Declaration Confirming Content of Digital Version of Thesis

I confirm that the content of the digital version of this thesis

Title: Sound Vision

is the final amended version following the examination process and is identical
to this hardbound paper copy.

Student’s Name: Rachael Linton

Student’s Signature:

Date: March 30, 2009
Sound Vision

PATTERNS OF VIBRATION IN
SOUND, SYMBOLS AND THE BODY

A Thesis
Submitted in partial fulfilment of the
Master of Design

RACHAEL LINTON

Institute of Communication Design
Massey University
Wellington
New Zealand
2008.
ABSTRACT

Historical and contemporary views such as those held within Buddhist and Hindu religion support the idea that sound, colour and form in motion have the ability to alter physiological and psychological aspects of human function. Within these religions, distinctive singing and meditation techniques can be used to aid concentration, calm and balance the mind, and soothe the body. A meditative technique adopted by Hindu and Buddhist practitioners is to draw the mind into a centred point of focus, blocking out external distractions that inhibit concentration. The sound based meditation *Om*, for example, is a most powerful mantra, capable of healing and elevating consciousness (Beck, 1995). Vocal sounding and chant as well as gazing at or visualising images are techniques that have been utilised in ancient religious practice to aid people to develop their natural capabilities to shift energy within body and mind.

Contemporary neuroscientists are interested in the states of mind that Buddhist monks claim to enter into while sounding. Equipped with technology for analysing brainwave activity, experiments have revealed that electromagnetic stimuli such as sound, light and colour can have physical affect upon the practitioner’s brain. Researchers have developed new therapeutic tools and techniques to benefit the health and well-being of individuals from these findings.

This thesis traces the therapeutic use of sound, light, colour and form in motion from ancient Hindu and Buddhist religion into its use in complementary therapy. *Sound Vision* is the name of the film which fulfils the practical component of this research. Inspired by the visual form and motion of sound, this thesis contemplates: if we could see sound, what would it look like and could those images function as a healing art form? *Sound Vision* translates ancient and contemporary techniques of therapy into a digital audio/visual medium to function as visual therapy and aid for meditation.

The themes of this research are foremost to visualise sound and secondly to deduce aspects of sound and vision that have therapeutic qualities. Chapter Three of this thesis thematically outlines qualities of sound that have been found to be capable of exciting or calming its listener. The same process has been applied for vision, specifically how light and colour affect the viewer as well as for form in motion.
An interim presentation of the preliminary film, *Dance of Light*, was exhibited in November 2008 and here formative feedback was gained through unobtrusive observation and discussions with viewers toward the development of Sound Vision. Aspects of the film were found to provoke feelings of unease and tension while other aspects incited focus and calm.

Sound Vision, serves as a prototype apply healing using light therapy to create positive physical and psychological outcomes. From the research presented within this thesis, *Sound Vision* employs various digital methods and techniques which are recognised with ability towards healing. Explorations to further this thesis' research may include Neurological brainwave analysis and patient testing to determine which kinds of video footage produce particular desirable results.
ACKNOWLEDGEMENTS

Thanks to everyone who has contributed to the creation of Sound Vision.

My key crew, Linda Joy, Edward van Son, Beth Williams, Thomas Murphy and Andrew Robinson, who danced and sang for me, assisted in filming and experiments, taught me about music, physics and chemistry and who have offered invaluable guidance and support.
William Galpin and Reuben Wood with whom I exhibited at the James Wallace Art Trust Gallery in Auckland.
Bronwyn Patterson who made the silver dress.
Sound and performance artists Hannah Simpson, Warwick Donald, Jack Su, Monica Evans and Margaret Kwok.
Hillary Philips and Barbara Bee who have helped with the written component of this thesis.
My family, Gillian, Michael and Steven Linton for their love and support.

Thanks also to my academic and technical advisors
Patricia Thomas and Gray Hodgkinson,
Keir Husson and Durgesh Patel.

Thank you
Fanotron for allowing me to film the cymatics during the Wellington Fringe Festival in February 2008.
Yvonne Mackay and the Production Shed. TV for allowing me to interview Richard Numns at your studio and for the collaboration on the title sequence for The Silence is Over, Taonga Puoro in August 2008.
The New Zealand Film Archive for allowing me to film Art Nomade during their show in September 2008.
Enjoy public art gallery for allowing me to film Tony Nicholls during his show, Aletheia, in October 2008.
James Wallace Art Trust Gallery for allowing me to exhibit the conceptual artwork towards Sound Vision in order to gain constructive feedback from viewers in November 2008.
The Medieval Mosaic Ltd for allowing me to film The Magic Cube.
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Practical Component – DVDs</th>
<th>inside front cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying information</td>
<td>1</td>
</tr>
<tr>
<td>Abstract</td>
<td>2</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>4</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>5</td>
</tr>
<tr>
<td>List of Figures</td>
<td>6</td>
</tr>
</tbody>
</table>

### Chapter One

1.1 Introduction 9
1.2 Central proposition 13
1.3 Research aims and questions 13

### Chapter Two

2 Background Research 16
2.1 Audio – Sound 16
2.2 Visual – Light and Colour 27
2.3 Visual – Form, motion and the body 38
2.4 Case study – Arte Nomade 49

### Chapter Three

3 Methods and Processes 51
3.1 Video as the medium 51
3.2 Dance of Light and Exhibition 54
3.3 Detail of experimental filmic visual concepts / Dance of Light 57
3.4 Outcome of exhibition process 77

### Chapter Four

4 Sound Vision the film 78

### Chapter Five

5.1 Conclusion 84
5.2 Still images from Sound Vision 91
5.4 Appendix 101
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover Image</td>
<td>Sri Yantra. Hindu power diagram.</td>
<td>1</td>
</tr>
<tr>
<td>Figure 2.</td>
<td>Om symbol.</td>
<td>18</td>
</tr>
<tr>
<td>Figure 3.</td>
<td>Buddhist monk with EEG to test brainwave activity during meditation. Image Retrieved October 6, 2008 from <a href="http://www.mindupdate.com/?cat=12">http://www.mindupdate.com/?cat=12</a>.</td>
<td>21</td>
</tr>
<tr>
<td>Figure 5.</td>
<td>Red, Green and Blue. Smither, M. (2008). The colours of 12 sounds. Auckland, New Zealand, Artis Gallery.</td>
<td>26</td>
</tr>
<tr>
<td>Figure 6.</td>
<td>Soap bubble. Coghill, R. (2000).</td>
<td>27</td>
</tr>
<tr>
<td>Figure 7.</td>
<td>Visible light frequencies of the electromagnetic spectrum.</td>
<td>27</td>
</tr>
<tr>
<td>Figure 9.</td>
<td>12 hue colour circle. Itten, J. (1961).</td>
<td>30</td>
</tr>
<tr>
<td>Figure 10.</td>
<td>Reference diagram for the selection of colour hue’s.</td>
<td>31</td>
</tr>
<tr>
<td>Figure 11.</td>
<td>Fashionable lady bathing in red and blue light. Pancoast. (1877).</td>
<td>32</td>
</tr>
<tr>
<td>Figure 12.</td>
<td>Variable frequency photo-stimulation goggles. Coghill, R. (2000).</td>
<td>34</td>
</tr>
<tr>
<td>Figure 15.</td>
<td>Standing wave in a vibrating string. Tony Nicholas – Designer, Rachael Linton – Photographer, (2008).</td>
<td>40</td>
</tr>
</tbody>
</table>
Figure 16. Fundamental transverse waveguide modes. 

Figure 17. States of an oscillating hydrogen atom. 

Figure 18. Sri Yantra formed by the sound Om. Khanna. (1979). p. 116.

Figure 19. Chakra correlations between the body, sound, light/colour and form


Figure 23. Mary Ellen Bute – Synchromy no. 2. (1936) Retrieved October 4, 2008 from http://www.youtube.com/watch?v=dtWs8ntOQC0.

Figure 24. Oskar Fischinger – Early Abstractions Pt 5. (1946) Retrieved October 4, 2008 from http://www.youtube.com/watch?v=RrZxw1Jb9vA.

Figure 25. Harry Smith – Early Abstractions, Pt 1. (1946–57) Retrieved October 4, 2008 from http://www.youtube.com/watch?v=-wYJ51nSXRQ.

Figure 26. Norman McLaren – Pen Point Percussion. (1951) Retrieved October 4, 2008 from http://www.youtube.com/watch?v=Q0vgZv_JWfM.


Figure 29. Exhibition opening at James Wallace Arts Trust Gallery. Rachael Linton. (2008).

Figure 30. Small theatre in which *Dance of Light* was exhibited. Rachael Linton. (2008).

Figure 31. Cymatics from *Dance of Light*. Rachael Linton. (2008).

Figure 32. Crystal Spinning from *Dance of Light*. Rachael Linton. (2008).

Figure 33. Rhythmic Figures Turning from *Dance of Light*. Rachael Linton. (2008).

Figure 34. Mandala Dancers from *Dance of Light*. Rachael Linton. (2008).

Figure 35. Paintings Turning from *Dance of Light*. Rachael Linton. (2008).


Figure 37. Atomic, Gouache on paper. Rachael Linton. (2008).

Figure 38. Red/green triangle from *Dance of Light*. Rachael Linton. (2008).


Figure 40. Painting with water from *Dance of Light*. Rachael Linton. (2008).

Figure 41. Vibrating strings from *Dance of Light*. Designed by Tony Nichollas, photographed by Rachael Linton. (2008).

Figure 42. Guitar string from *Dance of Light*. Rachael Linton. (2008).

Figure 43. Title sequence for *The Silence is Over, Taonga Puoro*. (2008). Commissioned by ProductionShed.TV, Designed by Rachael Linton.

Figure 44. Circle of Light from *Dance of Light*. Rachael Linton. (2008).

Figure 45. Magic Cube from *Dance of Light*. Rachael Linton. (2008).

Figure 46. Spinning Shapes from *Dance of Light*. Rachael Linton. (2008).

Figure 47. Sequined Coloured Cloth from *Dance of Light*. Rachael Linton. (2008).

Figure 48. Silver Dress. Rachael Linton. (2008).

Figure 49. Vocalising musicians, Edward van Son, Linda Joy, Hannah Simpson and Warwick Donald in the Great Hall, Massey University, Wellington. Rachael Linton. (2008).

Table 1. Cone cells in the human eye.