on what they have learnt by:

1. Preparing a detailed report for distribution to government departments, industry and educational institutions.
2. Recommending improvements to accredited educational courses.
3. Delivering training activities including workshops, conferences and forums.

Over 180 Australians have received Fellowships, across many industry sectors. In addition, recognised experts from overseas conduct training activities and events. To date, 22 leaders in their field have shared their expertise in Australia.

According to Skills Australia's 'Australian Workforce Futures: A National Workforce Development Strategy 2010':

> Australia requires a highly skilled population to maintain and improve our economic position in the face of increasing global competition, and to have the skills to adapt to the introduction of new technology and rapid change.
>
> International and Australian research indicates we need a deeper level of skills than currently exists in the Australian labour market to lift productivity. We need a workforce in which more people have skills, but also multiple and higher level skills and qualifications. Deepening skills across all occupations is crucial to achieving long-term productivity growth. It also reflects the recent trend for jobs to become more complex and the consequent increased demand for higher level skills. This trend is projected to continue regardless of whether we experience strong or weak economic growth in the future. Future environmental challenges will also create demand for more sustainability related skills across a range of industries and occupations.[6]

In this context, the ISS Institute works with Fellows, industry and government to identify specific skills in Australia that require enhancing, where accredited courses are not available through Australian higher education institutions or other Registered Training Organisations. The Fellows' overseas experience sees them broadening and deepening their own professional practice, which they then share with their peers, industry and government upon their return. This is the focus of the ISS Institute's work.

For further information on our Fellows and our work see www.issinstitute.org.au.

[6] Skills Australia's 'Australian Workforce Futures: A National Workforce Development Strategy 2010', pp. 1-2 http://www.skillsaustralia.gov.au/PDFs_RTFs/WWF_strategy.pdf

Fellowship Sponsor

The Victorian Government, Skills Victoria is responsible for the administration and coordination of programs for the provision of training and further education, adult community education and employment services in Victoria and is a valued sponsor of the ISS Institute. Burke would like to thank them for providing funding support for this Fellowship.

Supporters

ISS Institute

- Carolynne Bourne, (former) Chief Executive Officer (CEO), ISS Institute
- Paul Sumner, (former) Fellowship Coordinator

Employer, Victoria University

- John Barmby, (former) Head of School, Creative Industries
- Paul Borg, Teacher, Creative Industries
- Darren Brown, Head of School, Creative Industries
- Irene Crusca, Short Course Coordinator, Creative Industries
- Andy Gash, Media and Communications
- Gina Kalabishis, Teacher, Creative Industries
- David Moore, Teacher, Creative Industries
- Anna Miskella, Teacher, Creative Industries
- Kirsten Rann, Director/Curator, Level 17 Artspace
- Mark O'Rourke, Senior Educator
- Julie Patey, Teacher, Creative Industries
- Stefan Schutt, Senior Educator, Research and Learning

Those Involved in the Fellowship Submission

- Michael Graeve, Internationally presented artist
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- Caroline Williams, Board member, Georges Mora Foundation

Those Involved in the Development of the Overseas Program

- ad chroma
  – Michel Cler, Architect, Colour Consultant, President ad chroma, La Société Française des Architectes
- AKDR Visual Group
- Cite Internationale Des Arts
- Edinburgh Festival
- Fabrica
  – Julian Koschwitz (Interaction Designer, Interactive Media)
  – Barbara Liverotti (Press Relations Manager)
  – Omar Vulpinari (Visual Communications Consultant),

- Galerie Xippas
- GLOW: Forum in Light and Architecture 2009
- Lights in Alingsås, Professional Lighting Designers Association (PDLA).
- Louis Vuitton Espace Cultural
- Museo del Precinema, Minici Zotti Collezione, Palazzo Angeli
- Nederlands Instituut voor Mediakunst (NIMk)
- Palais de Tokyo
- Taniel Morales (Artist)
- Venice Biennale
  – La Biennale di Venezia
  – MariaLuisa Tadei (Artist)
  – Fabrizio Plessi (Artist)
- Vimage
  – Francesa Faggian (Marketing and Communications)

Organisations Impacted by the Fellowship

Government – Federal

- Australian Centre for the Moving Image (ACMI)
- Australia Council for the Arts
- Australian Network for Art and Technology (ANAT)
- National Association for the Visual Arts
- Australian Interactive Media Industry Association (AIMIA), Sydney, NSW

Government – State

- Skills Victoria
- Department of Education and Early Childhood Development (DEECD)

Industry

- Level 17 Artspace
- CI Factory – Design Studio
- Verve – knowledge & skills

Professional Associations

- Australian Institute of Architects
- Centre for Contemporary Photography
- Design Institute of Australia
- National Association for the Visual Arts
- Georges Mora Foundation

Acknowledgements

Education and Training

- School of Creative Industries, Victoria University
- Melbourne University
- Royal Melbourne Institute of Technology (RMIT)
- Victorian College of the Arts
- Universities and TAFE Institutes involved in Visual Arts education and training
- RTO organisations involved in Visual Arts education and training
- Private providers of visual arts education

Community

- Art Practitioners e.g. Michael Graeve, internationally represented artist
- Visual Art Alumni, Victoria University
- Community Art Centres in Melbourne and Australia
- Music Department, Creative Industries, Victoria University
- Australian Centre for the Moving Image (ACMI), Melbourne
- Australian Interactive Media Industry Association (AIMIA), Sydney, NSW
- Creative Industries Short Course Program, Victoria University
- Visual Art Program, Victoria University

About the Fellow

Name: Peter Burke

Occupation

- Artist/Teacher/Program Manager

Qualifications

- Master of Art (by research), Victorian College of the Arts (2002)
- Certificate IV in Workplace Assessment and Training (2002)
- Graduate Diploma in Visual Art, Victorian College of the Arts (1999)
- Graduate Diploma in Education, University of Melbourne (1992)
- Bachelor of Arts (Fine Art) Painting/Printmaking, RMIT (1985)
- Tertiary Orientation Program, Art & Design, Footscray TAFE (1981)

Memberships/Affiliations

- agIdeas (annual international design event held in Melbourne)
- Alumni; Melbourne University, Victorian College of the Arts, RMIT and Victoria University
- Australian Centre for the Moving Image (ACMI), Federation Square, Melbourne
- Australian Centre for Photography (ACP), Paddington, NSW
- Australia Council for the Arts (OZCO), Surry Hills, NSW
- Australian Interactive Media Industry Association (AIMIA), Sydney, NSW
- Centre for Contemporary Photography (CCP), Melbourne, Victoria
- Cité International des Arts, Paris
- Georges Mora Foundation, Melbourne, Victoria
- National Association for the Visual Arts (NAVA), Woolloomooloo, NSW

Brief Biography

Peter Burke is a visual artist who teaches within the School of Creative Industries at Victoria University in Melbourne. He is Program Manager for the Diploma of Visual Art (21885vic), the Diploma of Graphic Design (21874vic) and the Advanced Diploma of Graphic Design (21873vic) at the City-Flinders and St. Albans campuses, overseeing 25 teachers and 200 full-time and part-time students.

In his art practice he employs a variety of media including digital photography, painting, drawing, performance, video and mass media formats these include billboards, websites and tabloids. Burke has held 16 solo exhibitions and participated in over 150 group exhibitions in Australia and overseas. Recent exhibitions include *Bin Nite Tonite/Man Tidies Shed* in the City of Hobson's Bay, *Coop* at the Level 17 Artspace, Melbourne, and *Shellywood*™ at the Queensland University of Technology in Brisbane. His work is represented in public collections including the State Library of Victoria, the Australian Catholic University, City of Glen Eira, City of Maribrynong, Global Arts Village, National Library of Australia, State Library of Victoria, Victoria Police, Victoria University and Western Family Services.

His work is regularly reviewed in newspapers and art magazines, including *Un Magazine*, *Real Time*, *Art India*, *Lino* and *Photofile*. In 2004 he received an Arts and Professional Development Grant from Arts Victoria for *Innocence*™, a collaborative art project featuring a supermodel, a website and five billboards in Melbourne's CBD. In 2005, he was the recipient of a travel grant from the Ian Potter Cultural Trust and received funding for a 3-month residency at the Global Arts Village in New Delhi. In 2008, Burke was awarded the Mora Dyring Studio Residency (through the Art Gallery of New South Wales) at the Cité International des Arts in Paris.

Aims of the Fellowship Program

The overall aim of this overseas study Fellowship was to participate in activities and conduct interviews in Italy, France, Sweden and the Netherlands to gain skills, knowledge and techniques in using combinations of traditional, analogue, and digital colour surfaces. In particular:

1. To apply a knowledge and understanding of colour theory to producing colour surfaces that combine digital-imaging techniques and traditional hand-painted techniques.
2. To become skilled in producing luminous colour relationships using digital and analogue technologies and light.
3. To learn how to produce colour and sound relationships by combining digital and analogue technologies.

The Australian Context

A Brief Description of the Industry

The visual arts spectrum is broad, and *"in general terms could be defined as the visual aesthetic in everyday life in, for example, the visual design of consumer goods, media products and public places, as well as in original artworks".*[7] The visual arts industry includes disciplines such as graphic design, painting, drawing, sculpture, printmaking, photography, film, new media (for example: multimedia and time-based media such as video), sound art, performance art and conceptual art. It embraces a wide variety of visual design activities, such as the design of buildings (architecture) and the built environment (town planning), the visual design elements of gardens (landscape gardening design), window dressing, wallpaper and fabric design, sign writing, and other visual manifestations such as sound and light show at trance parties, tattooing and graffiti art.

The visual arts industry identifies individuals and institutions involved in the production, reproduction, distribution and consumption of visual art, and includes the visual arts education sector. *"The model… corresponds with the 'concentric circles' interpretation of the cultural industries more generally, which places the creative artist at the centre and defines an ever-widening series of value flows radiating outwards into other industries."* [8]

"What unites all of the visual art movements and styles and media… is that the artists are constantly revising what already exists, they are always making changes, making sure that art stays exciting, that art stays alive. Artists are always inventing; they continue to introduce new ways of expressing emotions and conveying ideas. Art is never stagnant – it is as much of a living entity as are all the other human endeavors." [9]

The need for additional skills was recognised by the Fellow, due to the growth of multi-disciplinary and interdisciplinary skills becoming one of the major change drivers impacting on the arts industry and is a nucleus for innovation and the development of ideas. As the use of new technology in the production of art increases, simultaneously, the 'handmade' and older technologies of traditional art practices continue to grow. There is a need to develop relevant training in interdisciplinary practices that embrace both the handmade (painting) and digital technology (digital media and sound) to enrich and expand the interconnected creative thinking and processes.

Multiskilling and inter-contextual frameworks are key to contemporary art teaching and practice. It is crucial for educational institutions and individual artists to maintain a contextual knowledge of these international trends, skills and theory in order to understand and participate in both the local and the global art sectors.

Internationally, numerous exhibitions and publications chart artistic research into colour relationships and their contemporary expression in interdisciplinary practices that combine painting, digital media and sound. They are evidence of the intensive artistic research that is being done in this field now. These exhibitions and publications are evidence of the intensive artistic research that is currently being done in this field.

Vocational Education and Training (VET) course design and delivery is still largely based on disciplinary division rather than interdisciplinary integration. Students could be exposed to learning environments that are based on concept (in this case colour relationships), rather than only experiencing learning environments based on pre-chosen media. Colour studies, particularly related to colour and sound, and those combining traditional skills with digital skills, are not being delivered though national training packages.

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[7] http://www.fabrica.it/about

[8] ibid.

[9] http://www.fabrica.it/workshops/spirit.html

The benefits in obtaining the skills and this knowledge under the conceptual framework of this project will enable students to explore similarities and differences between analogue and digital media, and between media that address differing senses. Training in these areas would enable visual artists to work in these areas, expand their own art practices and bridge the gap between digital and analogue media.

The development of niche technical skills is critical to the development of the creative industries. Skills and knowledge developed in the area of colour, light and sound would be relevant to a wide range of artists and artisans, and could be applied to a diversity of creative processes, from colour graders who work on the screen to the digital printing industries to original visual artworks produced in a diversity of media and conceptual contexts.

SWOT Analysis

Strengths

- Art, design and multimedia are thriving industries that are intensely fluid and feed into each other.
- Art, design and multimedia have the ability to engage with other creative and non-creative areas.
- There is already significant research around colour, light and sound.
- The resources to develop further interaction between the areas are not necessarily expensive.

Weaknesses

- There is limited scope to practice and develop skills in training.
- Funding is required to support the development of this area.
- Training is required to develop skilled practitioners.
- There are scarce professional development activities available in this area for trainers.
- Limited training for students in this area.
- The evaluation models that measure the success of creative pursuits are often limited to traditional business/commercial evaluations.
- The perception of innovation in creative arts areas is often regarded as less significant than in other areas.

Opportunities

- To collaborate with different disciplines.
- To exchange new techniques.
- To develop innovative ideas that change the way we interact with digital and analogue technology.
- To develop professional development activities.
- To develop new training for students in this area.
- To create new ways of combining colour, light and sound using low-tech and high-tech digital and analogue technologies and recycled or ‘found’ materials.

Threats

- Limited funding to allocate to experts to develop new programs in this area.
- Limited funding to develop professional development activities.
- Creative areas are often perceived to be insignificant and, therefore, overlooked or disregarded.
- Funding for creative development is less significant for creative arts areas.

Identifying the Skills Deficiencies

Definition of Skills Deficiencies

As already established, a skill deficiency is where a demand for labour has not been recognised and where accredited courses are not available through Australian higher education institutions. This demand is met where skills and knowledge are acquired on-the-job, gleaned from published material, or from working and/or study overseas.

Identifying and Defining the Deficiencies

1. **To apply a knowledge and understanding of colour theory to developing new ways of combining digital-imaging techniques with traditional hand-painted techniques.**

   Action: To become skilled in understanding how colour theory is applied to the process of combining digital imaging and ‘handmade’ (painting) techniques.

2. **To become skilled in producing luminous colour relationships using digital and analogue technologies using light.**

   Action: To become skilled in producing colour relationships using light emitting digital media and analogue technologies.

3. **To learn how to produce colour and sound relationships by combining digital and analogue technologies.**

   Action: To develop a knowledge and understanding of the relationship between colour and sound using a combination of digital and analogue technologies.

Why it Needs to be Addressed

- To advance training in colour grading and the development of innovative processes for colour application using paint, print and digital media.
- To develop multidisciplinary and interdisciplinary art practices encompassing ‘analogue’ (handmade) and ‘digital’ technologies in a contemporary context.
- To adopt and expand skills in sound technology related to a practical knowledge of synesthesia for creative design contexts.
- To enhance innovation through linking training between creative media—painting, printmaking, digital imaging and music.

The International Experience

The Fellowship included visits to industries, museums, exhibitions, conferences, lectures and face-to-face meetings with individuals in the art and design industry located in the Veneto region of Italy, France, Sweden, Scotland and the Netherlands. The activities were significant in providing the knowledge, skills and information required to successfully undertake the program.

Destination: Fabrica (Benetton's Communication Research Centre)

Location

Treviso, Veneto, Italy

Contacts

- Julian Koschwitz (Interaction Designer, Interactive Media)
- Barbara Liverotti (Press Relations Manager)
- Omar Vulpinari (Visual Communications Consultant)

Purpose

The Fellow undertook site visits, tours and meetings to gain knowledge of the creative processes that can be applied to formulating relationships between handmade and digital media techniques.

Outcomes

The Fellow gained knowledge of the innovative ways to develop a cross-disciplinary approach to developing ideas, and an insight into combining and juxtaposing handmade print and digital media.

Fabrica, Benetton's communication research centre, is not a university or an advertising agency. It promotes itself as an *"applied creativity laboratory, a talent incubator"* in which *"young, modern artists come from all over the world to develop innovative projects and explore new directions in myriad avenues of communication"* from design, music and film to photography, publishing and multimedia. Guided by leading figures in art and communication, Fabrica is renown for *"blurring the boundaries of culture and language and transgressing the traditional borders between a diverse range of communication mediums"*.[10]

Fabrica courtyard, Trevisio, Veneto, Italy, 2009. Photo: Peter Burke.

When the Fellow visited Fabrica's beautiful premises in Veneto, it was evident that its philosophy is alive and active. Designed by Tadao Ando, the architecture revealed much about the centre's approach to design.

Light filled studios with large windows and open spaces link the inside with the outside, and old architecture with the new.

Open-plan workspaces encourage fluidity, open-mindedness and interaction—industrial design flows into graphic design, multimedia, writing and music. A clear pool of water in the courtyard reflects a freestanding white ladder reaching for the sky.

[10] http://www.fabrica.it/about

Fabrica courtyard, Trevisio, Veneto, Italy, 2009. Photo: Peter Burke.

Fabrica library, Trevisio, Veneto, Italy, 2009. Photo: Peter Burke.

Fabrica graphic design studio, Trevisio, Veneto, Italy, 2009. Photo: Peter Burke.

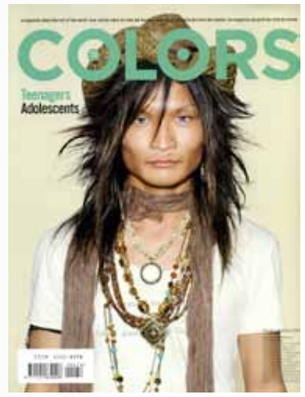
Fabrica's one-year 'artistic incubator' experience does not fit neatly into a university model—it is available to international applicants under 25 years of age who are highly independent, resourceful and open to new creative and collaborative processes. Formal qualifications are not part of the selection criteria (though many have them); nor are they an outcome.

Fabrica's approach to concept development is refreshing. The centre conducts regular experimental workshops over one to five days led by international 'creatives' from all fields of communication, design and technology. They collaborate on ideas—the aim is to develop innovative processes of thinking. The workshops both suspend and embrace all processes – moving backwards and forwards between brainstorming, discussions, doodling, digital snaps, random word play and bizarre creative actions. Moving freely between the handmade and digital media (colour, text, images, cameras, computers, sound, drawing, photocopiers, scissors, video etc.), Fabrica maintains there is no 'secret' to its teaching methods. If anything, the secret is being open.

One recent workshop, *Designing Processes Rather Than Art*, directed by Bruce Sterling, had the artists using limited design elements (such as black and white, paper, scissors, tape and a photocopier) to develop a diverse range of responses to pattern. Fabrica documents these activities in booklets, which Omar Vulpinari (Visual Communications Consultant) said, *"is one way we like to impart and share our knowledge with others".*

Fabrica design process exercises (excerpt from Fabrica booklet), Trevisio, Veneto, Italy, 2009. Image courtesy of Fabrica.

Fabrica design process exercises (excerpt from Fabrica booklet), Trevisio, Veneto, Italy, 2009. Image courtesy of Fabrica.



Colors magazine cover (76th issue), 2009. Image courtesy of Fabrica.

Collaboration is an important part of the Fabrica experience and an important ingredient to developing new processes and ideas. A graphic designer, for example, not only embraces aspects of a new discipline through research or training, but also engages in a practical way with writers and multimedia artists in workshops. Fabrica does not 'teach' the technical aspects of a discipline; instead it encourages innovation and new creative processes between disciplines.

As part of its industry liaison, Fabrica seizes projects with a cross-cultural creativity for health and environmental concerns or social and relational improvement. Recently, a series of advertisements were produced for the World Health Organisation, Unicef and Unesco. Fabrica aims to *"challenge ways in which contemporary communication, design and artistic expression can contribute to helping people solve problems and enhance human potential"* [11]

Global concerns and contemporary design characterise *Colors*, Benetton's international magazine. The graphic designers and multimedia developers at Fabrica saw its dwindling readership as an opportunity to develop a relationship between print media and the Internet. While digital technology attempts to overtake print media, Julian Koschwitz, an Interaction Designer, found a way to maintain the attention of readers who are becoming more absorbed in online magazines.

The 76th issue heralded a new paradigm using a unique barcode attached to its feature articles. As readers lift the magazine barcode in front of a web cam, it unlocks an online article, music or video clip. The exclusive interactive content (based on Augmented Reality markers) does not replace or replicate the magazine, but adds additional information in digital formats to the printed form. Koschwitz produced the software in Adobe Flash, combining images, video and sound files. Its popularity was instant with reviews and demonstrations appearing on YouTube. Koschwitz said Augmented Reality has been customised and applied to other scenarios including outdoor advertising and mobile phones, and Fabrica plans to develop it further.

[11] http://www.fabrica.it/workshops/spirit.html

Fabrica's approach to innovation through collaboration has potential within educational contexts in Australia. Students could be encouraged to participate in hands-on sessions where knowledge is shared with a group, and the 'tools of the trade' are used. Writers, painters, multimedia artists or designers, for example, could work together using gouache or pencils to solve a problem requiring a colour solution, or alternatively, produce a written piece, or both.

Colors magazine with interactive barcode, (76th issue), 2009. Image courtesy of Fabrica.

Colors magazine with interactive barcode, (76th issue), 2009. Photo: Peter Burke.

Destination: ad chroma

(A recently created association aiming to address colour concerns at a number of levels when using various artistic media)

Location

Paris, France

Contact

Michel Cler, Architect, Colour Consultant, President ad chroma, La Société Française des Architectes, Paris, France

Purpose

The Fellow attended the lecture series *ad chroma Manifestation – La Philosphie de la Conception du Natural System of Colours* presented by Lars Sivik, a psychologist, co-developer of the Natural Colour System (NCS), Gothenburg, Sweden, in order to gain knowledge underpinning historical and thematic colour relationships.

Outcomes

The Fellow gained an understanding of the NCS system and its relationship to the human experience and other colour systems. The NCS is an internationally recognised philosophy based on the human perception of colour. The theory originated in the 1920s and has been expanded by Lars Sivik[i] in collaboration with the NCS originator, Dr Anders Hård, and colour researcher Professor Gunnar Tonnquist, bringing together many well-known designers and architects through the Swedish Colour School and the Scandinavian Colour Institute. The NCS characterises colours through describing 'what you see'. It sits beside (and adjacent to) other colour systems that rely on mathematics and measurements.

Sivik's research found that in order to communicate what a colour is, an intuitive system must be used that is based on the way people see, describe and respond to colour.

While he believes an understanding of colour mixing and measurement data are necessary for colour production, it is an insufficient and ineffective means to communicate colour relationships.

Sivik said, *"the NCS is the only logical colour 'notation' system used to represent and describe colour. Notations, for example, include amounts of blackness, chroma and hue recorded purely by visual properties. The NCS system requires human perception and vision to identify, separate and judge colour as informative, simulative or emotive, with their practical, cultural, symbolic or commercial relationships".* Other systems are less intuitive and are limited by measurements and formulas to record and calculate pigments, light rays, reflection curves, wavelengths or nerve signals. *"A spectrophotometer, for example, can measure colours but it cannot see the difference between tonal gradations or black and white."*

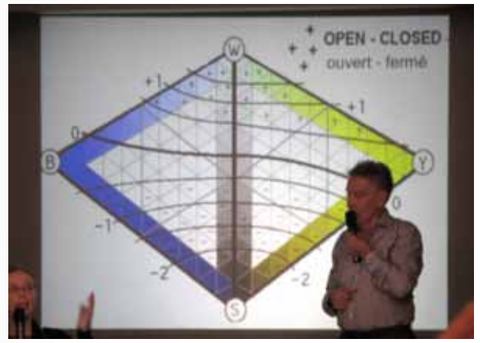
Sivik said, *"Ewald Hering (a phenomenologist who studied the appearance of things) did not believe that wavelengths alone measure the complexity of colour. He could see a yellow that was not reddish, or a yellow that was not greenish. In his 1898 research, Hering wrote the theory of opposites was natural because the human perceptual system starts collecting colours in the brain and has its own way of organising them into an atlas".*[ii]

The NCS defines the ten million colours we see in visual charts, but in a 'language' that can be used from concept, through visualisation, specification and production to realisation. The colour charts are based on a 'human system', whereas other colour systems complete the science and mathematics first then apply them to the human way of seeing—with many gaps in the interpretations.

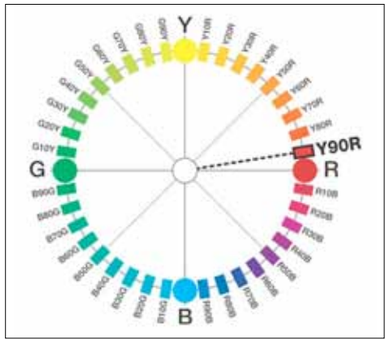
Sivik said, *"Colour is created in the psyche. When there is no light there is no colour. All our senses are psychological. If a tree falls in a forest, will there be a sound? There will be no sound unless someone is listening. Otherwise, there are only vibrations. Humans translate these vibrations into sound, and they respond to colour in the same way. Theory tells us that when there is no Red, Green, Blue (RGB) we would see black, but on a TV it appears grey, so the black is made in our heads. There are dimensions, like warm and cool, open and closed, near and far which cannot be determined by theory". "Colour stimulus or colour illusion is more of a correct concept."*

The NCS is now marketed in industries where consultants work with clients to improve colour use in graphic design (logotypes, letterheads, packaging, in-store point-of-sale materials), industrial design, fashion, interior design, public art and architecture.

While the NCS is not new, it is often overshadowed by other colour systems. Devoting more time to the NCS in training would deepen the understanding of intuitive colour relationships, for example mixing colour with pigments and with light (projected or on screen).



Michel Cler, Architect, Colour Consultant, President ad chroma, La Société Française des Architectes, Paris, France, 2009. Photo: Peter Burke.



NCS colour wheel, ad chroma, Paris, France, 2009. Image courtesy of ad chroma.

Destination: La Biennale di Venezia – *Hacier Mundos/Creating Worlds*

Locations

Arsenale, Giardini and other pavilions in Venice, Veneto, Italy

Purpose

The Fellow visited La Biennale di Venezia – *Hacier Mundos/Creating Worlds* to identify and compare the various materials that can be used for applying both printed, painted and projected colour and creating new relationships.

Outcomes

The Fellow gained knowledge of the lighting, materials and techniques used to create colour surfaces that incorporate the handmade and digital viewing and analysing the projections and installations at the Venice Biennale.

The 53rd International Art Exhibition for La Biennale di Venezia, titled *Hacer Mundos/Making Worlds* and directed by Daniel Birnbaum, ran from June to November 2009. It was a large exhibition that articulated different themes woven into one whole, comprising works by over 90 artists from Italy and all over the world, installed in pavilions in Arsenale, Giardini and other locations in Venice. Six art installations were identified that utilised lighting and handmade materials to create unique colour surfaces.

Inside the Scuola Grande della Misericordia, the Lithuanian pavilion, artist Zilvinas Kempinas adorned the nave with large sheets of curved aluminium. The metal had been bent by hand to the fit on the floor, curling into corners and around columns. Projected beams of red, golden yellow and blue light-emitting diode (LED) light bounced off the surface and ricocheted around the interior. At certain viewing angles, rainbows refraction off the aluminium, the entire effect suggesting omnipotent saturation.

Tube *(aluminium and LED lights) detail of the installation by artist Zilvinas Kempinas, inside the Scuola Grande della Misericordia, the Lithuanian pavilion, La Biennale di Venezia, Venice, Veneto, Italy, 2009. Photo: Peter Burke.*

Tube*, detail an installation by artist Zilvinas Kempinas, inside the Scuola Grande della Misericordia, the Lithuanian pavilion, La Biennale di Venezia, Venice, Veneto, Italy, 2009. Photo: Peter Burke.*

Light was also integral to the artwork *Sweet Barrier Reef* by Japanese Australian artist, Ken Yonetani, at the Ludoteca in Castello, Venice. Yonetani created a seascape of carefully staged, hand-rendered, white sugar sculptures on a bed of raked sugar (five cm deep), mimicking a Japanese Zen garden.

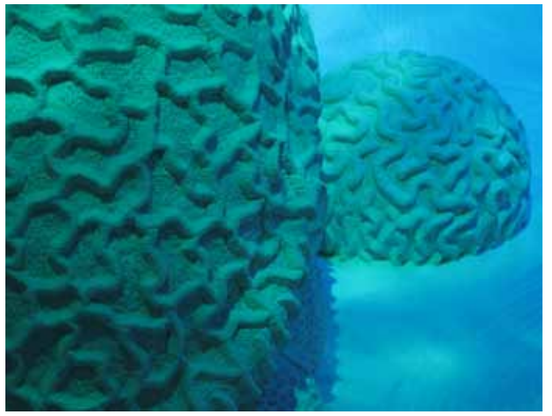
Positioned in a dark room (approximately 15 metres x 10 metres), the sugar formed a unique projection surface for ambient turquoise light from a data projector installed in the ceiling. Swirling water patterns and bubbles (looped on video) radiated and sparkled on the grainy surface, akin to an ocean floor.

Despite its serene arrangement of sea urchins and corals (carved from sugar cubes 60 centimetres high) the installation evoked a *"post-apocalyptic landscape in which everything had been bleached white and perished, as if life's sweet excesses are inextricably tied to self-destruction and death".*[iii]

Sweet Barrier Reef *(sugar sculptures and data projection) by Ken Yonetani, at the La Biennale di Venezia, Ludoteca, Castello, Veneto, Italy, 2009. Photo: Peter Burke.*

Sweet Barrier Reef, *(sugar sculptures and data projection) by Ken Yonetani, at the La Biennale di Venezia, Ludoteca, Castello, Veneto, Italy, 2009. Photo: Peter Burke.*

Sweet Barrier Reef. *Photo: Peter Burke.*



Sweet Barrier Reef. *Photo: Peter Burke.*

Without spotlights, Hans Peter Feldmann's installation *Schattenspiel* (Shadow play) in the Arsenale Pavilion could have looked like a pile of domestic clutter. Illuminated by bright spotlights, the presentation of trinkets, balanced on slow rotating turntables, was infused with a sense of wonder.

Feldmann hoards things many would dismiss as kitsch or banal, but his eclectic selection of bric-a-brac (ordinary dolls, figurines, model aeroplanes, scissors and other objects) twirled in the light, casting dancing shadows on the bare white walls reminiscent of shadow puppetry and magic lanterns. The silhouettes morphed into each other (as if on a recorded video loop) but the animation was live and immediate with the subtle tones and complex shapes found in a tonal drawing.

Schattenspiel *(shadow play), (found objects, turntables and spotlights) an installation by Hans Peter Feldman in the Arsenale Pavilion, La Biennale di Venezia, Venice, Veneto, Italy, 2009. Photo: Peter Burke.*

Schattenspiel *(shadow play), (found objects, turntables and spotlights) an installation by Hans Peter Feldman in the Arsenale Pavilion, La Biennale di Venezia, Venice, Veneto, Italy, 2009. Photo: Peter Burke.*

Schattenspiel *(shadow play). Photo: Peter Burke.*

Schattenspiel *(shadow play). Photo: Peter Burke.*

The tonal theme continued in Alexi Kallima's painted installation, *Rain Theorem*, in the Russian Pavilion in Arsenale. Upon entering the rectangular room, one was surrounded by four walls depicting thousands of spectators in grandstands and the overbearing roar of victory or perhaps the despair of defeat. As the viewer moved closer to the crowd, the spectators suddenly disappeared and the cheering stopped.

One was left in emptiness, deafened by the silence, blinded by the blank walls, and left to wonder if the experience was an inevitable consequence of victory or annihilation. The installation was a clever orchestration of sensors, sound, ultraviolet light and fresco painting.

The crowd images were applied to white walls (top to bottom) with a white florescent paint, only visible (as black) in the purple ultraviolet light, and required a subtle rendering of tones (in the dark). Four sensors were installed 30 centimetres from the walls to deactivate the ultra violet tubes in the ceiling, which turned the room to white, and paused a digital soundtrack played from speakers in the ceiling.

Rain Theorem, *(florescent paint, UV lighting and sound) a painted installation by Alexi Kallima in the Russian Pavilion in Arsenale, La Biennale di Venezia, Venice, Veneto 2009. Photo: Peter Burke.*

Rain Theorem. *Photo: Peter Burke.*

Rain Theorem. *Photo: Peter Burke.*

Rain Theorem. *Photo: Peter Burke.*

Krzysztof Wodiczko's installation of digital projections also used the essential elements of light and dark to create the illusion of opaque glass windows inside the blackened out Polish Pavilion at Arsenale. Six data projections onto windowless walls transformed the interior into a place where visitors watched silhouetted figures, seemingly outside, behind the illusion of windows.

The video projections were directed onto painted, white window shapes to create a luminous surface. The 'windows' opened the interior to virtual, but at the same time real, moments showing immigrants washing windows, taking a rest, talking, waiting for work, exchanging remarks about their tough existential situation, their unemployment or their problems getting their stay legalised.

The slight blurriness of the images behind the milky glass reduced the legibility of the scenarios—a reference to the immigrants' ambivalent status and social invisibility. Their stories accompanied the videos on a digital soundtrack played through headphones. Occasionally, the immigrants tried to peek though the glass, but always remained 'guests'. They, like the viewers, experienced an inability to overcome the gap separating them.

Guests, *(data projections) by Krzysztof Wodiczko in the Polish Pavilion in Arsenale, La Biennale di Venezia, Venice, Veneto, 2009. Photo: Peter Burke.*

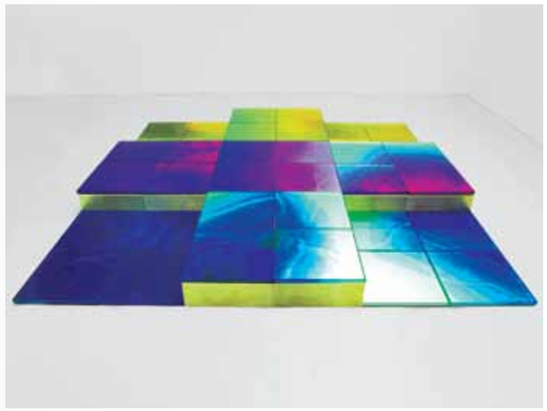
Guests. *Photo: Peter Burke.*

Guests. *Photo: Peter Burke.*

Guests. *Photo: Peter Burke.*

An installation in the Church of San Samuel featured painted glass exhibited the floor and walls by MariaLuisa Tadei, a multi-disciplinary art practitioner (with a background in architecture) who works with mosaic, glass, painting and digital media. The flat glass paintings were positioned slightly away from their surfaces, enabling light to illuminate the work from both the front and back.

Tadei collaborated with plastic and glass manufacturers to realise her concepts for the Biennale. She pours and drips transparent acrylic-based inks and media onto the glass, creating abstract designs have the appearance of watercolour or stained glass. Tadei has also applied her techniques and ideas to interior design projects.



Into the light – Paradise Pavilion, *installation by MariaLuisa Tadei in the Church of San Samuel, La Biennale di Venezia, Venice, Veneto, 2009. Photo courtesy of MariaLuisa Tadei.*

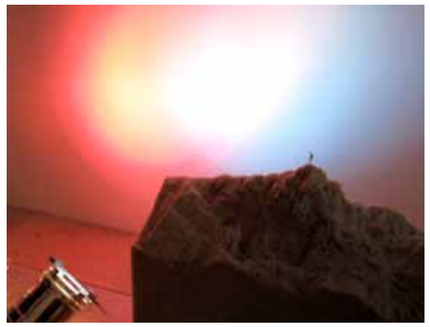
Into the light – Paradise Pavilion. *Photo courtesy of MariaLuisa Tadei.*

Miks Mitrevics' installation, *Fragile Nature*, at the biennale used sound, video, photography, multimedia and an array of props to compose various scenes in miniature. The gallery space looked like a photographer's or animator's studio with tiny stage sets assembled behind lights and tripods; however, the realism and scale of the set-ups was deceiving.

One could peer inside a cupboard and view what appeared to be a window overlooking a park bench on a cliff against a sky of clouds. On closer inspection, the seemingly coherent image was composed of three disparate media—a sculpted park bench (the size of dolls furniture), a laptop keyboard (forming a cliff edge) and video footage of clouds played on the screen (the window).

Similarly, a seemingly intact image of a man standing against a window looking out to sea was assembled with a photograph, a drawing, a shoebox, a wall projection and a soundtrack of wind and waves. Three more disparate elements (old stuffing from a chair, a handmade figurine, and red and yellow lights) jelled to form a romantic composition of an explorer on a cliff edge, reminiscent of a Caspar David Friedrich painting.[iv] The clever juxtaposition of digital and handmade elements and strong light/dark contrasts created cohesive images that acted as a trigger for the viewer's own memories.

Fragile Nature, *(sound, video, photographs and multimedia), by Miks Mitrevics at the La Biennale di Venezia, Venice, Veneto, 2009. Photo: Peter Burke.*



Fragile Nature, *(sound, video, photographs and multimedia), by Miks Mitrevics at the La Biennale di Venezia, Venice, Veneto, 2009. Photo: Peter Burke.*

Fragile Nature. *Photo: Peter Burke.*

Fragile Nature. *Photo: Peter Burke.*

Fragile Nature. *Photo: Peter Burke.*

Mestrovic's installation used 'collage' in a broad sense, to create images with print, sculpture and video. Like many of the biennale artworks mentioned here, drawing with light and colour are important tools that artists and designers use to illustrate concepts and define space.

Training that incorporates drawing with colour and light on various surfaces (including on painted, opaque, recycled or printed surfaces) would be valuable for artists and designers in many industries.

Destination: AKDR Visual Group

Location

Amsterdam, Netherlands

Purpose

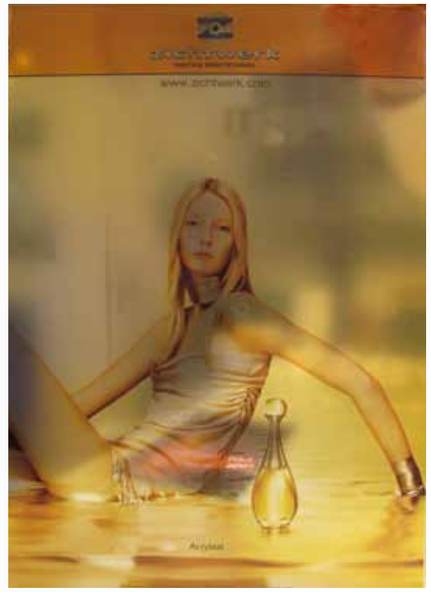
The Fellow undertook the site visit to AKDR to identify and evaluate the processes and surfaces that can be used with digital technologies to create new colour relationships.

Outcome

The Fellow gained knowledge and understanding of the process and requirements for printing digital images onto opaque and transparent curved or wave surfaces.

The AKDR Visual Group has developed the technology to print images on to surfaces with corners or curves such as a canvas picture frame or window shutter with louvers. Printable surfaces include wood, brick, stone (e.g., pavement tiles) and Perspex up to an area of 2.5 metres x 1.25 metres (though the actual object being printed can be larger, up to 4 metres x 2 metres).

The surfaces must be no greater than 48 millimetres thick with a curve or wave no higher than 20 millimetres. The curve or wave should not be more than 15 millimetres underneath, as the printer cannot print under a wave with a curl. The greater the depth of the wave, the more difficulty the printer has of reaching the waves and creating an even surface with the ink. The printer uses a roller that runs over the surface twice, from left to right, ensuring the ink is absorbed into the surface (if wood) and builds up the intensity of the image in layers.



Digital print on Perspex, AKDR Visual Group. Photo: Peter Burke.

The inks used are transparent and solvent based (not acrylic or oil) and can be applied to raw wood (unprimed) or a prepared surface primed with white paint or a colour. The inks and solvents allow the surface to form part of the image (e.g., wood grain can form the skin colour of a figure or part of the background).

Transparent Perspex can also be used, making it ideal for display with foreground or background lighting. Opaque surfaces such as painted gold metal or plastic can also be used to form part of the image. The entire process takes approximately 30 minutes from the printing of digital files (PDF, CMYK, 300 dpi at actual size) to the drying time using ultraviolet heating.

New printing technologies could be included in training for artists and designers, including knowledge of variegated textures and contours, made from various materials such as wood and Perspex, with the aim of expanding the possibilities for artists and designers. By linking designers with industry, further innovations could be developed.

Destination: Galerie Xippas

(A French art gallery created by Renos Xippas in 1990 that specialises in French and international contemporary art)

Location

Paris, France

Purpose

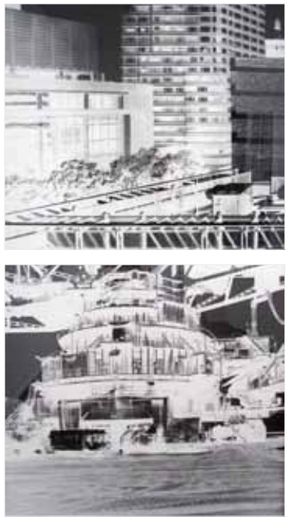
The Fellow attended Galerie Xippas to view the photographic exhibition by Vera Lutter to gain knowledge of the ways old and new techniques can be combined to create printed tonal images.

Outcome

The Fellow gained knowledge of ways the camera obscura and pinhole camera can be used on a large scale to create tonal images.

The Italian artist Canaletto[v] used the camera obscura[vi] to aid his elaborately detailed drawings and paintings of Venice in 1790. Some 220 years later, Vera Lutter is using the same technology to create sophisticated photographic images of New York's docks and wharves. Lutter exploits the potential of the camera obscura and pinhole camera to directly record (in negative) the effects of light on photosensitive paper on a grand scale.

The photographs depict industrial sites, abandoned factories and the interior of her studio, initially appearing cold and stark, *"a black and white vision that has been trapped and pinned like a dream just before it fades from consciousness"*.[12]



Two photographs (details) by the artist Vera Lutter created using a camera obscura, a pinhole camera and photo-sensitive paper, as part of an exhibition at the Galerie Xippas, Paris, France, 2009

Canaletto's technique was to project a pinhole scene from a small box-shape camera obscura onto paper, trace the image, and then transfer it to canvas for painting. Lutter expands on this idea by fabricating cameras to fit the size of her images, transforming her entire apartment, studio or a shipping container into a large camera or dark room.

Within these structures she works in darkness, adjusting and monitoring the amount of light that pours through the window and stains the photographic paper (up to four metres wide). The process can take minutes, hours or days as Lutter combines intuition and happenstance to manipulate the changing light on the photographic paper.

The prolonged exposure time allows the 'permanent' objects to be registered (in reverse), while the ephemeral—passing crowds, ships or cars, everything that is in motion—is diluted, leaving behind ghost-like traces. Reminiscent of May Ray's photograms, Lutter captures the intense black and white contrasts and the soft, subtle grey details in her subject matter.

By revisiting old drawing and photographic techniques, Lutter has created a new work process and unique imagery. Rather than disregard or throw out 'old fashioned' techniques, artists and designers who combine 'redundant' technologies with new materials, such as quality photographic paper (or inks, or digital media etc.,) often open the way for innovations that can be shared by many industries.

[12] http://www.synchronator.com

Destination: Vimage

Location

Mirano, Veneto, Italy

Contact

Francesa Faggian, Marketing and Communications, Vimage

Purpose

The Fellow conducted the site visit to Vimage to view and discuss its product range in order to differentiate and select technologies (hardware, software and other media) for transferring colour surfaces into illuminated images on screen. To analyse the processes for creating new colour relationships by juxtaposing digital and hand-painted colour images.

Outcomes

The Fellow gained knowledge of new ways to create colour surfaces by combining digital media technologies with handmade techniques using a range of multimedia systems.

Vimage creates and mixes various technologies in order to build tailor-made multimedia systems, many of which are operated by sensors. The devices combine still and moving digital images, audio, architectural lighting, interactive devices and software. Many of Vimage's products were initially custom designed for artists with concepts that required a digital realisation. Vimage continued to produce and patent the successful products including the Carpet, the three dimensional (3D) Hologram, the Delayed Mirror and the 3D Machine.

The Carpet is a floor projection utilising hand-rendered, computer-generated or photographic images. Scanned drawings, for example, can be manipulated in Photoshop or an image-rendering program, imported into the software, then projected as a floor pattern or digital painting. As viewers walk into the projection area, sensors activate the image, and further movement triggers progressional layers of images. An image or video clip of moving water can give way to others images or videos. Each layer has its own (in-house) programming code with effects common to most interactive surface software – zoom, rotations etc. The current technology produces five layers and effects, but can be customised to produce extra layers and effects. The Carpet is operated by sensors, and triggered by shadows (not by touching the surface). Drawings need to be converted into JPEG format files or moving images with a resolution of 72 DPI. Several data projectors can be put together to create a larger projection area.

Vibrant colour relationships and textural variations occur when the projected images (light) interact with various surfaces. Most projection surfaces are matt white, dark grey or black; however, unusual interactions eventuate when colour is projected onto rough, corrugated or highly reflective surfaces such as plastic, fur, stones or reflective metals.

The Delayed Mirror looks like a mirror reflection, but is actually a video screening delayed footage of the viewer. Movement in front of the mirror triggers a hidden camera to film the viewer for two to three seconds, then replays the video on the mirror (screen). The trick is that the reflection is not live, but delayed by several seconds and therefore perplexing to the viewer. If the person remains in front of the mirror, the camera will continue to record and replay, as per programmed timing intervals.

Vimage's products have many commercial applications in interior design, industrial design, and gallery and museum installations. Diesel retail outlets use the Delayed Mirror technology in point-of-sale displays in New York, Milan, Rome, Berlin, Geneva and Paris. The Carpet is highly utilised in business for presentations, games, art projects and in graphic design contexts.

Vimage's technologies have the potential for further creative uses where hand-rendered elements can be integrated into the technology.

The Carpet, *an interactive data projection operated by sensors at Vimage, Mirano, Veneto, Italy, 2009. Photo: Peter Burke.*

The Carpet, *an interactive data projection operated by sensors at Vimage, Mirano, Veneto, Italy, 2009. Photo: Peter Burke.*

Destination: Museo del Precinema, Minici Zotti Collezione

Location

Palazzo Angeli, Padua, Veneto, Italy

Purpose

The Fellow participated in the museum visit, guided tour and interview to gain underpinning knowledge and historical development of light instruments and projections.

Outcome

The Fellow gained knowledge of handmade light projection instruments.

The Minici Zotti Collection is an unusual project that combines relics from pre-cinema and photography. It houses a history of popular entertainment and optical spectacle devices, which, over the centuries, have led to photography and the moving image.

In the photography section the Fellow viewed images through Carlo Ponti's megalethoscope and viewed photographic images that appear to be 3D using original hand held or column stereoscopes. The museum also has a panoramic anaglyph showing a 3D 360-degree photographic view of Padua. It also has a split RGB colour photograph by the Italian artist Aldo Pellegrini that must be viewed with 3D glasses.

The Magic Lanterns exhibit documents from the development of images from the 18th century to the birth of cinema. Among the most significant pieces is the Phantasmagoria Magic Lantern, invented in France in the late 18th century and popular through most of Europe in the 19th century.

The lantern was used for 'ghost shows' – projections of frightening skeletons, demons and spooks onto walls, smoke or semi-transparent screens (painted or hand cut) from the rear. The projector was mobile, illuminated by candles or burning oil, allowing the image to move on the screens. Multiple projecting devices allowed for the quick switching of images.

Pettibone Magic Lantern, C 1880 with an image of Venice on a glass magic lantern slide, Museo del Precinema, Minici Zotti Collezione, Palazzo Angeli, Padua, Veneto, Italy. Photos: Courtesy of Minici Zotti Collezione

The museum also exhibits 138 Glass Magic Lantern slides (from 1750 to 1950). Most are hand painted, illustrated with engravings and transferred onto glass, or photographs coloured by hand. Some of the slides are equipped with mechanisms that allow them to be animated. The choreutoscope, for example, was a precursor to the 'dissolve' technique, now common in sound and visual editing software.

The museum displays puppets from a Javanese Shadow Theatre (from the end of the 19th century) and a camera obscura. There are also more complicated objects such as the anomorphe (a reflective swirling device used by the artist William Kentridge that reflects a distorted abstract drawing (originally drawn in 'reverse') inside a tubular, rotating mirror.

The tour of the collection provided an excellent overview of the analogue devices that preceded many of the light emanating technologies used in art practices today.

Destination: Fabrizio Plessi Studio

Location

Giudecca, Venice, Veneto, Italy

Contact

Fabrizio Plessi (Visual artist)

Purpose

The Fellow conducted an interview with Fabrizio Plessi's at his studio to gain knowledge of his art practice, which utilises digital and handmade technologies.

Outcome

The Fellow gained an insight into the relationship between digital and analogue design processes and an insight into art business processes.

When the Fellow arrived at Plessi's studio he was told that it was one of three studios the artist uses – the others are in Majorca, Spain and Bolzano, Italy, where a museum is being built to showcase his life's work. This was the third interview scheduled for the day. Plessi poured a glass of champagne by Moet & Chandon from one of the boxes stacked in the kitchen, and Carla, the artist's personal assistant, rang to check if everything was running smoothly. Plessi did not conform to the image of an artist working in a garret. The Fellow had come to discuss Plessi's video and sculpture work, but could tell he was in for a broader lesson about the European art business.

Plessi, a major figure in Italian media art, has worked with video and installation art for over 35 years and held over 500 exhibitions internationally. His work is represented in 130 museums and in over 100 art books, all of which were on display in his studio. Plessi was the first artist to exhibit video at the La Biennale di Venezia. Plessi said, *"Initially, in the 1980's, my work was rejected by the Biennale director who labeled it 'television, not art'. I convinced the director to buy a video player, which led the way for cinema and sound art works. It all seems easy now, but 30 years ago it was very difficult for anyone to see experimental video and sound as art or design".*

"Although Venice conducts the Biennale, Veneto is poor in terms of video and contemporary art. There is too much history and tradition here. The Venetians prefer the classics. There is little interest in developing ideas and video. It is incredible that video does not have more of a place here in Italy."

Fabrizio Plessi in his Giudecca studio, Venice, Veneto, Italy, 2009. Photo: Peter Burke.

The Soul of Water, *installation (wooden boats and digital video on monitors) by Fabrizio Plessi at Palazzo Franchetti, Venice, Italy, 2009. Photo: Peter Burke.*

The Soul of Water, *installation (wooden boats and digital video on monitors) by Fabrizio Plessi at Palazzo Franchetti, Venice, Italy, 2009. Photo: Peter Burke.*

Digital Fall, *installation (steel, digital video and audio) by Fabrizio Plessi at the Peggy Guggenheim Collection, Venice, Veneto, Italy, 2009. Photo: Peter Burke.*

Digital Fall, *installation (steel, digital video and audio) by Fabrizio Plessi at the Peggy Guggenheim Collection, Venice, Veneto, Italy, 2009. Photo: Peter Burke.*

While Plessi does still exhibit in the Biennale (his work showing at Palazzo Franchetti with American video artist Bill Viola), he now designs large-scale artworks for public places in Italy and Europe. With full creative control, he leads a team of writers, publicists, technicians, sculptors and video editors.

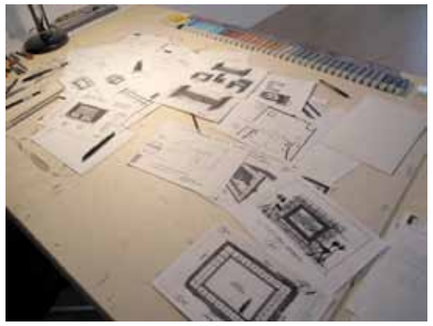
"It's not bad to be rich," Plessi said, *"it's what you do with the money".*

Most of the profits return to the Plessi publicity machine and the production of his art. However, Plessi's ambitious installations could not exist without the additional financial support and physical space provided by large institutions.

"Now private commissions interest me more, these are for institutions, museums, foundations, businesses and international corporations. There's the private world of the artist, the studio and exhibitions, but there's also the world of industry. I am not closeted in my studio. I'm out there making connections with Harrods, Ferrari, Calvin Klein and Swarovski."

"I am invited to work on commissions, much like Caravaggio and Michelangelo were invited to create art for the churches and palaces of their day. It's a beautiful relationship between myself and industry. It is important to be contaminated by industry. I contaminate myself with CK, Ferrari and now the grandest contamination of all, Louis Vuitton."

In 2009, Plessi was commissioned by Vuitton to produce a glamorous, black leather carry bag with an inbuilt video screen.



Fabrizio Plessi's drawing table in his Giudecca studio, Venice, Veneto, Italy, 2009. Photo: Peter Burke.

Louis Vuitton carry bag (fabric and digital video) and maquette by Fabrizio Plessi in his Giudecca studio, Venice, Veneto, Italy, 2009. Photo: Peter Burke.

Plessi made it clear that collaborations do not mean a compromise to his creative autonomy. *"Vuitton leaves me free to do what I want. The artistic autonomy is still there and this is very important. I'm not such a stickler to say that art is above everything. Art and design have always been at the service of others. In Caravaggio's time the power was political, but now it's commercial. Economic power tied to cultural power today has created more opportunities for artists and designers. Louis Vuitton is behind me as a sponsor, not the church, and it's OK!"*

In 2010, Plessi will produce two artworks for the Louis Vuitton store in Paris. He has made a series of digital video works featuring a luxurious blue fabric that moves and waves like water presented inside bold, stone cabinets. The video work will play on a loop, on custom-built plasma screens installed inside the cabinets (similar to 'Digital Fall' at the entrance to the Peggy Guggenheim Collection in Venice). *"This is Plessi but it is also Vuitton – a collaboration between an artist and a brand,"* he said.

Plessi believes the commercial arena is more adventurous than educational institutions, *"There are very few schools which teach the design process or creativity. Artists are rarely taught how to develop ideas".* As a way of explanation he showed the Fellow his scenography drawings for the new opera theatre in Venice. *"Even when working with screen-based media, students need to move ideas from paper to film to a physical space, back to paper...and so on. While there is more technology available than 1970, there is less experimentation,"* he said.

Plessi's idea to move 'ideas from paper to film to a physical space' could be encouraged in training and open the way for ideas that could have applications in various disciplines.

Destination: *Powerplant*, Royal Botanic Gardens

Location

Edinburgh, Scotland

Purpose

The Fellow attended *Powerplant* to gain knowledge in the ways to produce colour relationships by combining old and new, and digital and analogue technologies using light.

Outcomes

The Fellow gained knowledge and insights into installation processes though experiencing a nocturnal visual/audio/lighting experience.

Powerplant was a *The Day of the Triffids* meets the land of *Avatar* experience, by visual and sound artists Mark Anderson, Anne Bean, Jony Easterby, Kirsten Reynolds and Ulf Pedersen. Open at night and located inside the glasshouses at the Edinburgh Botanic Gardens, visitors were invited to follow a nocturnal trail of sound, scent and light into bizarre multi-disciplinary installations among the plants.

Uncomplicated artworks that combined the handmade with digital, and fused old and new technologies were the most engaging. A psychedelic video projection nested in a glade, showed twisted, twirling abstract forms turning inside each other. Drawing closer, one was allowed to view the technology under a nearby canopy.

A small Handycam relayed a live feed through to a Macintosh computer, where Final Cut Pro software captured, repeated and enhanced the colour of the image using several filters. On closer inspection, the camera was suspended over a large magnifying glass attached to a tripod. On the ground below was the tiny scene being relayed to the big screen: a cluster of live snails.

In a hothouse nearby, 50 stark florescent tubes hung like shards among a network of bamboo trees. The lights flickered at random intervals in sync with the recorded sound of bamboo breaking, creating a disturbing sensation. In a silent fernery, palm fronds and wispy ferns moved in soft rays of green and red light. Down the path, solar powered frying pans operating as sound speakers, broadcast murmurings and grumblings from wired-up cacti.

The inventive nature of the exhibition opens up possibilities for spectacular art and design projects offering low-tech, low-impact and sustainable solutions.

Powerplant, *(sound, light and video installations) by Mark Anderson, Anne Bean, Jony Easterby, Kirsten Reynolds and Ulf Pedersen in the hot houses in the Royal Botanic Gardens, Edinburgh, Scotland, 2009. Photo: Peter Burke.*

Powerplant, (sound, light and video installations) by Mark Anderson, Anne Bean, Jony Easterby, Kirsten Reynolds and Ulf Pedersen in the hot houses in the Royal Botanic Gardens, Edinburgh, Scotland, 2009. Photo: Peter Burke.

Powerplant. *Photo: Peter Burke.*

Powerplant. *Photo: Peter Burke.*

Destination: GLOW – Forum in Light and Architecture 2009

Location

Eindhoven, Netherlands

Purpose

The Fellow attended Glow to gain knowledge of the concepts and techniques used to illuminate and create colour surfaces using light and to determine the technologies for transferring colour surfaces into illuminated images on screen (such as projections or using backlighting).

Outcome

The Fellow gained knowledge of projection techniques using images and light onto outdoor surfaces (digital and analogue).

GLOW is an annual outdoor 'spectacle' of contemporary, site-specific, light-works on landmarks and other locations in the city of Eindhoven over eight nights created by students, artists and designers. Sponsored by Phillips, GLOW is similar to other international light festivals such as Lichtrouten in Germany, Vigileu in Spain and Radiance: The Glasgow Festival of Light.

The GLOW Light Laboratory conducted workshops for students that enabled them to collaborate with artists and design a series of projections on the façade of the Centrum Kunstlicht in de Kunst. Utilising three overlaying projections, a swarm of geometric and organic shapes stretched over the façades of two adjacent buildings. Hand-drawn oval shapes were blocked out on a sheet of clear acetate, painted black and scraped back, removing the black, which allowed light to filter through.

On a large scale, the ovals added an organic element to the work. These were overlaid with smaller vector–based shapes (from two side projectors) that vibrated from left to right, grew, stretched, then decreased in size. The shapes were digitally rendered with logarithms using Illustrator, edited with Premier video editing software and projected using Real Time.

The contrasts between the large and small, hand-drawn and vector-based drawings, and the layering of the still and moving images created an optical fission. Although the projectors were only 5000 lumens, the low-throw lenses from ground level enabled figures walking in and out of the museum to become part of the artwork.

Nearby, Eindhoven's tallest building was an ordinary, grey, 20-storey, office block by day, but Mader Stubic-Weirmann's outdoor projection created a metamorphic, rubbery organism by night. Projectors installed in temporary towers across the street, wrapped moving shapes of light around two walls, in ten-minute durations on a loop.

A foreboding sequence of thick and thin horizontal lines and jagged triangles quivered against the grid pattern of the building making it appear to sway. The strength of this work was its precise projection from two 10,000 lumens projectors, its accurate positioning, and a concept suited to the shape and scale of the building.

The artists in GLOW are drawn from inter-disciplinary platforms to create architectural interventions with artificial light. They are expected to have an intimate knowledge of Eindhoven's geography, buildings, factories, concrete, screens, water or trees, and employ lighting that is innovative—from simple LEDs to sensors, high-end projectors, animation and new media technologies.

The collaborative projects between artists and those in training provide valuable educational experiences that cannot often be replicated in classroom situations, with real timeframes and real scenarios. Drawing with light is a skill that could be learned in tandem with artists learning to paint with a brush.

Light projections onto The Phillips Collection by the Light Laboratory at GLOW: Forum in Light and Architecture, Eindhoven, Netherlands, 2009. Photo: Peter Burke.

Light projections at GLOW. Photo: Peter Burke.

Light projections. Photo: Peter Burke.

Destination: *Lights in Alingsås*

Location

Alingsås, Sweden

Contact

Joachim Ritter, *Lights in Alingsås* coordinator, PDLA

Purpose

The Fellow attended the conference and outdoor lighting exhibition to gain knowledge of ways lights and sound can be utilised in outdoor projections.

Outcome

The Fellow learnt the processes involved in designing and installing sound/light installations.

In it's 10th year, *Lights in Alingsås* is a collaborative event between Alingsås Kommon (local council), Alingsås Electricity, PDLA, artists, lighting designers and local students.

For students, it was a week of workshops and fieldwork. Teams worked under mentorship of international lighting artists and designers to produce site-specific outdoor lighting installations around the town.

A one-day conference brought together the workshop experiences, presented by speakers including:

- Kal Piipo (Ljvsarkitcktor, Stockholm), *Lights in Alingsås – the Last 10 years*, provided an overview of the event from its beginnings in 1990.
- Kapil Surlaker (Mumbai, India), *Lighting the darkness*, discussed the lighting traditions in India and new developments in modern Mumbai.
- Glan Shrum, Flux studio, (Baltimore USA), *Inspiration as the key to learning*, discussed the inter-connectedness between ideas and practice, inspiration as the connecting point and light in banal spaces.
- Students from local schools discussed the workshop experience.

- Stefan Hofman (Lichtwerke, Germany), *Media façades in public places*, discussed computer-controlled lighting verses self-maintained lighting.
- Mari Tastare and Monica Billger (Chalmers University of Technology), *Combining art and urban planning*, presented an overview of modules in their Lighting course.
- Jocaib Ritter (*Lights in Alingsås*, and PLDA) gave a summary of the workshop.

The *Lights in Alingsås* exhibition followed the workshops and conference in eight locations around the city including the cemetery, a creek and spa, a skate park, a garden and a car park, transforming normally uninhabitable places at night into inviting visual spectacles.

The local skate park (the most popular display) was illuminated with projected beams of coloured lights and was backlit beneath the railings to accentuate its contours and edges. It became an ultra violet moonscape, with kaleidoscopic rays of colour changing from warm to cool, causing the shapes of the landscape to change. Pixilated LEDs outlined the fence pillars, forming a pattern of abstract signals. Kids on BMX bikes whirled, spun and leapt though the park, with flickering lights on the their wheels, drawing coloured lines though the space. Occasionally the 'set' turned a quiet, dark ultramarine blue, resembling an ocean floor, the hard edges dissipated into the shadows and iridescent lime spots painted on the concrete, glowed like coral.

Alingsås Skate Park illuminated at night with cyclists for Lights in Alingsås, *Alingsås, Sweden, 2009. Photo: Peter Burke.*

Alingsås Skate Park illuminated at night with cyclists for Lights in Alingsås, Alingsås, *Sweden, 2009. Photo: Peter Burke.*

Alingsås Skate Park illuminated at night with cyclists for Lights in Alingsås, *Alingsås, Sweden, 2009. Photo: Peter Burke.*

Alingsås Skate Park illuminated at night with cyclists for Lights in Alingsås, *Alingsås, Sweden, 2009. Photo: Peter Burke.*

Octopus, *the Alingsås local park illuminated at night, for* Lights in Alingsås, *Alingsås, Sweden, 2009. Photo: Peter Burke.*

Octopus. *Photo: Peter Burke.*

The cemetery had been rejuvenated into a meditative night walk. Solar lights illuminated the occasional headstone and white 150-watt spotlights hidden behind plants (to avoid glare) defined (but did not amplify) the contours of shrines and paths. Unlike the skate park, the lights did not transform the graveyard, but instead defined its existing details on gateways and sculptures. The strength of this work was its restraint. Joachim Ritter said some locals had criticised the use of the cemetery, *"some said, 'let the dead rest', while we saw it as an opportunity to highlight and remember the lives of those forgotten".*[13]

Ritter said events like *Lights in Alingsås* engage the community and the support of local industries. He believes that the shared learning opportunities for international designers and students combined with the visual spectacle *"have positive effects on a community that should not be taken lightly".*

Destination: Louis Vuitton *Espace Cultural*

Location

Champs-Élysées, Paris, France

Purpose

The Fellow viewed the exhibition *The Confusion of the Senses* in order to research colour and sound relationships and gain knowledge of the ways colour and light can produce emotional responses.

Outcome

The Fellow gained an understanding of the ways dark, light and colour can be utilised to create and/or trigger sensory responses.

The Fellow pressed the call button at the entrance on the Champs-Élysées, and after some time a lift operator appeared in a Louis Vuitton suit, *"Bonjour Monsieur, please come in,"* she said.

[13] Joachim Ritter, Lights in Alingsås Coordinator, speaking at the *Lights in Alingsås* conference, Alingsås, Sweden, September 2009.

The Fellow responded with *"merci"* , stepped in and the doors closed behind him. It was pitch black and he could not see a thing. The elevator shuddered like a fridge in the night and moved upward. It was a slow ride in the dark. The walls were soft and smooth–velvet perhaps? The Fellow sank into them and looked up and around. There were no flickering lights to indicate passing floors. No stops along the way. No sound. He wondered where the lift operator was, could hear fabric moving, a jangling key and a whiff of parfume. The Fellow felt his heart beating and remembered he was in Paris. He remembered he was traveling alone. He remembered his family and friends at home and felt his heart beat faster. The black silence was deafening. Then the lift operator spoke:

"Is this your first time?"

"Yes, no, yes."

"Welcome to Louis Vuitton Espace Cultural."

The doors opened and the Fellow was ushered out. The light was blinding. He had to squint. The walls, the floor and the art were all white. After the black elevator ride he was seeing things differently and had to put his sunglasses on.

The exhibition, *The Confusion of the Senses* by eight artists (Renaud Auguste–Dormeuil, Berdaguer & Péjus, Céleste Boursier–Mougenot, Didier Fiuza Faustino, Laurent Grasso, Véronique Joumard and Laurent Saksik) and curated by Fabienne Fulchéri, traced a course that made viewers acutely aware of their own body and their place in space.

The removal of light from the lift at the starting point of this sensorial exhibition made one conscious of light, whether absent or present. Titled *Your Loss of Senses*, the artist Olafur Eliasson attempted to create *"a chamber of sensual entropy..." "by enfolding the visitor in total darkness, where one experiences the sense of self".*[14]

The title of the exhibition itself, *Confusion of the Senses* references a description of synesthesia – *"the unusual phenomenon occasionally reported in artists and writers, where the excitation of one sense triggers stimulation in a completely different sensory modality or a physiological behavior that involves a multimodal combination of all senses".*[15]

Etude Senor Domestique, *an installation consisting of steam, light and audio by Céleste Boursier–Mougenot,* The Confusion of the Senses *exhibition, at Louis Vuitton Espace Cultural, Champs-Élysées, Paris, France, 2009. Photo: Peter Burke.*

Three artworks in particular created spaces where visitors could perhaps develop this kind of response. One, in a white circular room, with a high ceiling, allowed visitors to sit or stand in an overwhelming white mist (dry ice) that diffused all sight and visual detail.

A second work featured a video of white noise, with random subliminal imagery and sharp, glitches. A third artwork, in a seemingly empty room, was lined with fine white Braille which viewers could touch/read. Each work required experiencing and, given time, could overturn the viewers' perception and certainties.

[14] Quotes from *The Confusion of the Senses* catalogue by Fabienne Fulchéri, curator.

[15] http://www.synchronator.com

Ecriture Nocturne, *Braille wallpaper installation by Renaud Auguste–Dormeuil* The Confusion of the Senses *exhibition, at Louis Vuitton Espace Cultural, Champs-Élysées, Paris, France, 2009. Photo: Peter Burke.*

The theme of colour continued in other exhibitions such as *Rouge* in Le Musee Decoratifs at the Louvre. Using colour as a concept and an experience could be incorporated into training where its emotional and sensatory aspects are explored and capitalised.

Destination: Cite Internationale Des Arts

Location

Marias (Paris), France

Contact

Taniel Morales (Mexican audio/visual artist)

Purpose

The Fellow visited the Cite Internationale Des Arts to gain knowledge of the ways seemingly opposite media and disciplines can be combined to create artworks that link the visual and auditory; to develop a synesthetic blending of sensory experiences and learn a variety of approaches to combining, overlapping and juxtaposing colour and sound using analogue and digital technologies.

Outcome

Attended an audio/visual sound performance by the artist/composter Taniel Morales, followed by an interview where he shared his knowledge related to juxtaposing the handmade with digital technologies.

Morales told the Fellow how his life is full of contradictions, *"I'm a diabetic but I smoke. I'm from Mexico but my wife is French, so I live in two different countries"*. Morales is fascinated by a stone carving in the Louvre, one of the first pieces of writing in the world that had been stolen from Iran. He wondered if, in time, all stolen objects in museums, like the Mona Lisa, would be returned to their home countries. His collages on the studio walls carried a similar theme—circles cut from world maps, turned clock wise and reinserted into the other maps, and playing cards with the hearts cut out and realigned with diamonds. There was a yellow painting on the wall that he had made by *"listening to sound"*.

Cross-cultural intersections, displacements and contradictions form a large part of Morales' art practice. He makes art that links sound, sculpture and painting. The process of making collage—selecting, cutting, moving and pasting—is a catalyst for moving ideas between the three disciplines.

"New ideas emerge when one thing is taken and placed with something else, it's one step after another. New techniques come through a fusion of mediums. Painting, for example, is one language and skill, but artists now have the freedom to cross between languages and disciplines," Morales said.

Morales' project in Paris began by asking eight people he knew to draw maps of the routes they traveled every day, such as from work to home, or to school, or to friend's places. He traced the paths walking up to four hours every day, collecting found objects along the way. He said, *"Maths became part of the pattern. I would the divert from the path at every odd or even street, turn left or right...,"*

Over several months Morales collected speakers, chairs, futons, wooden boxes and frying pans that he used to make eight instruments/sculptures for a performance. One instrument consisted of a futon bed with strings that could be adjusted and tuned like an affinate.

"Basically it's like a home theatre with eight trans-genetic speakers, and there is a unique melody for each speaker. The sounds are complex, created by pure vibration which, when repeated, sounds like a guitar or harmonies," he said.

Morales uses Cubase software and plug in instruments to combine sampling (radio, TV, streets, the Metro and conversations using Alvision software), abstract and mathematical methods (e.g., fractal sound which repeats, slows, closes and opens into another sound or rhythm, using Supercollider software) and musical instruments (found on Adobe Audition).

For the concert, each sound had its own track that went though a MOTU-828 audio card with eight outputs. The objects give feedback when the microphone is put inside. *"The feedback is odd but can be interesting,"* Morales said.

Morales' concert in Paris was a classical orchestra, an art exhibition and a fluxes event all in one—the instruments centred the stage, transforming the space into a gallery that the audience was invited to walk around. Morales then entered and conducted the sound on the floor using his laptop. *"It is taking time, but soon people will get used to the idea of techno-diversity. The liberation of people was important in the 20th century. Now the focus is on liberating animals, nature and ecology as we concentrate on environmental concerns. Machines and objects will eventually have their own evolution and liberation,"* he said. *"In science, contradictions are mistakes...there has to be a finite or resolved solution; however, in art and design contractions and opposites can co-exist. It is not a problem, in fact it can be the central part of a discourse."*

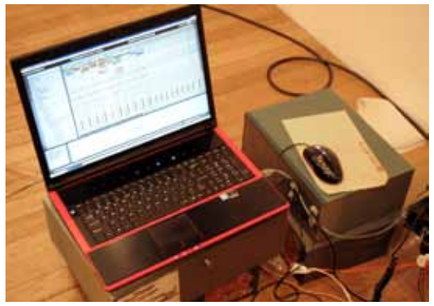
Morales offers many ideas relating to chance, happenstance, formulae, recycling, opposites, digital media combined with the handmade that can be implemented into training at any level, from secondary to tertiary levels. Morales shares his approach with his own students in Mexico, where he teaches at both wealthy and disadvantaged schools. *"It's the disadvantaged kids who do the amazing stuff. They are more free and don't have any problem making connections and crossovers, and make art out of anything*."

Taniel Morales (Mexican audio/visual artist), in his studio at the Cité Internationale des Arts, Marias, Paris, France, 2009. Photo: Peter Burke.

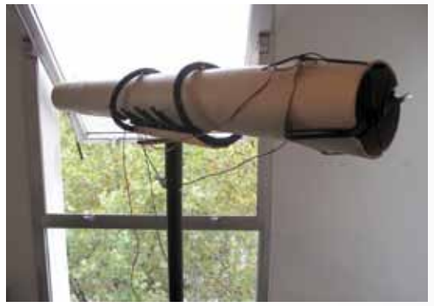
Taniel Morales performing with his handmade instruments at the Cité Internationale des Arts, Marias, Paris, France, 2009. Photo: Peter Burke.

Handmade instruments made by Taniel Morales from found objects, Cité Internationale des Arts, Marias, Paris, France, 2009. Photo: Peter Burke.

Handmade instruments made by Taniel Morales from found objects, Cité Internationale des Arts, Marias, Paris, France, 2009. Photo: Peter Burke.



Handmade instruments made by Taniel Morales from found objects. Photo: Peter Burke.



Handmade instruments made by Taniel Morales from found objects. Photo: Peter Burke.

Destination: Palais de Tokyo

Location

Paris, France

Purpose

The Fellow visited Palais de Tokyo in order to gain experience in the ways in which sound can be amplified and can form part of a visual artwork.

Outcome

The Fellow gained an understanding of Pascal Broccolichi's large phonographic apparatus, which amplified sound and formed part of a visual artwork

Like Morales, French artist Pascal Broccolichi experiments with auditory phenomena, but on a grand scale. His work has evolved from a vast program of acoustic research using phonography. Broccolichi's *Sonotubes* in the Palais de Tokyo in Paris was a large tubular apparatus that one would expect to see on the set of a space movie. To experience the sound, the visitor places one ear near the end of the large tubular phonogram, where the electromagnetic activity from in and around the building is captured on software and broadcast.

Art and design training could be extended to incorporate knowledge of historical and contemporary practitioners (including Broccolichi and Morales) and practices that challenge traditional ways of experiencing sound and offer many exciting experiences for viewers (e.g., public art).

Sonotubes *(Sound sculpture) by Pascal Broccolichi, in the exhibition Spy Numbers, at the Palais de Tokyo in Paris, France, 2009. Photo: Peter Burke.*

Destination: WYSIWYG (What You See Is What You Get) Performance

Location

Belleville, Paris, France

Purpose

The Fellow attended the visual and audio performance presented by two artist collectives (LARSP & DIKLIOTIK[vii] and RYbN)[16] in order to explore colour and sound relationships and research the synesthetic blending of sensory experiences.

Outcome

Through a visual/sound experience, the Fellow developed an understanding of the correlations between colour and sound.

WYSIWYG was a series of live sound/visual performances in a huge, dark, Paris basement for an audience of 150 people. By applying a variety of approaches to combining, overlapping and juxtaposing sound, the works attempted to create synesthetic experiences using contrasts – fast and slow, loud and soft, start and stop, and still and moving.

Trained in classical music, LARSP's experimental sounds for this performance mixed ambient, breakcore and melancholic samples. DIKLIOTIK, who has collaborated with LARSP since 2007, juxtaposed pure abstraction—horizontal and vertical lines in black and white—with documentary footage of children and families sourced from France's National Archives. Together, the Disc Jockey (DJ) and Video Jockey (VJ) created a moody dirge, but were overshadowed by the next performance.

RYbN orchestrated an intense 20-minute sound and visual experience. The French collective, founded in 2000, make real-time performances and interactive installations, converging interactive, olfactory and audiovisual media. The two artists worked in tandem, projecting flickering images on a flat wall in front of the audience, with live, synced sound samples from two amplifiers. The work began like a slow pulsating strobe, gradually increased in speed, created a stutter of images, and finally a blur of electric colour. The images—colour samples from TV test patterns, advertisements and digitally manipulated photos—moved from black and white to earthy hues (sepias) to full primary hues and finally to 'acidic' hues. In its last minutes, it all accelerated into static with an unbearable pulse and buzz…and then stopped.

Live Video/sound performance by LARSP – DIKLIOTIK and RYbN as part of WYSIWYG (What You See Is What You Get) in Belleville, Paris, France, 2009. Photo: Peter Burke.

Discussing RYbN's work afterwards, many participants experienced mood swings and accelerated heart rates. Some described the experience as *"heavenly and hypnotic"*, others said it caused *"a floating sensation"* or *"was irritating".*

Sound and colour experiences are virtually non-existent in art and design training. Adventurous leaps into this void by trainers developing new courses have the potential to manipulate the ambiance of our living and work spaces, and ultimately affect our health and happiness.

[16] ibid.

Destination: NIMk

Location

Amsterdam, Netherlands

Contact

DNK (Bas van Koolwijk and Gert-Jan Prins)

Purpose

The Fellow attended a Lecture, demonstration and live video presentation of *The Synchronator* by DNK and other video works from the NIMk collection.

Outcome

The Fellow gained an understanding of innovative colour and sound relationships using digital and analogue technologies.

The Synchronator is an audiovisual project created by DNK (artists Bas van Koolwijk and Gert-Jan Prins, who met in 2006 during a residency at Impakt), an independent organisation for contemporary sound and image in Amsterdam. Since then, the duo has explored *"the possibilities of a combination of current digital and analogue means in order to make more use of the characteristic visual qualities [of] experimental video".*[17] They create works that *"do not actually produce a standard TV signal waveform and therefore cannot be directly recorded. Some are based upon magnetic distortion of the normal TV scan pattern, others utilise a Cathode Ray Tube as if it were an oscilloscope screen".*[18]

The Synchronator also refers to an electronic device built by the artists. It brings sound signals into the video domain using a standard household VHS transformer (like the simple boxes sitting behind a standard TV with three RGB inputs, one output and no buttons or controls). With a few adaptations, the artists divert and manipulate the electronic signals. Sound is input into the device (instead of video), and turns ordinary audio into a composite video signal, compatible with all equipment supporting composite video input. DNK said, *"It adds video sync pulses and colour coding signals to audio, effectively disguising the input as a composite video signal. The device is powered with a six-volt adapter and features a colour/black and white switch as its only on-board controller. Other manipulations are done solely with the audio input".*[19]

By turning sound into a visual form, *"The Synchronator creates a whole new musical language"* [20]

The Synchronator offers an alternative to the 'narrative' experience used in most media, and raises the question if, ever, abstract sound/visual experiences could be a normal form of communication.

The artists presented live 'video' played through *The Synchronator* and screened three examples of similar techniques from the NIMk archives (Moireem, Reminsicence and Texfet). In many instances the visual appearance of the sound was abstract, but occasionally it contained traces of the original images, such as people having a discussion at a dinner table, infiltrated with colours, outlines and textures. This was not visual music, nor liquid music, but something both sound and visuals do not normally offer.

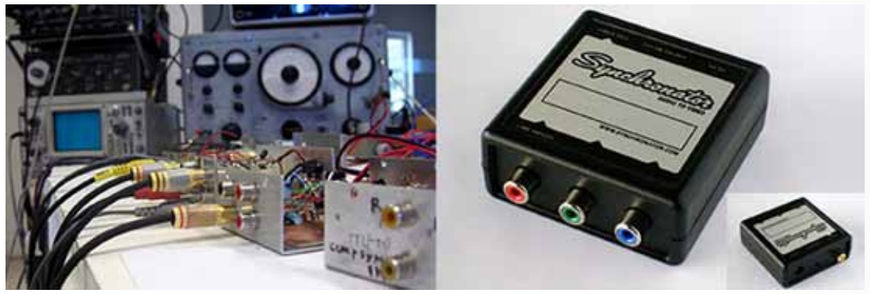
[17] Bas van Koolwijk, Video and Audio artist, Lecture and launch of the Synchronator Device, NIMk, Amsterdam, Netherlands, November 2009.

[18] http:// www.synchronator.com

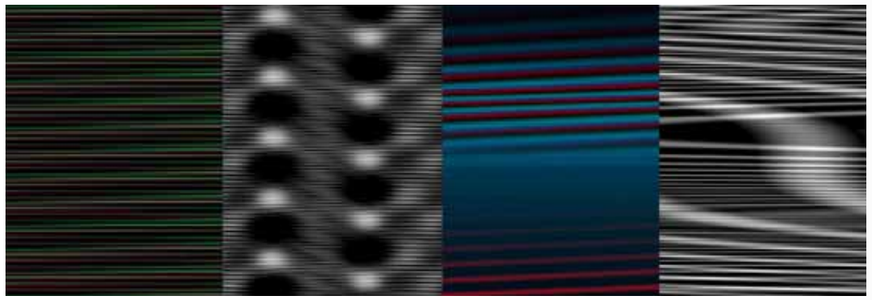
[19] Bas van Koolwijk, Video and Audio artist, Lecture and launch of the Synchronator Device, NIMk, Amsterdam, Netherlands, November 2009.

[20] Ibid.

Like many ideas that begin as experimental art activities and become mainstream commodities, DNK have manufactured a larger prototype of *The Synchronator* with the aim of marketing an initial 100 devices for 149 Euros each.



The Synchronator *created by DNK (Bas van Koolwijk and Gert-Jan Prins) at NIMk, Amsterdam, Netherlands, 2009. Images courtesy of DNK.*



Images produced from sound by the DNK's The Synchronator*, 2009. Still video images courtesy of DNK.*

The Synchronator launch and the other events during the overseas Fellowship have created lasting and catalytic impressions. The opportunity to have first-hand experiences of performances, artworks, conferences and site visits, and to meet face-to-face with designers and industry representatives has made the learning meaningful.

Applying the knowledge gained will expand the ways colour, light and sound can be used, experimented with, and exploited to create new paradigms. There are many precedents where alternative art activities have become fashionable, mainstream or embraced by industry. Street art has been the inspiration for many advertisers: graffiti-style fonts are commonplace in many contemporary magazines, Nike has employed stencil artists to produce its logo on high-rise buildings, the Laneways Art Projects and graffiti in Hosier Lane in the Melbourne CBD are promoted to international tourists.

Inventive, creative processes and new techniques can be developed though collaborations—linking practitioners from diverse disciplines, connecting artists with industries, and developing a rapport between analogue and digital media practices.

The study of colour relationships could be expanded to include new printing surfaces and materials, with low-impact and sustainable solutions. Training could feature intuitive, sensorial colour systems, and learning that translates colour experiences from pigment to light to sound.

The many potential outcomes and applications for the knowledge gained during the Fellowship should be optimised by ensuring it is shared with others in art and design and related industries.

Knowledge Transfer: Applying the Outcomes

The Fellow will develop workshops offering training that explores the relationships between paint, print and sound, and encourages collaborative processes between disciplines:

- Combine activities and learning experiences for students from various disciplines, for example music, visual art and writing.
- Encourage industry liaison by inviting practitioners (e.g., artists, writers, musicians, performers) to give lectures and demonstrations about their collaborative practices/disciplines and/or to mentor students.
- Conduct practical workshops where students are guided to complete activities that make crossovers between different media, for example drawing with light, painting with sound, digital to analogue, paint to screen to sound.
- Develop activities for exploring sensorial colour experiences.

The specific objectives of such sessions are to:

- Develop an understanding of theoretical, practical and experiential ways to create new relationships between colour, light and sound
- Encourage the development of new ideas and processes through collaboration and the exchange of ideas
- Encourage links with industry to allow access to new technologies and materials, for example, new printing materials
- Develop an understanding of sensorial colour experiences.

These workshops will be targeted toward Visual Art, Design and Multimedia students and other participants from the School of Creative Industries (Music) and various disciplines at Victoria University. Relevant activities will be extended to broader audiences in the community including Visual Art Alumni, arts practitioners in industry, Level 17 Artspace audiences, educators and the general public.

These programs were developed and conducted in 2010:

- *Enlightenment* – a presentation by MariaLuisa Taddei conducted on 20/4/2010 at the School of Creative Industries, Victoria University, Melbourne.

  Italian artist MariaLuisa Tadei, who works and lives in Bologna, Italy and London, UK was invited to speak to the School of Creative Industries at Victoria University during her visit to Australia. MariaLuisa makes artwork that explores *"a dialogue between the seen and unseen aspects of ourselves and our existence"*, using a variety of media including light, perspex, mosaic and iron. MariaLuisa discussed how light and colour are integral concepts in her work and expounded on the techniques, materials and processes employed to produce her exhibition at the Venice Biennale in 2009.

- *A Tradigital Survey* – a presentation by Stephen Haley, Alex Gibson and Irene Hannenberg conducted on 20/7/2010, as part of Art Forum, in the Level 17 Artspace, Victoria University, Melbourne.

  Artists Stephen Haley, Alex Gibson and Irene Hannenberg were invited to speak about the relationship between analogue and digital media and the concepts and methodologies that drive their contemporary art practices. The forum coincided with the exhibition *A Tradigital Survey* (curated by Kirsten Rann and Gina Kalabishis) at the Level 17 Artspace at Victoria University. This exhibition portrayed *"a variety of approaches to the use of digital media in the works of seven of Australia's most interesting contemporary artists. Though all arrived at the digital realm after having used more traditional methodologies—from oil painting to drawing—they were selected because the various ways new media is informed, and often complemented, by their knowledge of and experience in the traditional or fine arts disciplines..."* [21]

Future workshops will be developed and conducted within the School of Creative Industries at Victoria University at the City-Flinders Street campus and/or the St Albans campus.

[21] Quote from *A Tradigital Survey*, catalogue, 2009.

Recommendations

Government – Federal, State

- To provide support for artists and designers in the form of grants and opportunities to develop innovative ideas and projects related to colour, light, and sound.

Education and Training – TAFE, Community

- To advance training in the development of innovative processes for colour application and innovative experiences incorporating colour, sound and light using analogue and digital media for the Diploma of Visual Art (21885vic) and the print and digital media Diploma of Graphic Design (21874vic).
- To advance training in the developing of innovative processes for colour application and innovative for colour and the print and digital media Diploma of Graphic Design (21874vic).
- To advance training formally by establishing new multi-disciplinary units within training packages and course curriculum for the Diploma of Visual Art (21885vic) and the print and digital media Diploma of Graphic Design (21874vic) that can include analogue (handmade) and digital technologies in a contemporary context.
- To encourage industry and business sectors, such as local councils and arts funding bodies, to embrace innovative projects and commissions for innovative for experiences incorporating colour, sound and light.

Further Skills Deficiencies

- To identify international educational institutions that have already embarked on developing training in colour application and innovation for experiences incorporating colour, sound and light using analogue and digital media.
- To identify additional international art practitioners who work in this area who may have ideas or approaches that can be incorporated into training.
- To identify ways in which low-tech, analogue media and recycled surfaces can be combined with current digital technologies and ideas to advance sustainability targets.
- To create opportunities for collaborations that involve participants from diverse backgrounds in order to generate new ideas and relationships in relation to experiences incorporating colour, sound and light environments.
- To explore the possibility of creating opportunities for artists to apply artistic ideas related to the use of experiences incorporating colour, sound and light into everyday environments in public domain (e.g., 7-Eleven stores, trains etc.).
- To research colour and sound relationships and their effect on wellbeing.

References

Endnotes

[i] Lars Sivik, Psychologist, co-developer of NCS, Gothenburg, Sweden, ad chroma Manifestation – La Philosphie de la Conception du Natural System of Colours, October 2009

[ii] Ewald Hering (August 5, 1834 - January 26, 1918) was a German physiologist who researched colour vision and spatial perception. Hering disagreed with the leading theory developed by Thomas Young and Hermann von Helmholtz. Helmholtz's theory stated that the human eye perceived all colours in terms of three primary colours: red, green, and blue. Hering instead believed that the visual system worked based on a system of colour opponency, a proposal now widely recognized as correct. http://www.statemaster.com/encyclopedia/Ewald-Hering

[iii] Felicity Fenner is an Australian curator of contemporary exhibitions and Chief Curator, National Institute for Experimental Arts. http://www.cofa.unsw.edu.au/about-us/staff/54

[iv] Caspar David Friedrich (1774–1840) was a 19th-century German Romantic landscape painter, *"renown for his allegorical landscapes"* featuring *"contemplative figures silhouetted against… Gothic…"* landscapes and strong light. http://en.wikipedia.org/wiki/Caspar_David_Friedrich

[v] Giovanni Antonio Canaletto (1697–1768) was a Venetian painter renown for his landscapes *"of Venice marked by strong contrasts of… luminous light and shade"* and for his use of the camera obscura to draw imagery onto canvas. http://www.atelier-rc.com/Atelier.RC/ArtistBios-C.html

[vi] The camera obscura (Latin for 'dark room' or 'darkened chamber') is an optical device that projects an image of its surroundings on a screen. It is used in drawing and was one of the inventions that led to photography. The device consists of a box or room with a hole in one side. Light from an external scene passes through the hole and strikes a surface inside where it is reproduced, upside-down, but with colour and perspective preserved. The image can be projected onto paper, and can then be traced to produce a highly accurate representation. Some camera obscuras use a lens rather than a pinhole because it allows a larger aperture, a usable brightness while maintaining focus. http://en.wikipedia.org/wiki/Camera_obscura

[vii] LARSP & DIKLIOTIK and RYbN are two visual/sound artist collectives based in Paris who explore innovative new media practices (such as webart, interactive media and audiovisual) to make real-time performances and interactive installations that converge interactive, olfactory and audiovisual experiences. Their performances usually consist of two members, one who specialises in digital visual technology and the other in sound.

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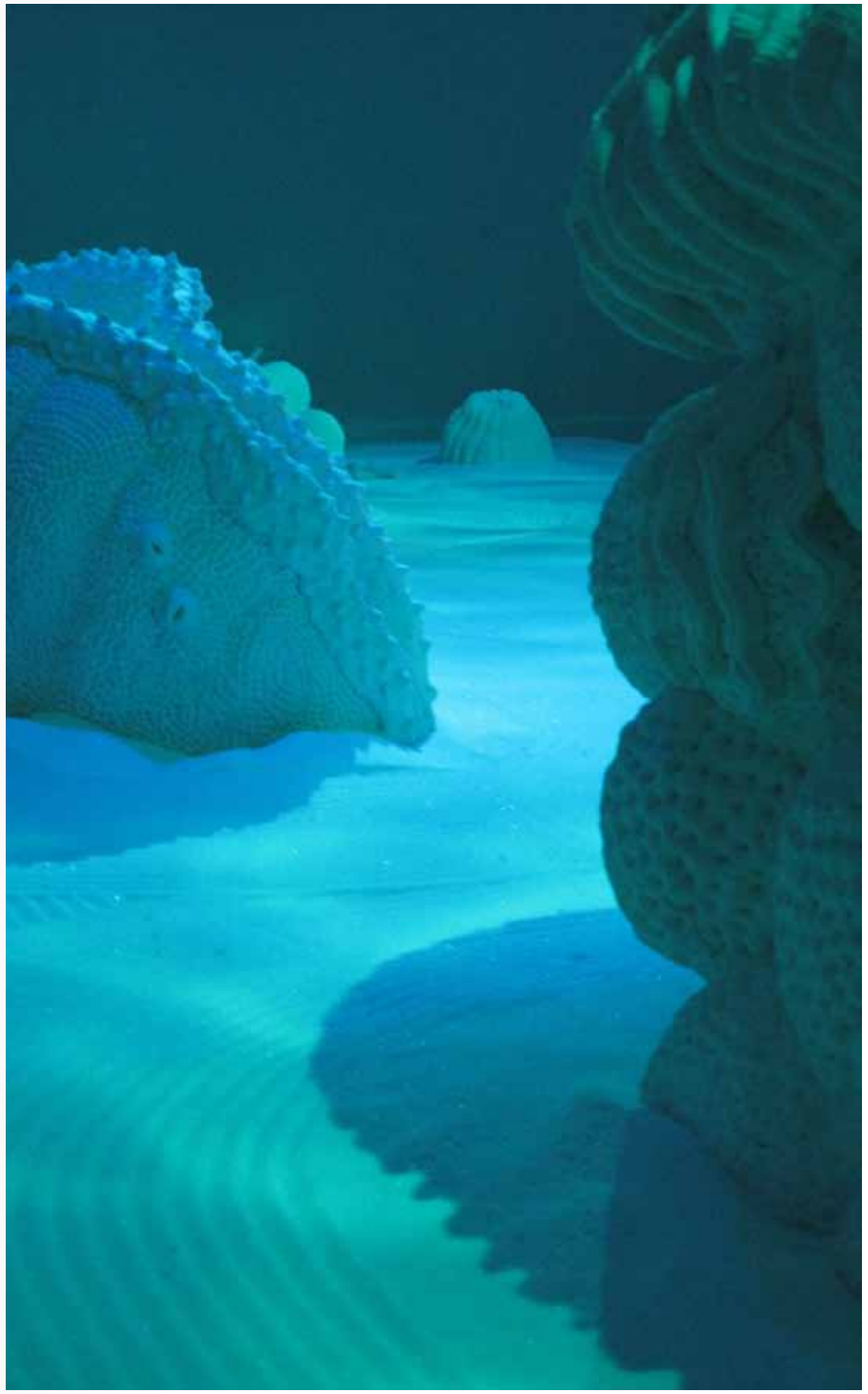

Sweet Barrier Reef, *(sugar sculptures and data projection) by Ken Yonetani, at the La Biennale di Venezia, Ludoteca, Castello, Veneto, Italy, 2009. Photo: Peter Burke.*