

THE RELAXATION EFFECT OF NATURE  
IMAGES AND COLOURED LIGHT ON HEALTHY  
PEOPLE AND HOSPITAL PATIENTS IN CHINA

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# Abstract

The use of nature scenes in photographs, digital media and colours for stress reduction has increased in recent years. However, there are few studies of the effects of such initiatives. This study began with the researcher's observation that whilst the practice of meditation could reduce stress and increase relaxation, many people who could benefit from it were unwilling to carry it out. They may however be willing to gain some of the benefits of meditation by engaging in other ways.

The research started with a developmental investigation into the effects of three different media - photographs, coloured light and film - on participants in the UK. A large number of nature photographs and video footage was created and collected for this study. The selection of the nature scenes for the tests on participants, and the inclusion of coloured lights, was based on the researcher's own experience and knowledge in the fields of visual art, meditation and alternative therapy practice, notably Traditional Chinese Medicine (TCM).

These UK investigations were used as developmental studies to refine the methodology for China, where the research for this thesis was carried out. In China, collaboration with two different hospitals in three locations was established, and investigations were carried out with three different groups of participants: hospital patients, relatives of patients (relatives who were staying in the hospital to look after the patient's living needs) and 'healthy' staff and students at associated universities. Because of the facilities provided in China, the part of the study which looked at the effects of photographs was dropped.

Collaborations were formed with film makers and with hospitals to achieve the maximum research benefits. Whilst slight changes were made during the data collection phase to suit the participants and the differing environments offered by the hospitals, every attempt was made to keep the tests similar to one another. Quantitative data on pulse rate and blood pressure changes, along with participants' post-test ratings of their relaxation levels were collected, as was qualitative information from participants consisting of their own descriptive words, phrases and comments.

The process was designed to avoid any research method that might negatively affect participants, and to achieve maximum similarity of methods and fieldwork environments for the different groups of participants. This was so that the numbers of participants in each group in the different hospitals could be added together, thus creating three large groups overall, and the data from the three different groups compared.

The tent structure (which was used for the coloured lights and created to provide an immediate therapeutic environment), the analytical method used and the ‘key elements’ diagram which describes the results of the qualitative data relating to nature films, were new developments which emerged during the study.

The major quantitative and qualitative results, both positive and negative, are reported. Comparisons are made which show how the three different groups in China were impacted by experiencing the coloured lights and watching the films. The different impacts of the coloured lights and the films are also compared. A memory stick is included with the thesis which contains all the still and moving images used, as well as photographs of the tent structure and of some of the hospital environments encountered in China. The thesis concludes with a summary and discussion based on the findings. This argues that coloured lights and visual imagery of nature scenes both had a positive effect on participants, and that this effect could be understood as similar to some of the beneficial effects of meditation. The conclusion also discusses some of the other findings in more detail.



# Chapter 1

## Introduction

A Chinese saying from the volume of the Yellow Emperor's Classic of Internal Medicine (YECIM), 'Neijing Suwen' states: 'being calm in the mind, not grasping thoughts will increase beneficial qi'. In a simple state of mind equilibrium of qi will follow and a person will maintain health. So there will be no place for illnesses to come from (Li and Liu, 2005b). This concept is at the core of my research, which aims to help people understand the benefits of quieting the mind. The YECIM is an influential book, as most of the medical literature of China even now, is based on it, and it is regarded as the greatest medical authority. Meditation is seen as one of the most effective ways to quieten the mind as it focuses the mind and relaxes the body at the same time. It is my understanding that when both yang, which represents the focusing of the mind and yin, which represents relaxation are functioning well the body will self-regulate and optimum health will be achieved. However, it is unrealistic to think that most people will try meditation to improve their health because of the effort and discipline involved. With this in mind, the aim of my research is to use nature images and coloured light to induce relaxation in order to generate beneficial qi. If participants respond with comments confirming they feel more relaxed after viewing the nature images and experiencing the coloured lights used in this study, they will have had a glimpse into the benefits of quietening the mind without the requirement to engage in meditation practice.

### 1.1 Therapies to quieten the mind and settle the spirit

I will discuss the methods of quietening the mind according to Traditional Chinese Medicine (TCM). Originally in 1910 those methods would have been classified as TCM philosophy but recently Chinese medicine in China has classified the method as TCM psychology. In ancient times in China, medical students were encouraged to study methods related to calming the mind and health preservation. These methods are written in books about health preservation in TCM. They can also be found in books about Chinese qi gong.

The healing method related to the qi, mind and emotion can be traced back to 4,000 years ago (Ni et al., 1994). In the city of Chung Sha in China artefacts were discovered at the archaeological site of Ma-Wang including the Dao-yin-tu, an instructive diagram that shows how the qi flows internally inside a human body. During the period of Chun-Qiu dynasty around 300-100 BCE (Mitchell, 2009a) a written text was found which explained the guiding of the Dao (Li and Liu, 2005b). The Dao (also spelt as Tao) is a word which means how to activate and generate qi. In this period there was a group of scholars who specialised in qi gong (gentle movement and breathing exercises) and who were researching how the qi practise could maintain health. Lao Tzu and Chuang-tzu between 369-c. 286 BCE (Mitchell, 2009b), were the most influential philosophers in these times. They also influenced the basic philosophy of The Yellow Emperor's Classic of Medicine (TYECM) (Ti, 1995a). Through practice the mind is kept quiet and peaceful and does not become attached to distracting thoughts (such as day dreams, plans or regrets for example).

The qi is the internal flow of energy in the body and there can be true qi and destructive qi. If the mind is peaceful then the true qi will be produced. If the mind is kept internal and is not consuming any energy related to the outside world, a person will not waste energy. The circulation of blood and energy becomes smooth and harmonious in the body. The argument is that when the body is kept harmonious, it is unlikely that disease or illness will occur. This philosophy has caused a lot of discussion amongst scholars in the subject of TCM.

### 1.1.1 Development of medical research

More recent research in the 20<sup>th</sup> century has developed across East and West. Cultural exchange is continuously evolving and Western medical researchers are taking the findings from the East more seriously. The Mind and Life Institute (<http://www.mindandlife.org>) for example, is involved in researching how the meditative mind can affect health. Members of the Institute use different forms of meditation to help people with disease. One of their earliest medical scientific research books was about the effect of the meditative mind, entitled MindScience: An East-West Dialogue (Lama, 1992). Professor Brian D. Josephson who is director of the Mind-Matter Unification Project at Cambridge (<http://www.tcm.phy.cam.ac.uk/~bdj10/mm/top.html>) interpreted meditation as a process which could compensate stability in the states of consciousness by cutting out unnecessary thought in his article that was published in 1978 (Josephson, 1978). I attended the 4th International Forum on Buddhism and Medicine. This was entitled Empathy, Compassion and

Health, and took place in May, 2013 (<http://2013.buddhismandmedicine.org/en/>). At the conference, there were over 700 attendees, and the international speakers were a mixture of medical doctors and scientists, psychologists, researchers and neuroscientists. Talks included up-to-date research findings about methods of improving health through the mind.

The (TYECM) (Ti, 1995a) of TCM explains that man, heaven and earth have a mutual relationship so that every activity man carries out affects nature and vice versa. The theory of TCM is that human beings live on the planet in between the sky and the earth. All activities of living beings are intertwined with universal nature and the connection is so close that we should live harmoniously at all times. In the practise of maintaining health and well-being we must follow this basic law.

## 1.2 Application of nature to quieten the mind

The use of Images in this thesis is two-fold. Firstly nature images help us to reconnect with nature. Secondly most people do not have time to access wild nature, and physically-challenged people find it very difficult to access wild nature. My intention is to bring nature images to people who cannot access nature themselves, for example patients who have to stay in hospital. I use visual images to explore the possibility of inducing calming effects on participants. I wish to explore this question; can the mind be quietened down whilst watching a short nature film? My hypothesis is: when the participants' attention is focused on images of nature, the mind can be quiet and the body will become relaxed and health improved.

I also took the opportunity to explore the use of coloured light to induce a calming effect. I did not envisage it as a major part of my research, but initially intended to use it as a preliminary activity before participants viewed the films. There is a lot of recent research that shows the potential of coloured light to induce a calming effect on participants. (Alexander G. Schauss, 1979)

Recent scientific research into nature and health backs up my hypothesis. Vincent lists a 30 year timeline of western medical research into the use of nature images (Vincent, 2009). Unlike Vincent thought, my own background is not scientific but involves work as a visual artist, exploration of the development of holistic health in the west, 33 years of my own meditation practice, and experience as a trained TCM practitioner. The work in this thesis springs from this personal background.

# Chapter 2

## Background to the research

### 2.1 Meditation

#### 2.1.1 Classic TCM Philosophy: Health preservation based on the Yellow Emperor's Classic Internal Medicine (YECIM)

In ancient times, one of the Chinese emperors, Huang Di, frequently translated as the Yellow Emperor (Veith, 2002), asked his ministers many questions during a discourse on medicine, health and well-being (Ti, 1995b). The exact date of the questioning and of the minister who answered (an acupuncturist called Qi Bo) are not precisely defined in Chinese history though the Yellow Emperor was recorded as one of the earliest of five rulers of China between 2852 – 2250 B.C. In contemporary Chinese historiography, that period is regarded as the “Legendary Period” (Veith, 2002).

However, in answer to the Yellow Emperor's questions, a set of written texts were eventually produced, modified and added to through various dynasties. This text has become known as the Yellow Emperor's Classic on Internal Medicine upon which “is built most of the medical literature of China and so important is it considered by medical men that even at the present time... it is still regarded as the greatest authority” (Veith, 2002).

For the purpose of this doctoral project, one basic theory is paramount and it has long been discussed, argued and analysed by many Chinese scholars and TCM researchers. This was Qi Bo's answer to the Yellow Emperor's inquiry regarding health preservation and longevity. Dr. Maoshing Ni gave the answer by Qi Bo in his translated book, *The Yellow Emperor's Classic of Medicine* as follows:

*“The accomplished ones of ancient times advised people to guard themselves against *zei feng*, disease-causing factors. On the mental level, one should remain calm and avoid excessive desires and fantasies, recognizing and maintaining the natural purity and clarity of the mind. When internal*

*energies are able to circulate smoothly and freely, and the energy of the mind is not scattered, but is focused and concentrated, illness and disease can be avoided” (Ti, 1995a).*

Although this translation is clear with regard to mental state, as a TCM practitioner and meditator my translation of the same passage extends to practical matters, such as simple living. My preferred translation is as follows:

*“the ancient sages advised people to protect their internal qi from vicious wind by living in simplicity and remaining calm and tranquil without excessive desires. When the mind focuses internally, and the vital energy and qi circulate smoothly in the body without any hindrance there will be no place for illness” (Lu, 1997).*

This is not to dispute Maoshing Ni’s version – rather it provides a simpler translation and underlines the difficulties of truly grasping the meaning of the Yellow Emperor’s Internal Medicine. There will always be lively debate and discussion about what that text contains. However, it is clear that the classic theory of TCM emphasises that the balance of health depends on the balance of body and mind, and that the balance of the mind depends on the balance of emotions. When a person is overexcited or upset by emotion, the balancing of the mind is disturbed. This imbalance in turn interrupts the function of the body. If this condition is prolonged and mind and body get too far out of balance for too long, then illness develops.

The theory goes on to describe practical means for maintaining balance. According to the literature of TCM, there have for centuries been various forms of practice that have guided people in developing a calm, attentive and spacious mind. One of these, from Ancient China, was “Daoyin” (Kohn, 2008). It included the practice of gentle movements, similar to some forms of qi-gong (Cohen, 1997) and tai-chi (Da, 1986; Lash, 2002) which are still used in present day China, as well as sitting and standing postures which are forms of meditation.

Many types of meditation or contemplation have been adapted and developed in different parts of the world through different traditions or religions (McDonald, 1984; Goleman, 1996; Beckett, 1998; Kabat-Zinn and Williams, 2013). The aims and direction of different methods of meditation may vary but one quality, ‘calm the mind attentively’, is a common quality that they share (Tson and Wayman, 1978; Beckett, 1998; Bayda, 2003, 2003, 2003; Kabat-Zinn, 2005; Hanh, 2008; Collard, 2013).

All methods of meditation require repetitive practice, an attentive mind and a great deal of patience (Suzuki, 1970; Hua-Ching Ni, 1997; Batchelor, 2005; Kabat-Zinn, 2005; Travis and Shear, 2010). In order to train the mind to calm down and remain mindful or attentive at the same time, people need to follow certain guided methods. For some people, keeping one's awareness on a simple object, for instance, one's own breathing movements, and thus minimising one's thinking for 15 to 20 minutes can be unbearable, although it is a common meditation practice. Furthermore, people who are not Buddhists may mistakenly believe that meditation must involve aspects of religion in which they are not interested. It is unlikely meditation practice would attract such a group.

Through my personal experience in meditation as a regular practitioner for over 30 years, there has been a great change in meditation developments, especially in the West. The multiple levels of benefits for health, well-being and personal growth have been slowly recognised through the increasing numbers of committed meditation practitioners and researchers (Pace et al., 2009). Moreover, various modified techniques in meditation have been developed in order to adapt to Western tradition and contemporary lifestyle. These include the mindfulness techniques included in Cognitive Therapy (CT) and Mindfulness-Based Stress Reduction (MBSR) (Tson and Wayman, 1978; Bayda, 2003; Kabat-Zinn, 2005; Hanh, 2008; Hoerner, 2014).

It cannot be denied that the general public's interest in meditation has been steadily increasing. However, the proportion of the population who are not interested in any form of meditation is still large, particularly in China today. Although there is much information related to the difficulties of meditating available in books and talks and on the internet, many obstacles and hindrances in meditation practice, such as desire, attachments and a habitually busy mind are still not easily resolved (Goldstein, 1987; Snelling, 1998; Kabat-Zinn, 2001; Batchelor, 2005). Because these difficulties often deter people from meditating altogether, I try in this research project to provide a visual trigger for them in order to help them focus their attention and concentration naturally without involving the great self-disciplined effort that meditation practice requires. I am interested in studying how participants' attention might be captured by nature images and coloured lights, so that they experience the calming or relaxing effects which are similar to some of the effects of meditation (Kabat-Zinn et al., 1992; Lazar et al., 2000; Kabat-Zinn, 2005; Travis and Shear, 2010).

### 2.1.2 Benefits of Meditation

Whilst Eastern meditation practices have been long accepted in many Asian countries, particularly where Buddhism is part of the traditional practice, such as India, Thailand, Burma, Japan, South Korea and China (Dumoulin, 1979; Jahnke, 1998; Kabat-Zinn and Williams, 2013; Tzu and Wong, 1992), it is only much more recently, during perhaps the past 40 years, that meditation practice has gained wider acceptance to people in the West (Lama, 1992; Alexander et al., 1994; Kay, 2004; Kabat-Zinn, 2005; Habito, 2006).

One of the crucial factors that has contributed to the promotion of meditation practice in the West lies in the accumulation of evidence for the potential benefits of meditation in western research findings (Kabat-Zinn et al., 1992; Alexander et al., 1994; Andresen, 2000; Peressutti et al., 2010). A number of influential Eastern spiritual teachers and masters who have come to teach Buddhism in the West have also played an important role in spreading meditation practice worldwide. Some of these early meditation teachers include J. Krismurtis and TM teachers from India, the 14<sup>th</sup> Dalai Lama and Lama Chogyan Trungpa from Tibet, Zen master D.T. Suzuki and Soyu Matsuoka-roshi from Japan, Zen master Seung Sahn from Korea, Buddhist master Hsuan Hua, Sheng Yen from China, Zen master Thich Nhat Hanh from Vietnam and the Vipassana meditation teacher S. N. Goenka from Burma (West, 1987; Goleman, 1996; Kay, 2004; Wallace and Hodel, 2008; Kabat-Zinn and Williams, 2013).

However, meditation practice is by no means only limited to Buddhism but is also found in other religious traditions and spiritual practices, although the methods, direction and ultimate aims may be different (Tzu and Wong, 1992; Goleman, 1996; Beckett, 1998; Friedlander, 2006). A variety of secular forms and techniques similar to meditation practice have also been developed for alternative therapies offering psychological health and the preservation of well-being (Benson et al., 1974; Kabat-Zinn et al., 1992; Andresen, 2000; Khalsa and Stauth, 2002; Chang et al., 2010; Hoerner, 2014).

Despite differences in practical methods, theoretical principles or philosophies, there are a few major qualities that traditions share in common (Goleman, 1996; Wallace and Hodel, 2008). In particular, the quality of mindfulness has been widely developed (Collard, 2013) and adapted in contemporary groups, both secular and religious (Kabat-Zinn et al., 1992; Andresen, 2000; Davidson et al., 2003; Phongsuphap et al., 2008; Peressutti et al., 2010; Travis and Shear, 2010).

For the purposes of this thesis, the benefits of meditation may be broadly summarised as follows, and this list is expanded on below. Meditation:

- Calms the body and mind
- Reduces thoughts
- Improves awareness or mindfulness
- Focuses the mind and improves concentration
- Reduces stress, anxiety, frustration, anger and other negative emotions

### 2.1.3 Meditation calms the body and mind

According to recent scientific and medical research, the psychological and physiological links within the body are inseparable (Mark and Lyons, n.d.; Worwood, 1996; Pert and Chopra, 1998). Calming one of these bodily systems helps to calm the others. Meditation works on mind and body at the same time (Benson et al., 1974; Kabat-Zinn, 2001) although there are various different ways of achieving this (Delaney, 2002; Peressutti et al., 2010).

Relaxation methods such as relaxation therapy, are common methods that develop calmness (Benson et al., 1974; Delaney, 2002; Chang et al., 2010). In well-developed countries there are many methods for relaxation, including interesting, comforting and pleasurable programmes or treatments which have been created to suit different tastes (Ive, 2008; McKenna, 2009; Cramer et al., 2013). However, the effect often does not last for long and cannot withstand the continuing challenges of life (Alexander et al., 1994).

Though relaxation is an important quality in meditation, there are differences between relaxation and meditation because meditation is more than just relaxation (Gunaratana, 2011). Research into meditation in the West since the 1970's has found that the benefits of meditation for experienced meditators are greater than for ordinary novices (Peressutti et al., 2010). That is, the benefits of regular and extended meditation practice are cumulative. By adapting early meditation techniques related to Buddhism and other Eastern religions, a number of contemporary practices and therapies with new terminologies have been developed such as guided imagery, visualization and mindfulness meditation (Gawain, 2002; Choices, 2014). Among them, the crucial and common factor is the calming effect.

The benefits of being calm for health and well-being are abundant. Examples can be found in written materials or audio records by many influential spiritual teachers, philosophers and scientists (Pert and Chopra, 1998; Watts, 2000; Kabat-Zinn, 2001; Lama, 2013)



In order to cultivate calmness or stillness, different methods of relaxation may be used such as progressive muscle relaxation (Carlson and Hoyle, 1993), guided relaxation (Kabat-Zinn and Williams, 2013) and relaxation exercise (Brealey, 2004). When the body and mind relax, a series of positive changes take place inside the body. Herbert Benson, one of the pioneers in research in this field at Harvard University in the 1970's, named this the 'relaxation response' (Benson et al., 1974; Benson, 1998). Jon Kabat-Zinn who taught meditation techniques to hospital patients at the University of Massachusetts Medical Centre in the US in 1970s showed that a calm and attentive mind helped patients to reduce their pain and stress (Kabat-Zinn, 2001). He later developed this method and named it Mindfulness-Based Stress Reduction (MBSR) (Kabat-Zinn, 2003, 2005). It has been widely spread to various organizations and communities including healthcare, education and business (Kabat-Zinn et al., 1992; Davidson et al., 2003; Kabat-Zinn, 2003; Mars and Abbey, 2010; Gunaratana, 2011; Sandness, 2014).

If the mind continues to relax attentively or mindfully, a calming effect will follow (Tson and Wayman, 1978; Tzu and Wong, 1992; Edworthy, 2000; Khalsa and Stauth, 2002; Tolle, 2003; Lama, 2010; Hoerner, 2014). When the mind calms down, it becomes less busy, tense or excited. Then the body can naturally function more effectively by itself (Kabat-Zinn and Williams, 2013). This is often referred to today as the body-mind link. If the meditation process becomes more regular and familiar to the practitioner, a deeper calm for a longer period of time can be achieved with less effort (Josephson, 1978; Goldstein, 1987; Kabat-Zinn et al., 1992; Goleman, 1996; Andresen, 2000; Rashmi and Nirupama, 2002; Mars and Abbey, 2010; Davidson and Goleman, 2012). Travis and Shear present and discuss evidence for the positive effects of different types of meditation, including mindfulness meditation, in recent Western research, noting that whilst it is important to be clear about which kind of meditation is being assessed, all types are likely to produce a calming effect (Travis and Shear, 2010).

#### 2.1.4 Meditation reduces thoughts

It is necessary to reduce thoughts in order to cultivate calmness (Tson and Wayman, 1978; Tolle, 2003; Lama, 2010; Hoerner, 2014). Due to the speed at which people live in the modern world, it appears to be impossible not to engage in excessive thinking most of the time (Menzies, 2005). This can have negative effects on health and well-being, particularly stress-related health problems (Menzies, 2005; Ive, 2008).

Global communication has become more accessible to most parts of the world. It has greatly increased the accessibility of knowledge and information to a large proportion of the population. The supply of all this information that circulates among people appears to keep adding to the excessive thoughts of many of us, especially in contemporary cities (Menziés, 2005; O’Dea, 2010).

If the mind is too busy and preoccupied, it is difficult to relax and calm down because all the energy is going into the thought process (Tson and Wayman, 1978; Tolle, 2003). The practice of meditation reduces negative and excessive thinking by encouraging the meditator to pay attention to what is going on in the present moment and thus discouraging the mind from worrying about other things in the past and future. When the mind is less cluttered, excited or negative, a space for clarity gradually develops (West, 1987; Travis and Shear, 2010; Hoerner, 2014).

### 2.1.5 Mediation improves awareness and mindfulness

When the meditation process continues for a period of time, body and mind become relaxed and calm. With appropriate concentration, thoughts will be reduced. When the mind becomes calmer and less busy, clarity in the mind slowly emerges. Awareness of thinking, sensations, feelings and actions will be improved (Tzu and Wong, 1992; Gunaratana, 2011; Epstein, 2014).

With the increase of awareness and mindfulness in life, we can reduce the auto-pilot-like reactions or responses which may cause negative effects in others and ourselves. Sufficient mindfulness would allow us a space or a stopping point so that we can think before we act or respond (Davidson et al., 2003).

Mindfulness practice is a relatively neutral tool that can be adopted by anyone regardless of culture, religion or education (Mars and Abbey, 2010; Chiesa and Malinowski, 2011). It does not necessarily require a great deal of positive emotion such as loving kindness or compassion (which are traditional Buddhist practices) nor does it require any ritual or religious context (Benson and Stuart, 1993; Kabat-Zinn, 2005; Kabat-Zinn and Williams, 2013). Feedback from practitioners and researchers in this field has promoted the practice of mindfulness (Bharati, 2008). Furthermore, the fine-tuning of mindfulness methods to apply to various communities and organizations has resulted in a greater impact of mindfulness practice. For example, the development of the Mindfulness in Schools project in UK education and elsewhere is one of these (Amabili, n.d.)

The quality of mindfulness from meditation has been developed, adapted and applied in the West, particularly in healthcare areas (Domke, 2009; Mars and Abbey, 2010). Apart from Jon Kabat Zinn (Kabat-Zinn, 2003), the Mind and Life Institute in the US has contributed to the spread of various forms of meditation, including mindfulness practice in hospitals, clinics and healthcare organizations in the US since the 1970s (*Mind & Life Institute*, n.d.).

#### 2.1.6 Meditation focuses the mind and improves concentration

Calming and mindfulness qualities are difficult to prolong without a focused or concentrated mind. The degree of mindfulness for a person depends on how much concentration that person can maintain. Due to external attractions and disturbances in modern life such as advertisements, music and city noise, and the frequent demands of the many tasks and tight schedules that we have to cope with, it is difficult for the majority of people to keep their focus on one thing for any period of time.

If the mind often slips off and wanders elsewhere when we are working on a task, we all understand that it requires more effort and time to complete the job. Concentration works in parallel with relaxation to produce calming and other positive effects in meditation (Phongsuphap et al., 2008). Mindfulness is difficult to develop without concentration because it takes mental effort to detach from everyday thoughts and focus on the current moment. However, one benefit of mindfulness training is that it can also improve concentration in return (Kabat-Zinn, 2003; Kabat-Zinn and Williams, 2013).

#### 2.1.7 Meditation reduces stress, anxiety, frustration, anger and other negative emotions

Although meditation in the various East and West religions generally aims at spiritual and holistic growth, ancient Chinese medical treatments included a series of methods in meditation known as “Dao Ying” which were used to heal illnesses related to stress and negative emotions (Wong, 2012). The reduction of stress, anger and negative feelings is emphasised in the practice of yoga meditation today, often without any link to its original religious roots.

Collaborative research in the West between scientists and meditation practitioners during the past four decades provides greater understanding of scientific, biological, psychological and physiological links in the body, and of the relationship between the meditative mind and the body (Pert and Chopra, 1998; Brealey, 2004; Peressutti et al., 2010).

Negative emotions such as stress, anxiety, anger and depression not only deprive people of the feeling of happiness that all human beings desire (Benson and Stuart, 1993; Menzies, 2005; Cooper and Dewe, 2008; Zhang and Lee, 2009), but also develop potential factors for ill health and diseases because they block the internal energy and thus lower the immune system (Goleman, 2003; Orloff, 2010; Zhang and Lee, 2010). Although advanced medicine nowadays may cure many physical diseases and health problems, negative emotions seem more difficult to solve by these ‘hardware’ treatments alone. Combining them with ‘software’ methods such as meditation can be one of the answers to improving health.

#### 2.1.8 Physical health – claims made for TM (Transcendental Meditation) practice

TM practitioners were one of the earliest volunteer participants in scientific research in the US in the 1970s (Stark, 1986). Subsequently, a number of research studies in meditation carried out by the Mind and Life Institute in the US, often in collaboration with experienced Tibetan meditators (Tibetan monks), discovered even greater impacts than before (Begley, 2007; Kabat-Zinn and Davidson, 2012). Although in the west the studies were conducted in laboratories or indoor venues, scientific teams went to remote caves where experienced Tibetan monks meditated, and measured their physiological changes during meditation (Hankey, 2006). At about the same time, similar research was carried out in various universities and research institutes in the West (Alexander et al., 1994; Peressutti et al., 2010; Kabat-Zinn and Davidson, 2012).

According to the findings (Kabat-Zinn et al., 1992; Cohen, 1997; Phongsuphap et al., 2008), the common claims for the physical benefits of meditation are as follows:

- Improves the physical condition of the body by reducing the pulse rate (Delaney, 2002; Phongsuphap et al., 2008)
- Improves breathing system as breaths become slower and deeper (Rashmi and Nirupama, 2002; Phongsuphap et al., 2008)
- Regulates blood pressure, and is likely to reduce high blood pressure (Sudsuang et al., 1991; Rashmi and Nirupama, 2002)
- Improves blood and qi, (the internal energy circulation used in TCM)
- Improves pain endurance (Lutz et al., 2013)
- Improves the quality of sleep (Mason et al., 1997; Nagendra et al., 2012)

- Improves the performance of activities e.g. sport or public speaking (Moore and Malinowski, 2009; Tan et al., 2014)

## 2.2 Obstacles and difficulties in meditation

There are various methods of practicing meditation (Travis and Shear 2010). One common practice is to concentrate on breathing for a period of time by staying in and focusing on the present moment, noticing the breath going in and going out through the process. However, many people find even this simple practice difficult due to the following obstacles:

### 2.2.1 Busy mind and uncontrollable thoughts

It is a common tendency that most people in cities lead a busy life. (*Work, Stress and Health Conference 1999: Organization of Work in a Global Economy*, 1999). As our mind is used to being busy it is difficult to slow down even when a busy mind is not required.

Consequently, there is no room for the majority of people to experience a glimpse of calm, peacefulness or any other positive effect when they start to meditate, even if they try. Instead, those busy thoughts may seem uncontrollable (Hurley, 2012). If people make efforts to push their thoughts strongly away, it may result in uneasiness or difficulty in keeping the body still throughout meditation periods (Batchelor, 2005; Goldstein, 1987; Kabat-Zinn, 2001). When novice practitioners feel that this hindrance becomes too much, they may stop meditating altogether after the first few attempts.

### 2.2.2 Uncontrollable emotions

Perhaps an uncontrollable emotion is the most challenge obstacle when practicing meditation. Negative emotions, such as stress, anxiety, worry, depression, anger, sadness and fear may cause turbulence and disturbance to the mind (Philip L. Rice, 1987; Salzberg, 1999; Edworthy, 2000; Goleman, 2003; Sapolsky, 2004; Menzies, 2005). It is very difficult for one's mind to calm down if one holds a strong and immediate emotion like anger or fear (Salzberg, 1999; Edworthy, 2000; Kabat-Zinn, 2001).

### 2.2.3 Lack of patience to concentrate

Without sufficient patience, nothing can be accomplished, particularly in learning meditation (Tson and Wayman, 1978; Hoerner, 2014). Unfortunately, speedy development in most fields of our contemporary societies that emphasise successful achievement through competitive force tends to drain our patience or lead to stress, which may itself result in less patience (Groves, 2004; Menzies, 2005; Cooper and Dewe, 2008; Choices, 2014). As a result, concentration which is one of the key practices in meditation, particularly for stable and intense meditation is difficult to develop (Lama and Hopkins, 2003). Goleman, in his book *Meditative Mind*, writes that “...concentration ..... is the single invariant ingredient in the recipe for altering consciousness of every meditation system” (Goleman, 1996).

#### 2.2.4 Boredom

In contemporary life, many people find it difficult to resist the attractions of materialistic, entertaining and sensuous stimulations which appear in most areas in big cities (Groves, 2004; Menzies, 2005). Under such circumstances, it seems normal for many of us, as city dwellers, to feel bored with continuing any kind of practice which does not offer us a strong or attractive external stimulation because we are habituated to such stimulation.

#### 2.2.5 Disinterest in learning

Many people just do not have any interest in learning, nor wish to try meditation even when it is made accessible to them.

### 2.3 Obstacles as ‘hindrances to meditation’

Even those who may decide to try meditation can be easily discouraged. According to Buddhism, there are five hindrances in practising meditation. These can apply to anyone at any stage, beginner or advanced practitioner and according to Buddhist thought should properly be understood as common experiences and treated as opportunities to make progress and deepen the experience of meditation. (Goldstein, 1987; Thera, 1991; Snelling, 1998). They are listed as follows:

- Sense desire – The desire in the mind that keeps searching for any sensuous pleasure or object.
- Anger and ill will – Being angry, annoyed or aversive, the mind becomes turbulent and disturbed.

- Sloth and torpor – A mind falls into laziness and sluggishness.
- Restlessness and worry – A restless mind cannot stay in concentration and worry causes suffering and disturbance in the mind.
- Doubt – A doubtful mind blocks the practitioner’s willingness to engage wholeheartedly in practice.

Despite the Buddhist suggestion that these be recognised and treated as opportunities to understand the practice more deeply, such hindrances can become too much of a challenge to novice practitioners. Many people see them as great barriers and retreat from meditation altogether.

## 2.4 Relevant personal background

I studied art and design, and graphic design, at different UK art schools during the late 1970’s and early 1980’s, and then spent fifteen years as a graphic designer. This work helped to generate the idea for this research and equipped me with the necessary skills.

Due to dissatisfaction with commercial graphic design, which I found to be more and more distant from my growing interest in well-being, and a desire to find a more effective way to help others, I changed course in 1997 and studied a 5-year degree course in Traditional Chinese Medicine (TCM) in 1997.

I learned meditation in 1981, when I was extremely stressed, from a Buddhist organisation in the UK, and found that it helped to release my negative emotions effectively. Since then, meditation has become part of my life.

## 2.5 Bringing these three interests together

Bringing together my interests in art, health and meditation, I started looking for references related to these three topics. I found that work has been carried out in this interdisciplinary field since the early 1970s. For example Benson (Benson et al., 1974; Benson and Stuart, 1993) writes about his research and the development of the Relaxation Response at Harvard University in the late 1960s. As one of the results, the Mind and Life Institute was established and many articles and books in the field of mind, body, science and health were published, such as *Mind science* and *Destructive emotions and how we can overcome them* (Lama, 1992; Goleman, 2003). In the UK, a national centre,

Arts for Health was established in 1988 and Peter Senior founded Hospital Arts in Manchester from 1973 to 1988 (Scher, 1996; Scher and Senior, 2000).

I did a short course in animation in 1995 which eventually led to my design MA course in animation and sound nine years later. I became fascinated by moving images and hoped my own positive experiences with nature and imagery related to this could be transformed into some kind of visual moving pictures or paintings and shared with others. My experience in visualization meditation included imagining that the physical pain I had at the time was blowing away like dandelion seeds flying in the air, or sailing away as lotus petals floating on water. Such visualizations as these have practically improved my body and mind as well as the quality of my life. Similar methods have been developed and found to be effective in healing (*Quantum healing exploring the frontiers of mind/body medicine*, 1989; Benson and Stuart, 1993; Nataraja, 2008). Since 1988, the use of imagery for reducing pain and breaking negative mental cycles by the Mind/Body Medical Institute in the US has been evidenced (Rossman, 1987; Graham, 1995; Hackmann et al., 2011). The Breathworks Organisation which was established in Manchester in the UK, has been helping people to overcome their body and mind problems through mindfulness and visualization meditation since 2004 (breathworks, n.d.).

The arts and health movement in the UK, particularly the Faculty of Art and Design and the section of Arts and Health at Manchester Metropolitan University, gave me some encouragement to actualize my search for a way in which visual creation could have positive effects for patients and people who live with stress. My personal interest is in creating visual images that may bring positive effects to people's health, particularly those suffering from stress and illness. Whilst calmness and relaxation can be achieved through the disciplined practice of meditation, my challenge in this study is to offer people the same benefits through engagement with moving or still images of nature, in order to influence the viewer's health and reduce stress in particular.

## 2.6 Summary

This list of benefits and obstacles to meditation has been compiled here to indicate what kinds of positive attributes might be achieved if people were to meditate and to explain why it is that many people do not. The research in this thesis hopes to show that it can be possible for people to attain some of the benefits without needing to employ the self-discipline of meditation practice. That is, an



alternative path to quietening the mind will be offered. Therefore, I have taken the opportunity of this research to provide something more attractive – nature scenes and coloured lights, to help people overcome some of these obstacles and hindrances. I have investigated whether this approach would help people to experience some of the benefits of meditation, particularly the effects of calming and relaxation.

This chapter has also noted that the adaptation of meditation techniques has resulted in the formation of various current therapies and treatments in healthcare development. These include cognitive therapy, visualization meditation, hypnotherapy, relaxation therapy, mindfulness breathing and Mindfulness-Based Stress Reduction (MBSR).

In recent years, the amount of research related to the effects of meditation has been growing. Although there is a long way to go to understand how to develop more acceptable ways in which people can transform their mind in order to improve their own health and happiness, research has come some distance in terms of understanding the relationship between body and mind. At the 4th International Conference in Buddhism and Medicine in France 2013, a number of scientists and medical experts reported their recent researches on the subtle different impacts of various methods of meditation practice (Rigpa, n.d.). The conference concluded that as long as new discoveries and creative developments in such research continue, there is hope that more accessible, appropriate and effective meditation methods will become available for the benefit of everyone in the future.

# Chapter 3

## Eastern and Western Literature Review

### 3.1 Nature & Health in the Theory of Traditional Chinese Medicine (TCM)

The definition of nature which applies to this study is based on the sayings from TYECIM: Su Wen Yin-Yang Li Hu Lun. The translation of the sayings is: living beings are the result of total nature and the development in nature has led to this inevitable stage of creation of living beings. The origin of life comes from Heaven and Earth. There is Heaven and Earth and when the universe is revolving the earth echoes all things, and life begins to develop (Beinfeld and Korngold, 1992; Ti, 1995a). TCM has been practiced in China, Taiwan, Korea and Japan for over 2,000 years and it still widely used there today. Western development of medical research has helped us to understand TCM more scientifically. However proving TCM in the method of the Western mainstream medicine is difficult as it requires great effort and funding due to its complex system which is based on the philosophy that emphasises humanistic qualities. However, when certain theories of TCM have been proven scientifically in the West, for example, acupuncture, its development has sped up and its practice has spread rapidly in the West(Liu et al., 1995; White et al., 2008; Hicks, 2010; Keown, 2014).

#### 3.1.1. Humans and nature in the theory of TCM

Figure 3-1 explains the detail of how energy is transformed in the body. At the first state the water wheel is turning, bringing energy up to the body. In the next stage this energy is transformed into vital energy through the state of mind. This vital energy circulates through the meridians of the body. This process nourishes the body improving health and generates more energy. However when the body is weak energy is wasted, it can escape from the body through the orifices. Weakness can be caused by illness, injury or negative emotion. If the body is in a healthy state the vital energy can turn into spiritual energy which means the essence of the energy that provides maximum benefit to the body and mind (Tzu and Wong, 1992).

### 3.1.2. The unification of humans and nature

The theory of the unification of man and nature in TCM can be traced back to TYECIM around 1000 B.C. (Veith, 2002). This text said that human beings live in nature and nature provides the necessary living conditions for human beings. However the changes in nature may directly or indirectly affect the human body. Changes in nature cause the relevant changes in the human body. If this biological change exceeds the balance or the adaptability of our body it causes the development of illness (Yin and Zhang, 2000). Therefore, TYECIM: Lin Su.Shui Ka says that heaven and man are inter-connected. “Heaven” here means everything above the earth including outer space (Veith, 2002).



铁牛耕地种金钱，刻石儿童把贯穿。一粒粟中藏世界，半升铛内煮山川。白头老子眉垂地，碧眼胡僧手托天。若问此玄玄会得，此玄玄外更无玄。这首诗出自《吕祖全书》，是清初顺治年间道教信士刘体恕等慕道托名之作。上图时略有字词的改动或是误抄，这里不再细说，再看清初的道教，龙门第七代律师王常月，从隐居的高山北上京师，奉旨主讲白云观，赐紫衣凡三次，登坛说戒，度弟子十余人，《清史稿》有传。《自昆阳王真人道行碑》。一时间一度出现了道教史上的龙门中兴之势，即顺乎时局的需要，赢得了统治者的礼遇，所以一贵尊崇喇嘛教的清庭收有推崇吕洞真的道教龙门内丹学派的《内经图》，并非怪事。倒是在顺治、康熙、雍正之后，道流卑，不宜滥册朝班，已是乾隆一朝的公开歧视，紫禁城从此给道教捏上了闭门羹，在其后清庭一百七十年的飘摇风雨中，日渐衰落的道教，已失其献图之路矣。据此，我们说，彩绘《内经图》自是清初作品。如果就道教神秘结合《内经图》画风，进行一番考据，就更能充分地说明这一点了。从前八句是清初顺治年间道教信士刘体恕等假托名为吕洞真之作。从中说明，后人托前人神仙佛名的也甚众矣。

### 3.1.3. The interrelation between humans and nature

According to TCM theory the activities between all living beings and nature have an extremely close relationship. In fact, the proverb in Chinese characters: (息息相关 xi xi xiang guan is equivalent to: be closely linked, be closely bound up with) is often used to describe how close the relationship between humans and nature is. It is so close that every breath we take affects nature and vice versa (Wu, 胡志勇, 2010). The inter-relationships between the activity of a person, nature and the environment need to maintain harmonious order, otherwise they cause negative effects to our health.

### 3.1.4. The seasonal and geographical effects on health

The changes of the weather in the four seasons generate a cyclic pattern that affects all life and human beings. There is germination in spring, growth in summer, retreat in autumn and hibernation in winter. This phenomenon applies to all life forms, and human beings are no exception. It is important for a human body to have the appropriate seasonal reaction and relevant response in order to maintain health (Wu, 2002).

The geographical environment and life styles around the world vary. The understanding of the inter-reaction and inter-responses of man and nature is not a mere theory, but emphasises man's active role in acclimatization in order to preserve health (Li and Liu, 2005a).

TYECIM: Su Wen.Zi Qi Tio Sun Dai Lun Pian: 2<sup>nd</sup> Chapter (Li and Liu, 2005a) explains everything and how life on earth began with the law of 'yin-yang' and the four seasons which is also the origin of life and death. When we go against this law, we possibly create a harmful effect. When we follow, we are unlikely to develop any illnesses. This is called the 'Tao', 'Tao means the way and the method of maintaining the harmony between this world and the beyond' (Veith, 2002). If we follow the law of ying-yang, we will live well and our illnesses are likely to be cured. However, if we disregard this law, it will result in chaos, then will become sick and may die.

Different temperatures of the day also affect our bodies. During the changes of day and night and the transformation of yin and yang, our body responds accordingly. For example, during day-time, the 'yang-Qi' tends to expand towards the surface of the body. During the night, it usually returns into the internal body.

## 3.2 The wholeness of the body

According to the fundamental theory of TCM, there are two main types of unifications. The oneness of man and nature that creates the big universe is the concept of macrocosm, while ‘The human being is a microcosm of Nature, a smaller universe’ (Beinfeld and Korngold, 1992). This system is illustrated in Figure 3-1. The interrelationships among the organs, tissues, muscles, blood, meridians and so on are vital as they cause the internal pathological changes in our body when the balance among them is disturbed (Wu, 2002).

In the philosophy of TCM, the balance of body, mind and nature are emphasised in order to maintain a state of equilibrium psychologically and biologically. Psychological illnesses can be treated through the regulation of the body activity; similarly, physical illnesses can also be moderated or treated with psychological therapies (Yin and Zhang, 2000).

Based on this understanding I intend to explore an alternative way to help the body restore its equilibrium through this study.

## 3.3 Yin-yang and health

Definition of Yin and Yang in the theory of TCM: Yin-yang is about the origin of the universe. It also explains the theory and the law of how all things change and evolve. According to I Ching ‘one yin and one yang become tao’ (Yin and Zhang, 2000). The world is composed of matter and in the material world there is yin Qi and yang Qi which have many relationships. As a result of these relationships life can continue to develop and change. “Yin and Yang represent opposite but complementary qualities. Each thing or phenomenon could be itself and its contrary” (Maciocia, 1989). On different occasions, these two elements may need to work harmoniously or in opposition as explained below.

### 3.3.1. The Theory of Yin-Yan

The theory of yin-yang is the most distinctive way of thinking throughout the whole process of TCM including the physiological, the pathological and the treatment (Maciocia, 1989). Furthermore, the yin-yang theory is not only limited to TCM but also applies to many areas in Chinese culture and the way of life in China. For example, in the field of ‘Fung Shui’, the Fung Shui master has to understand yin-yang philosophy and its applications in great depth (Wong, 1996). In everyday life,

Chinese people often refer yin-yang theory to a place, the weather, the types of food, the Cosmo-energy of a situation in order to improve health and well-being (Too, 2004, 2005, 2011).

The early record of yin-yang theory can be found in the “Book of Changes” (I Ching) about 700 B.C. (Maciocia, 1989) and the YECIM (Veith, 2002). According to yin-yang theory, the beginning of the earth and all things are the result of the changes, evolution and transformation of the two dynamic polar but unified energies. The yin Qi and yang Qi in the universe is regarded as the law of the universe (Ni, 1995). There is an intimate relationship between the activity and life of human beings and their natural environment (Wu, 2002). ‘Everything in creation is covered by Heaven and supported by Earth. When nothing has as yet come forth the Earth is called: the place where Yin dwells; it is also known as the Yin within Yin. Yang supplies that which is upright, while Yin acts as a ruler of Yang’ (Veith, 2002). ‘The philosophers and doctors in ancient China explained all the phenomena and the nature of the universe and life with the theory of yin-yang’ (Wu, 2002).

### 3.3.2. Categorization of Yin and Yang

#### Opposition and unity

A classic example of opposition and unity is the yin-yang of a mountain. During daytime, when the sun shines on a mountain, the sun is yang and the sunny side of the mountain is yang-in-yang. The shady side is yin-in-yang. At night, when the moon shines on a mountain, the moon is yin, but the moonlit side of the mountain is yang-in-yin and the dark side of the mountain is yin-in-yin (Beinfeld and Korngold, 1992).

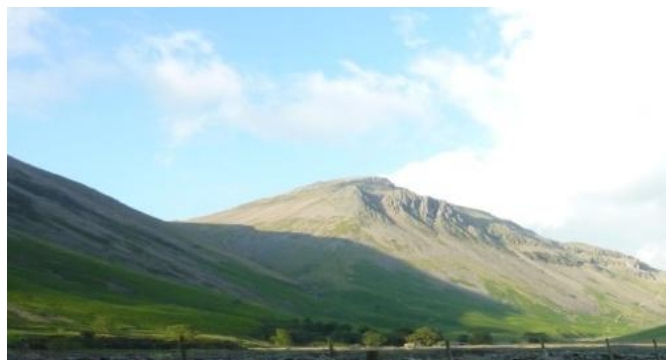


Figure 3-2 Yin-yang mountain

‘Since all things are produced through the motion and variation of Qi, everything can be divided into the aspects of yin and yang such as heaven and earth, day and night, the water and fire, upper and lower, cold and heat as well as man and women etc’ (Wu, 2002).

Similarly, since the human body is seen as a microcosm of the universe, every part of the body can be divided into yin and yang. Because they must exist as a pair, one of them has a predominant character and they are only relative (Wu, 2002). For example, the head is yang and the body is yin; the chest is yin and the back is yang and the organs are divided into yin organs and yang organs, but simultaneously, both yin and yang coexist though one is often more dominant than the other.

In TCM theory, these concepts of yin and yang explain how humans and nature interact with each other and maintain equilibrium.

### 3.3.3. Interdependence between Yin and Yang

The concept of yin and yang appears to be opposite but they are interdependent and interact with each other constantly to change, evolve and maintain a level of equilibrium in nature as well as in human life. We are conditioned by the constantly changing relationship of these two cosmic regulators which are the yin and yang qualities. 'In conception yin and yang must exist in a pair and no side can exist solitarily' (Wu, 2002).

The characteristics of yang are often referred to active and functional situations. It tends to move outwards and upwards, warm or hot, restless or aggressive. The yin is applied to quietness and often refers to materialistic substance. It tends to contract, moves downwards, appears to be cold, dim, soft or slow (Maciocia, 1989). For example, the fire which is yang burns the water which is yin. When the water is heated up by the fire it changes into vapour which is yang that rises up. This concept can also apply to our body. If a person has a fever which is yang it heats up the body fluid which is yin. When the body fluid, the yin, is boiled up into vapour it becomes yang.

### 3.3.4. Yin and yang in the body

In our body, the Qi which is yang moves the blood which is yin. The blood circulates and nurtures all parts of the body through which the Qi is able to be produced. When the blood is insufficient in certain parts of the body, Qi cannot be produced to move the blood. Similarly, if Qi is insufficient, blood cannot circulate or it becomes stagnant which results in poor Qi production or it can even stop. '*Blood and Qi are inseparable as Yin-Yang. If they are separated, the blood does not move and Qi has no basis, so there is no life*' (Beinfeld and Korngold, 1992). A constant level of balance between yin and yang is important to maintain health. When there is an excess in yin it causes a yang illness the body becomes hot, when there is an excess yang it will cause a yin illness and the body becomes



cold. In YECIM, it says ‘Predominance of yang leading to heat....Predominance of yang leading to disease of yin... Predominance of yin leading to cold... Predominance of yin leading to disease of yang ...’ (Wu, 2002).

### 3.3.4.1. The balance of yin and yang in the body

The following diagrams illustrate the various balanced and in-balanced stages of yin and yang (Maciocia, 1989).

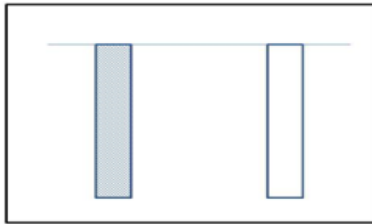


Figure 3-3 Balance of Yin Yang

Everything in humans and nature consists of the concept of yin and yang. The left figure shows the mutual consumption of yin and yang, which yields health in the body. The thin blue line at the top indicate the optimum levels of yin and yang. Knowing this, we can work towards equilibrium and can maintain our health.

The figure on the right shows an excess of yin as the yin column extends above the blue line and the yang column ends below it. Here the yin is consuming the yang and if this continues to a certain stage the body will not be able to keep itself warm. The body will lose heat and have less energy and a cold may develop.

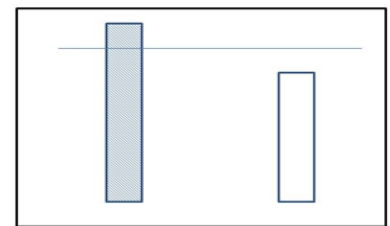


Figure 3-4 Excess of Yin

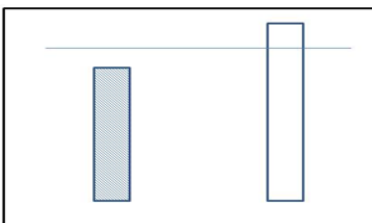


Figure 3-5 Excess of Yang

The figure on the left shows an excess of yang as the yang column extends above the blue line and the yin column ends below it. Here the yang is consuming the body fluids which are yin. As yang escalates the body temperature will raise causing loss in body fluids. For example fever may occur.

The figure on the right shows a deficiency of yang however the yin is at a sufficient level. Here the body may be low on energy and cold but it does not experience the same state of excess yin as in the above figure. It stated in the book ‘Between Heaven and Earth’ ‘when yang is deficient vital functions like digestion, and circulation are retarded... Again, a person becomes weak and tired with a poor ability to heal’ (Beinfeld and Korngold, 1992)

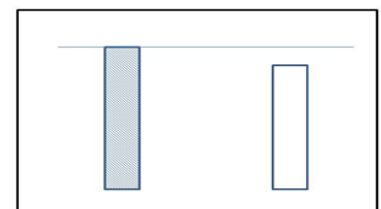


Figure 3-6 Deficiency of Yang



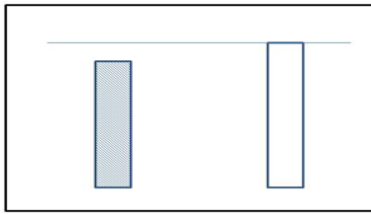


Figure 3-7 Deficiency of Yin

The figure on the left shows a deficiency of yin and the yang is at a sufficient level, here the body may feel hot and in order to equalise the body the yin must be topped up. It says ‘when yin is dissipated, blood and moisture are depleted....a person becomes weak fatigued and had a lower resistance to stress’ (Beinfeld and Korngold, 1992).

The process of cooking with a steamer can be an example for the balance of yin and yang in the human body. If we imagine our body as a steamer with a constant temperature which heats up the liquid or moisture inside, the amount of heat and the proportion of the liquid have to be balanced in order to maintain the same temperature constantly like our body.

### 3.3.5. The symbol of yin and yang



Figure 3-8 Yin & Yang symbol

The symbol of yin and yang is the most commonly recognised internationally (Tzu and Wong, 1992). When the yin and yang are harmonized with each other, our health is well balanced. If the deficiency or excess happens to one of them, the other is also affected. When such an unbalanced stage continues and reaches a certain limit, the other parts of our body are also affected.

The yin and yang concepts are important in nature and by understanding their function it will help us to study the relationship between man and nature in order to maintain health and well-being .

Obviously, our body is very complicated. The bio-chemistry in our body is not only affected by food and environment, it is also affected directly or indirectly by our mind for better or worse in balancing the stages of yin and yang. In well developed countries, most people have sufficient basic living conditions. However, despite sufficient basic living conditions a person’s health can be greatly influenced by their emotional viewpoint, and this is essential to the theory of TCM.

## 3.4 Emotion and health in the theory of TCM

TCM believes that human emotion is in-born. Emotional activity is a person's feeling through his/her experience of all external things and phenomena. It is also reflected in the activity of the internal body. Normal changes of emotion within a short period of time do not cause illness to the body. However, if emotional fluctuation is too much or stays for too long, it causes illness. One of the problematic emotions is what we now call 'stress'. For example, according to TCM, the condition of one's anxiety could cause extreme stagnation of the blood flow, and can threaten one's life. Sudden disorders of excessive excitement or anger will confuse the respiratory system and the body network which will result in poor Qi and blood circulation in the body (Li and Liu, 2005a).

The YECIM describes the details of the five types of human emotions, listed as joy, anger, anxiety, rumination and fear, and their effects on pathology and treatments. Later on, the emotions of sadness and fright/ shock are added to form the seven emotions in the theory of TCM (Veith, 2002).

Unbalanced emotions can develop into a psychological problem known in contemporary times as stress. An accumulation of stress causes different side-effects in different parts of the body. For example 'excessive anger impairs the liver.... excessive fear impairs the kidney' (Wu, 2002). The following research studies show that an excess of emotions can cause ill health in the body. A study at Shandong University was titled 'Demonstrate hypothesis of "life events are originating factor of emotional stimulations causing diseases"' (Yu et al., 2010). In one study, patients were given special emotional health care in accordance with the theory of TCM and healing after surgery. The findings showed that 82% recovered more efficiently after surgery (Yuan 袁梅玲, 2010).

## 3.5 The five elements

According to TCM philosophy all things in the natural world can be categorised into 5 elements: wood, fire, earth, metal and water. They are vital to our existence and to maintain the balance of our health, we depend on their interrelationships (Wu, 2002). If one or more of the elements is out of balance it results in the destruction of nature, including the external environment and our internal body (Maciocia, 1989). The five elements are used for diagnosis. A TCM doctor would look at a patient through the perspective of the five elements to diagnose illness and to identify the affected

organ. The illness may have been caused by emotional disruption. The treatment is to bring the yin and yang back into balance in that organ.

I will write about different western scientists who are researching ways to induce relaxation in the next section. Some of these have come from Eastern philosophy. There are many different methods of quieting the mind including stillness and movement. The balance of the Qi can be improved by practicing meditation and thus the five elements can be maintained in a healthy state.

Nature images have been linked to health benefits as will be discussed in the Western research section.

## 3.6 Nature, art and health in China

TCM derives from the three main streams of ancient Chinese philosophies, Taoism, Buddhism and Confucianism. Among them, Taoism was the earliest development, which was adopted in practice for health, well-being and all forms of arts (Hua-Ching Ni, 1997; Sahn, 1998; Veith, 2002). Then Confucianism became more dominant in maintaining the order of human relationships and Buddhism was merged into Taoism in many ways. Because Taoism emphasises the wholeness of man and nature in order to preserve health and maintain well-being, it did not only ground the primary theory of TCM, but was also manifested in all forms of arts and artefacts including painting, music, poetry, qi exercise, gardening and the tea ceremony.

### 3.6.1. Traditional Chinese landscape paintings and calligraphy

Traditional Chinese landscape painting is one of the most explicit types of illustration for healthy and enlightened living, in which the influence of Tao, Zen and ancient Chinese philosophy played a major part. The term 'landscape painting' is literally translated in Chinese as "mountain and water" (Law, 2011). A harmonious balance between man and nature can be found in many aspects of Chinese landscape paintings (*中国美术百科全书 Chinese Arts Encyclopedia*, 2009). Figures are painted relatively small to evoke the viewer's experience or their imagination of them being there in the grand natural environment (Law, 2011). The unpainted empty space, or space only painted with mist or cloud, leads viewers into the unknown spaces of the universe which may stimulate the reflection of one's unknown within oneself. Law (2011) states that Chinese landscape painting represents laws and orders which echo with 'the Daoist's reflection of his living in nature'. The simplicity of the colour

scheme in traditional ink painting suggests the simplicity of lifestyle to promote health and well-being. Shaw's article (1988), "Buddhism and Taoist influences on Chinese Landscape Painting" explains the theory of yin-yang and its implications for harmony with nature that flourishes in Chinese painting. Symbolic expressions for the essence of Zen go even beyond the similarity of visual forms in nature in Zen paintings. The actions of creating Zen painting and the contemplation of a Zen painting can be practiced as a process of meditation (Holmes and Horioka, 1973). The most well-known of these is the painting or drawing of the Zen circle (Holmes and Horioka, 1973; Seo, 2009).

Chinese calligraphy is an integrated and inseparable part of traditional Chinese paintings but it can also stand by itself. The practice of this art form has often been regarded as an effective way to calm the mind, develop one's insight and improve health (Lee et al., 14:02:00). Calligraphy is still commonly practised in China and Taiwan, by Korean Zen practitioners and among the Chinese communities in Singapore, Malaysia and Japan. Recent research in China reported the positive effects of Chinese calligraphy handwriting and relaxation training in Chinese Nasopharyngeal Carcinoma patients (Yang and Li, 2010).

Chinese gardens were also predominantly influenced by Taoism and Zen Buddhism through history. The development of the gardens served many purposes, but the common basic intention was to create a positive environment for human's healthy living space either symbolically, or practically, or both. The knowledge of Fung-shui developed from Taoism plays an important part in the transformation of a garden for happiness, harmony and longevity (Wong, 1996) whilst the main concern of Zen is the creation of an ideal place for meditation and inspiration for awakening (Rambach and Rambach, 1987; Scott, 1999). Natural elements such as stones, vegetation, water, man-made elements and certain auspicious symbolic ornaments, for example the image of a dragon or turtle, are adopted and arranged not only to sooth the eye but also to calm the mind.

The primary design layout of Chinese gardens heavily depends on the circulation of qi flow, which is regarded as the life force. It is the most crucial element that generates a person's internal qi and in a person it is identified with the breath. Maximum beneficial qi flow improves a person's internal breath force. As a result, it is possible to achieve a healthy and long life. In the Tang and Sung dynasties these gardens flourished in China, and Zen gardens were created in monasteries. They then spread to Japan and now can be also be found in the West (Rambach and Rambach, 1987; Scott et al., 1999).

### 3.6.2. The art of qi cultivation; the tranquillity of the mind

Realizing that the improvement of our health depends on our qi circulation, i.e. the internal flow of energy in our body, the ancient sages and expert philosophers in China developed a large variety of body movements. The most commonly known is Dao-yin which means to lead and guide the energy in the body. The applications of those movements were recorded in the earliest Chinese medicine book, the YECIM which I introduced at the beginning of this Chapter (Li and Liu, 2005a). The practice of “Qi-gong”, a more recent name for a form of these ancient movements, represents similar ways of healing and improving health through ‘all Chinese self-healing exercise and meditation disciplines from ancient times to the present’ (Cohen, 1997). According to Cohen, qi gong’s unique combination of movement, breath, and meditation improves the functioning of virtually all of the systems of the body and has both preventative and curative effects. He also states that the quieter the mind, the greater the capacity of qi-gong to benefit the body.

Tai-qi, which is also spelt as Tai-chi, is a form of qi exercise and is commonly known in many parts of the world. Its discipline was derived from the ancient Chinese classic “Tao Ti Cheng”, the core philosophy of Taoism (Lash, 2002). The Tai-chi master, Cheng Man-ching, internationally known in 1950’s, taught many westerners in the US and described the slow movements of Tai-chi as motion in meditation (Cheng and Smith, 1998). The slow movements relax the body and calm the mind. When calmness is achieved through these movements, the mind will function to its fullest and the qi flow will benefit the body.

Besides Tai-chi, there are many other forms of qi-gong exercise including movements and tranquil qi-gong, which is also meditation. Because of the rapid development in global networking and communication, an increasing amount of information about various approaches using old and new methods and techniques in the practice of mind-calming and meditation is now available in many developed and developing countries, except some which are very strict and rigidly religious. The ancient mind-calming and meditative methods from the practice of alternative medicine and therapies, Taoism, Buddhism and Zen traditions have spread from the East to the West within the last 40 to 50 years. In return, the West has developed a large variety of mind-calming and meditation methods alongside their Western scientific understanding and contemporary explanation, and transferred these back to the East (Sahn, 1998; Bstan-dzin-rgya-mtsho et al., 1999; Dyer, 2007)

Whether the practice involves body movement or non-movement, a spiritual or a practical approach and Eastern or Western methods, one common quality that is shared by all of those methods is to tame the mind to be quiet and still. In order to achieve the appropriate quality of quietness and stillness to benefit our body and mind, the right kind of relaxation needs to be generated (Benson and Stuart, 1993; Kabat-Zinn, 2001). Images of nature scenes are often applied in the relaxation process and used to engage a person's mind and to help bring them the benefits of calmness and quietness. These benefits, as I have shown are also those associated with different meditation practices. This was the key factor that inspired me to investigate and explore the potential qualities of nature images and coloured lights for bringing greater relaxation to people.

## 3.7 Western Literature Review

I have explained that the essence of my research is based on the Eastern Philosophy of 'quietening the mind'. The closest parallel term to the condition of 'quietening the mind' or 'calming the mind' in Western theories of physiological science appears to be the term called 'the relaxation response' by Benson at Harvard University (Benson et al., 1974). The term 'relaxation response' describes physiological responses which take place during the process of relaxation in the body and mind through either the input of stimuli from one's senses or from within one's mind (Payne, 2000). 'Quietening the mind' as I understand it in this study, means that the mind is in the process of being quietened, and this leads to the relaxation effect, which produces physical changes in the body. This effect continues while the effect of calming is taking place. The calmer the mind becomes, the stronger level of relaxation will be produced. Another way to better understand the relaxation response is to understand the relationship between stress and relaxation as described in the following section.

### 3.7.1 Stress

#### 3.7.1.1 Definition of Stress (what is stress)

For the purpose of this study, stress is defined as a negative emotion such as fear and worry, which absorbs the mind and may have a damaging effect on the body. This is in line with TCM thinking as outlined above and western thinking as outlined below.

Stress has a complex relationship with health as it can be both a causal factor for illness and also an effect of illness (Benson and Stuart, 1993). In early 1900s, Cannon first described the fight-or-flight reaction of the internal adaptive response. When a person encountered a physical threat, for example, facing a wild animal, a sudden response increases the related hormones in the body so that the person can either fight or run away efficiently (Goleman, 1995; Cooper and Dewe, 2008). However, Hans Selye, in his stress research in 1950s, discovered that people also react to stresses in contemporary life in the same way, that is, as real threat situations which produce the fight-or-flight response situation. The term ‘fight-or-flight’ was named by Cannon during his research at Harvard University (Selye, 1978; Cohen et al., 1995; Cooper and Dewe, 2008).

Kaplan (1996), states that manifestations of stress can lead to: depression, anxiety, substance abuse and antisocial behaviour. The book, ‘Managing Stress’ (Edworthy, 2000), argues that stress is personal to the individual. Some may say they are stressed when late for the bus and others will say they are stressed when their health is suffering. When a person is under stress, the body uses all of its energy to produce hormones due to the fight-or-flight response. Research shows that this leads to a weakening of body immunity, and a loss of the ability to protect from viruses and bacteria. When the body suffers from ill-health, it is likely to produce more stress. Therefore, it may create a vicious circle of stress and illness (Benson and Stuart, 1993; Goleman, 1995; Payne and Donaghy, 2010).

In the following figure (3-10(a)) the term ‘optimal performance’ is used to describe the best possible level and quality at which a person can perform an activity.

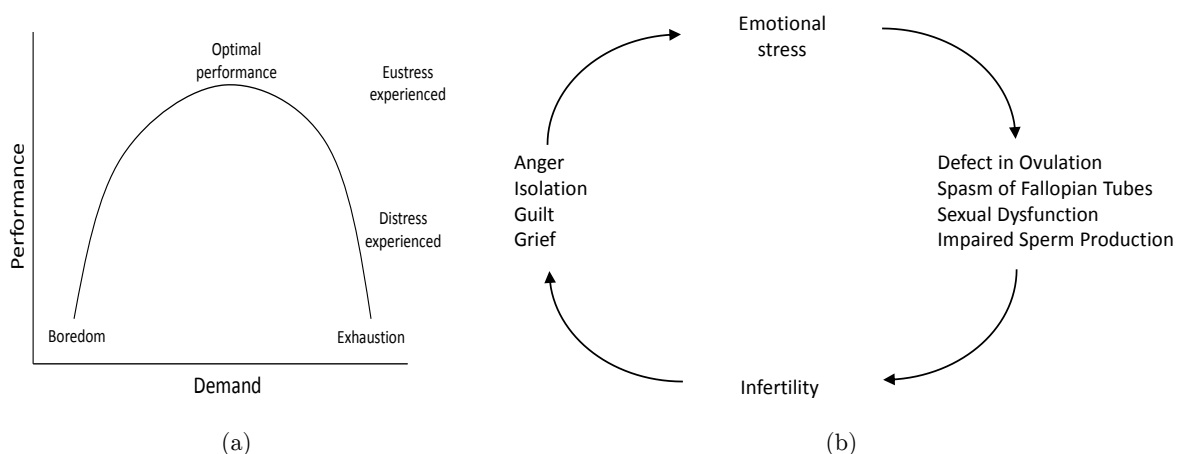


Figure 3-9 (a) Human performance curve adapted from (Cox, 1993), (b) Stress and infertility: A vicious circle (Goleman, 1995)

Stress can be described as either short-term or long-term. A sudden loud noise or an unexpected fall, is likely cause an immediate fight-or-flight response which can be a short-term reaction with the

increase of heart rate, blood pressure and muscle tension. These will return to normal if the incident passes without any damage (Benson, 1998; Ozaniec, 2010). However, if this psychological stress continues, for example through a continuing need to meet tight deadlines as is common in the fast pace of a modern lifestyle, the immune system can become suppressed. It will not only make us more susceptible to virus and diseases, but also drain our energy and possibly cause serious problems physically and mentally (Goleman, 1995; Witkin, 2009; Payne and Donaghy, 2010)

Edworthy (2000) quotes the following report in the UK.

“The Department of Health estimates that 80 million working days are lost every year due to stress related illnesses and they further suggest that up to 25 percent of the British workforce is affected by the problem....Research shows that 60-80 percent of accidents at work are stress related” (p.11).

Influencing stress levels is therefore a key process when improving health and wellbeing. Indeed, reducing stress would also have financial gain for society. Jacobson (1974) was one of the earliest physicians who identified the physiological changes that resulted from a set of exercises that he developed and named ‘Progressive Muscle Relaxation (PMR)’ (Jacobson, 1974; Carlson and Hoyle, 1993; Payne and Donaghy, 2010).

#### 3.7.1.2 The definition of the term of relaxation

The term ‘relaxation’ was used by Jacobson during his work as a physician in early 1920s, and he became known as the father of relaxation in the West (Jacobson, 1974) . He developed a form of exercise combining the attention of the mind and body to contract and relax the muscles. In his research he proved that there was a link between the tension of the muscle and the different states of the mind. He linked medical practice with psychology (and this his later became called psychosomatic medicine). He used electrical apparatus on his subjects to measure the links between muscular tone, nerve impulses and mental activities. From this he proved there was a connection between excessive muscular tension and different bodily or psychological problems. He found that reduced muscle tone decreased the activity of the central nervous system, and led to relaxation. Relaxation, he said, was a general means of reducing a range of illnesses that were closely connected with mental disorders, such as ulcers, insomnia and hypertension (Carlson and Hoyle, 1993). He is generally credited with carrying out early work on electromyography (EMG – which uses an electronic device to evaluating and record muscle activity) and biofeedback, which is used today in



biofeedback therapy – another type of alternative therapy to teach relaxation for people affected by stress (Dale et al., 1979).

### 3.7.1.3 The definition of the term ‘relaxation response’

When the practice of Jacobson’s PMR was spreading, Benson and Wallace did scientific research on the causes and effects of hypertension in early 1970s on subjects who had practiced various levels of transcendental meditation (TM). They discovered a range of physiological changes during meditation periods. The major changes included decreased metabolism, slower heart rate, decrease in respiratory rate and the occurrence of distinctive brain waves which differed from those observed during sleep (Goleman, 1995).

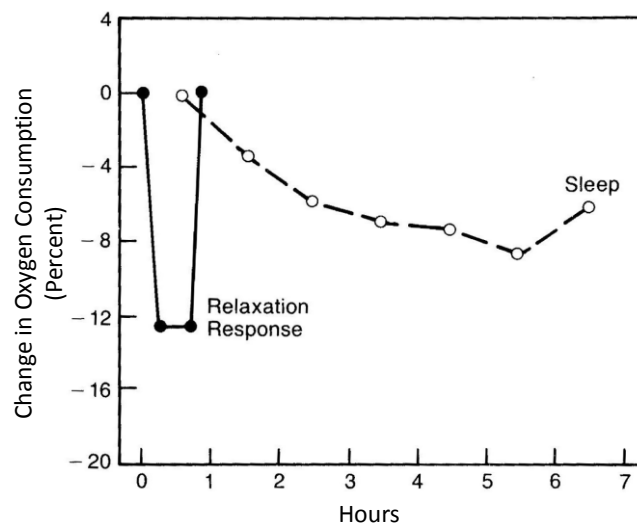


Figure 3-10 How the relaxation response differs from sleep (Goleman, 1995)

Due to this evidence, Benson and his colleague continued to explore this experiment further on a larger variety of subjects including secular and religious people from different cultures and traditions. They found similar results from subjects who practiced and or prayed regularly in the religions of Christianity, Judaism, Buddhism, Islam and Shintoism (Goleman, 1995). Benson called this process of physiological changes, the ‘relaxation response’. Through this understanding, he and his colleagues identified and developed a range of techniques so that both religious and secular people could learn how to elicit the relaxation response to produce the physiological changes to benefit their health (Benson and Stuart, 1993; Goleman, 1995). These techniques included diaphragmatic breathing, meditation, body scan, mindfulness, repetitive prayer, repetitive exercise, progressive muscle relaxation, yoga stretching and imagery (Benson and Stuart, 1993; Goleman, 1995).

Table 3-1 Physiological changes with different techniques (Goleman, 1995)

Technique	Oxygen consumption	Respiratory rate	Heart rate	Alpha waves	Blood pressure	Muscle tension
Transcendental meditation	Decreases	Decreases	Decreases	Increase	Decreases*	(Not measured)
Zen and yoga	Decreases	Decreases	Decreases	Increase	Decreases*	(Not measured)
Autogenic training	(Not measured)	Decreases	Decreases	Increase	Inconclusive results	Decreases
Progressive relaxation	(Not measured)	(Not measured)	(Not measured)	(Not measured)	Inconclusive results	Decreases
Hypnosis with suggested deep relaxation	Decreases	Decreases	Decreases	(Not measured)	Inconclusive results	(Not measured)

\*In patients with elevated blood pressure

The physiological changes of the relaxation response (Benson and Stuart, 1993) showed decreases in metabolism rate, heart rate, blood pressure, breathing rate and muscle tension which contrasted with the fight-or-flight response in which those changes are increased.

Physiological Changes of the Fight-or Flight Response		Physiological Changes of the Relaxation Response	
Metabolism	Increases	Metabolism	Decreases
Heart Rate	Increases	Heart Rate	Decreases
Blood Pressure	Increases	Blood Pressure	Decreases
Breathing rate	Increases	Breathing rate	Decreases
Muscle tension	Increases	Muscle tension	Decreases

Table 3-2 Comparison of changes of the relaxation response to those of the fight-or-flight response

The diagrams illustrate the oxygen-consumption changes associated with the relaxation response (Benson, 1998) and blood lactate changes associated with the relaxation response (Benson, 1998,

p115). Blood lactate is produced by the body in exercise, and lower levels are associated with relaxation.

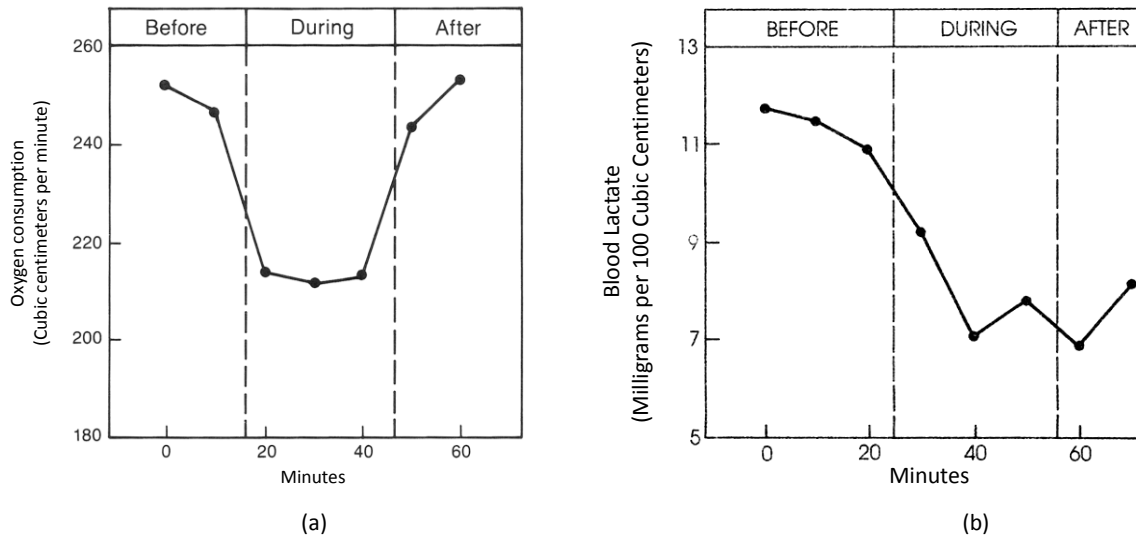


Figure 3-11 (a) Oxygen-consumption changes associated with the relaxation response, (b) Blood lactate changes associated with relaxation response (Benson, 1998).

During the past 40 years in the West, a large variety of methods and techniques that can generate relaxation responses have been researched and developed. Many relaxation techniques were developed from meditation methods in the East such as zen, mindfulness and visualization meditation, and there are also secular approaches which have been established and applied to stress management since 1970s (breathworks, n.d.; Kabat-Zinn, 2001; Chang et al., 2004; Benson and Proctor, 2011) .

In general, all those relaxation methods and techniques can be classified into two main types – mental approaches and physical approaches. Mental approaches include relaxation response, meditation, imagery, visualization and autogenic training (Benson and Stuart, 1993; Goleman, 1995; McVay et al., 1995; Zahourek, 1997; Geller, 1999; Gawain, 2002; McTaggart, 2008; Parnabas and Mahamood, 2011). Physical methods include progressive relaxation, Progressive Muscle Relaxation, the Mitchell method, the Alexander technique, Behavioural relaxation training, stretching exercises (Jacobson, 1987; Öst, 1988; Goleman, 1995; Poppen, 1998; Payne and Donaghy, 2010). A few gentle exercises from Eastern traditions have been adapted and often combined with some mental relaxation training. Yoga, Qi-gong and Tai-chi are variously seen as meditations in motion (Chuen, 1991; Benson and Stuart, 1993; Goleman, 1995; Lash, 2002; Atkinson, 2007; Kohn, 2008). Other more broadly-focused health-related alternative therapies have also evolved in the West, often with Eastern roots, and provide additional support to health and well-being alongside main stream Western

medicine (Geller, 1999; Wilson, 2000; Evans, 2014). The majority of alternative therapy treatments either induce the client into a relaxed state before the start of the specific therapy session, or the treatment itself elicits the relaxation response through the process, for example, acupuncture, aromatherapy, colour therapy, crystal and gem therapy, hypnotherapy, kinesiology, psychotherapy, message, reflexology, reiki healing and shiatsu (*Alternative Therapies - BBC Two*, n.d.; Ernst, 1996; Jahnke, 1998; Wilson, 2000; Chopra, 2008; White et al., 2008; Evans, 2014).

In addition to these body treatments, the connectivity of humans and nature for health and well-being has been emphasised since 1960s. Louv's books, 'Nature principle' and 'Last child in the wood' have raised many city people's awareness in the US in recent years (Louv, 2008, 2012). Louv advocated 'nature therapy' – getting outside and spending time in nature – as a treatment for what he terms 'nature-deficit disorder' (Louv, 2012). Although this disorder is not otherwise recognised in mental health, Louv argues that frightened parents and the lure of computers and TV act together to keep children indoors and 'safe' and that this distorts their natural learning and growing processes (Louv, 2008).

### 3.7.2 Nature and Health

#### 3.7.2.1 Definition of Nature

“all the animals, plants, rocks, etc. in the world and all the features, forces, and processes that happen or exist independently of people, such as the weather, the sea, mountains, the production of young animal or plants, and growth” (Cambridge Dictionaries Online, 2015).

The definition of 'nature' above gives us a list of those life forms of animal and plants, natural materials and features which exist independently of humans. However, the existence of human beings has to depend on nature (Moyle, 2004; Ehrlich and Washington, 2012). Whilst such citations are available in the literature, I consider such that understanding of the relationship between humans and nature has been inbuilt into our 'internal software', and is either conscious or unconscious. For example, most of our food originally come from nature. At some level human beings are aware of this and of the fact that we cannot live without food. The relationship between humans and nature is key to human survival.

According to Logan and Selhub vis *medicatrix naturae* (the healing power of nature), has traditionally been defined as an internal healing response designed to restore health (Logan and

Selhub, 2012). They note that in 1914 the biologist Sir John Arthur Thomson defined nature as the natural, non-built external environment and argued that the healing power of nature is associated with mindful contact with animate and inanimate parts of the outdoor environment. They reviewed current literature and research to conduct a contemporary exploration of his thesis, and found that the available evidence suggested that nature does minister to the mind, and that individuals may need to be made more aware of the potential psychological benefits of nature (Kaplan and Kaplan, 1989; Anderson, 2004; Davis, 2004; Selhub and Logan, 2012).

Recent research has demonstrated how a connection with nature can bring beneficial effects to our mental and physical health (Hartig and Marcus, 2006; Berman et al., 2008; Cervinka et al., 2012). Roger Ulrich, Rachel and Stephen Kaplan are pioneer researchers who have studied the effects of the natural environment and pictures of nature scenes on people's health and emotions (Ulrich, 1981; Kaplan and Kaplan, 1989; Ulrich et al., 1991; Ulrich, 2002). Their findings helped to promote installations with nature elements in hospitals, healthcare units and living environments (Moyle, 2004; Hartig and Marcus, 2006; Vincent et al., 2010; Selhub and Logan, 2012). Through a number of research studies using both qualitative and quantitative methods, Ulrich found that a window view of nature enhanced the healing process of patients and a large realistic landscape picture with sounds reduced pain level on patients (Ulrich, 1981, 1984; Lechtzin et al., 2010). Kaplan, analysing the kinds of experiences which led to recovery from chronic fatigue found that natural environments were particularly beneficial (Kaplan and Kaplan, 1989; Kaplan, 1995, 1996).

### 3.7.3 Nature and Hospital Art

The development of art work in hospitals in the West will now be described. European Churches originally had rooms for patients and placed in these rooms were various art works related to the Bible, such as a picture of man going to heaven. In the 17th Century these rooms were turned into early hospitals, for example St Thomas' Hospital in London, where public sculptures and art works were introduced around the building to help patients recover (Cork, 2012). In addition to the application of medicine and treatments, alternative and humanistic approaches of Western methods of reducing suffering consisted of placing figurative paintings in churches and areas that could be accessed by hospital patients. Many of those paintings illustrated themes from the Bible. Towards the 1940's, gradually, art themes changed from religion and moved towards abstract and natural images. For example, Ilya Bolotowsky's 1940s mural painting was adopted in the chronic diseases

ward in Coler-Goldwater Memorial Hospital in New York (Cork, 2012). Peter Senior founded the Hospital Arts Manchester in 1973. His argument was that the various art forms could contribute a valuable part in benefiting the patients, staff and visitors of the hospitals (Scher, 1996; Scher and Senior, 2000). Research on installation art work on the ceilings of CT scanners at St Mary's Hospital (Scher, 1996) showed the therapeutic effects on patients. Scher (1996) notes Staricoff's 2004 review of medical literature for Arts Council England which cites nearly 400 papers showing the beneficial impact of the arts on a wide range of health outcomes.

Today, landscape paintings, photography and nature films are all used in art displays to promote health, recovery or well-being (Scher and Senior, 2000; Zimring et al., 2004; Arts Council England, 2007; England and Health, 2007).

#### 3.7.4 Nature images for health

Due to the limitations inside the interior of many hospital environments in managing real nature elements, such as living plant life and animals, representational images of pictures, photographs and nature films have been installed and fitted in interior buildings for the visual benefits of patients, visitors and healthcare staff. This is because recent research showed the therapeutic effects of nature images on the human mind that elicited beneficial physiological responses in the body. One piece of recent research close to my study is Vincent's PhD thesis (Vincent, 2009).

Vincent (2009) carried out experiments with still photographs in order to determine which images were most likely to be experienced as therapeutic as evidenced by reduced pain and positive mood. She based her selection of images on Appleton's prospect-refuge theory (Appleton, 1975). This states that taste in art is an acquired preference for particular methods of satisfying inborn desires. The two desires are for opportunity (prospect) and safety (refuge).

To develop this theory, Appleton studied landscape painting for its real and symbolic content (Appleton, 1996). He concluded that there are three distinct categories of landscapes – prospect (real or symbolic access to a view from a high spot), refuge (when the view contains real or symbolic shelter from possible threats, such as animals or storms) and hazard (anything that could cause real or symbolic harm, such as fire, brambles or rough water). Pictures might predominantly contain just one of these, or be a mixture of two or all three. A mixed prospect then could be a landscape image containing prospect, refuge and/or hazard.

Vincent's (2009) research contained two phases, image selection followed by a clinical experiment on students, which involved induced pain and simulated hospital environments. She argued that images should be selected by the type of people at whom the images are to be aimed. Thus she chose students to select and classify images to be used. These students were asked to classify the images into the four categories of prospect, refuge, hazard or mixed prospect and refuge. Student participants were then randomly assigned to each of these four groups and to a control group. After an assessment, the student would be subjected to pain (their non-dominant hand would be immersed in ice cold water for up to two minutes), shown one of the chosen images on a screen and reassessed. The control group was subjected to the same experience, but shown a blank screen instead of an image. Physiological tests assessed effects on blood pressure, heart rate, and psychological tests assessed pain and mood.

Vincent argued that certain images would promote a high degree of 'presence' for viewers, presence being the feeling of actually being in the landscape depicted. She hypothesised that the greater the degree of presence, the more the viewer would be distracted from the pain. Her analysis showed that some types of images were better than others at promoting such distraction, notably the 'mixed prospect' and 'refuge' images. Whilst the hazard image was effective in distracting viewers from pain, it created too much mood disturbance to be considered helpful as a therapeutic tool. All the images were better at distracting the viewer from pain than the blank screen, which confirmed Vincent's general theory about the efficacy of images for this purpose.

Essentially then, Vincent looked at still images of landscapes and found them effective in distraction from pain. Her research has led to further work in hospital settings, with still images, aiming to identify the most therapeutic landscape images for people in pain (Vincent, 2009).

The main differences between Vincent's research and this current study are the following:

- The most distinctive difference between my study and Vincent's is that I used moving images (video films) of nature images for the main study but Vincent used still photographs of nature scenes.
- The dominant method of my study was qualitative and Vincent's was based on statistical findings using a control group and a scientific model.

- I conducted my main study in three real hospital settings with patient and adult participants whereas Vincent carried out her experiment in a simulated patient room of the university with healthy student participants.
- Vincent devised a method to select and categorized the nature images into four categories based on Appleton's theory but I applied my own experience of visual art in the West and East, meditation, TCM and alternative therapy practice to select the nature films for the Chinese participants of this study. Vincent (2009) stated "Appleton (1996) agreed that culture played a role in landscape preference, but also acknowledged that a sufficient theory to apply to that aspect of research was lacking" (Vincent, 2009:106)

Today, landscape paintings, photography and nature films are all used in art displays to promote health, recovery or well-being. Minard has provided nature films for over 10 years. Minard's research at the Christie Hospital, a specialist hospital for the treatment of cancer in Manchester, shows that '70% to 80% of patients reported an improved patient experience due to help with relaxation, reducing anxiety and providing soulful distraction in 2011. 60% were helped with sleeping' (Minard, n.d.). Sky factory provides virtual sky lights to many healthcare settings, hospitals including Aberdeen Royal Infirmary and ABC Cancer Centre has used these sky lights (The Sky Factory, n.d.). A company which specialized in fitting hospital curtains, overhead-scenes and wall treatments with nature sceneries, promoted their services by involving on-going research. This may result in mutual benefits for their business and the health care development (Catalina Curtain Company and Sereneview, 2014).

The health benefits of nature scenes, nature images and nature art in hospitals and health care units have begun to gain some promising recognitions in recent years though mainly in a number of Western countries. The progress of the journey in this direction still requires a larger amount of relevant research and evaluation to promote this development and be able to cover a wider area in different parts of the world.

As media technology progresses, the effect of nature scenes have been developing to create a virtual impact on human perceptions in restricted healthcare interior settings. These could be an alternative to true nature scenes in future. This is not the root solution for nature-deficit-people, but such substituted images can evoke some positive bonding sensations between nature and humans when there is no other possibility available. A question remains though as to the extent of the impact



of nature images for health benefits? Continuing research from different fields, such as Vincent's (2009) subsequent research, and the research carried out for this thesis, may provide a fuller picture of the reaction of mind and body to nature images.

### 3.7.5 Coloured Light and Health

Light rays are both visible and invisible to the human eye (Wills, 2000; Birren, 2010). The electromagnetic spectrum goes from the longest to the shortest waves in this order: radio waves, microwaves, infra-red rays, visible light, ultraviolet rays, X-rays, gamma rays and cosmic rays (Lamb and Bourriau, 1995; Wills, 2000). Visible light then is only a small part of this spectrum. The relevance to this study is the relationship between visible light and human responses.

#### 3.7.5.1 How do we see light or colour?

Without light, we cannot see colours (Lamb and Bourriau, 1995) therefore colour and light are inseparable (Holtzschue, 2011). In the seventeenth century, Newton discovered that white light contained a spectrum of seven colours: red, orange, yellow, green, blue, indigo and violet and demonstrated this by refracting white light through a prism so that these colours were clearly visible (Marberry, 1995). Human beings have sophisticated eyes so that a single lens directs light on to a range of photosensitive cells, often referred to as being like a camera but more complex. Jacob Liberman, a proponent of the health benefits of light is currently examining how light interacts with the body by evaluating the composition of light entering and exiting the eyes of individuals and using that information to evaluate the state of a person's health (Liberman, 1993).

When light passes the cornea of the eye, it focuses the light waves which are transmitted to the retina. The retina is formed from photoreceptor cells known as rods and cones which specialize to interpret different incoming information. Rods operate in dim light.

There are two pathways after the light reaches the retina. One is directed to the pituitary gland which controls most of other endocrine glands in the body (Bleicher, 2011). The perception of light is translated as electrical signals and transmitted to the visual cortex of the brain. It influences the endocrine glands which thus affect the body temperature, metabolism, water regulation, sexual and reproductive functions. It also controls our biological clock, behaviour patterns, appetite and the balance of the autonomic nervous system (Wills, 2000).

Another pathway is where light enters the eye which affects the autonomic nervous system via the pineal gland (Lamb and Bourriau, 1995). Nerve fibres allow impulses to travel directly from the eye to the brain and then enter the nervous system via the spinal cord before the impulses travel back to the pineal gland. This gland secretes melatonin, a derivative of serotonin, which generally contributes to feelings of well-being and happiness. Because of its position in the brain, the pineal gland is seen as part of the limbic system, which in turn is thought to be involved with emotion, behaviour, motivation, long-term memory and the sense of smell although this involvement is not fully understood (Klein, 2004). Impulses to and from the pineal gland can be either suppressed or stimulated depending on nerve transmission from the response of the light as it reaches the retina of the eye (Wills, 2000). Thus light itself is thought to directly affect feelings (Payne and Donaghy, 2010).

### 3.7.6 Coloured Light and Healing

Colour therapy and colour imagery have been practiced in many western countries since 1960s. Relaxation is often induced by guided colour imagery. Colours and emotions are seen to be closely related, and colour can evoke memories, experiences, spiritual connotations and psychological impacts that affect perception (Wills, 2000). Although colour therapy has not been well-recognised as an effective technique for healing in mainstream medicine, recent research has shown an increased interest in further discovery about the healing power of light (Marberry, 1995; Birren, 2010; Bleicher, 2011).

The *Healing Power of Sunlight* was first published in 1851 by Jakob Lorber who treated patients with sunlight (Lorber et al., 1997). The Danish physician Niels Ryberg Finsen was a pioneer who was the first to develop light treatment by using artificial light in 1893 (Finsen, 1893). Some of the earlier researchers, Stein, Metzger, Daitsch and Kogan variously discovered that certain lights and the level of hues could affect psychological as well as physical aspects (Birren, 2010). For example, physiological effects were known. Red light caused arms to spread away from each other and green caused them to approach each other. These early research found that red colour increased skin temperature, blood pressure and respiration while blue colours decreased them. The colour red was found to increase muscular and psychological tension most, followed by orange, yellow, green and blue. Warm hues stimulated and cool colours relaxed. Blue lights were used to keep vicious and ill-tempered animals calm. Yellow and purple lights were found to have effects upon human metabolism.

They also found through monitoring, that pulse rates became slower in darker light but activated with warmer hues (Birren, 2010).

The findings from a number of studies are summarized by Birren (2010). For example, blue, violet and green are cool hues and are said to contain the quality to cool and calm down. Thus, they have a greater possibility for eliciting relaxation. Yellow-green was found to be the most tranquilizing colour with green as the next most calming colour. Violet was said to be the most subduing and the next was purple. Green appears to be soothing to people's mental state. Children's homesickness can be reduced by the colour green. Blue can decrease toxins and is associated with devotion and with health and devotion; indeed early medicine bottles were blue. However, blue and green can produce fear if the cool hues are intensified. Green light has been thrown onto criminals in a mirrored room to force confession. Warm, bright colours, such as red, orange and yellow are likely to stimulate rather than relax, although their pastel hues may produce soothing and comforting effects.

However, individual preference often has a strong influence on the emotional effects of the experience of colour. Since an individual has his or her own meaning for what is perceived, the impulses are different for individuals, even when the stimuli are the same (Wills, 2000; Birren, 2010). This could be a result of the brain and psyche overriding the incoming signal and ignoring or altering the impulses of the light wavelength. Indeed, according to Wills (2000), the brain plays a more significant part in how we perceive colour than the actual colour itself. This relationship has been explored with the use of scans which show brain activity in response to different colour stimuli.

Hospitals use phototherapy on infants born prematurely. Chromatherapy has been practiced since Kirlian found an aura effect from high-voltage electrophotography in the 1930s (Rubik, n.d.). He believed that the auras corresponded to the seven energy 'chakras' in the body and the colours used in chromatherapy have their own specific healing properties including the equilibrium of one's mental state. Peter Mandel invented a healing device 'colourpuncture' based on the theory of Chinese acupuncture in which coloured lights are applied onto the acupuncture points through the skin (Mandel, 1986). Luminotherapy applies light with same photosensitivity as sunlight to treat people who suffer from anxiety and depression because of Seasonal Affective Disorder (SAD) during the winter (Thompson et al., 1990). A randomised controlled study found that light therapy showed equal effectiveness with anti-depressants in relieving SAD symptoms, and that the positive effect was more immediate, although a minority of patients did not respond to it (Lam et al., 2006).

Recently, more researchers have been interested in the study of the health benefits of lights. Some reports have found that coloured light could affect cardio-autonomic control and well-being (Grote et al., 2013). ‘Dark therapy’ has been developed to treat bipolar disorder by using amber lenses to block out blue light (Gómez-Bernal, 2009) and flashing lights in various colours have been found to reduce the pain of venous cannulation during medical treatment (Rahimi et al., 2013). Results from experiments on the effects of light on alertness and attention have recently been published. For example, students’ attention was increased when appropriate lighting was fitted inside their classroom (Keis et al., 2014). Walls have been painted pink in bid to calm down aggressive prisoners in cells and pale green is commonly painted in hospitals to reduce the after-image of red, due to over-stimulation of this colour because of the blood involved in a surgical operation (Schauss, 1979). A number of hospitals have installed lighting to simulate the biological clock, and natural rhythm of day and night, in intensive care units (ICUs) where windows are not available (Bleicher, 2011).

Overall it seems that there is much interest in the possible impact of colour on people’s bodies, minds and emotions. However, despite a good deal of research and much acceptance for the influences of colour and coloured light amongst alternative health practitioners, it remains either alternative to or complementary to mainstream western medicine.

### 3.8 Summary

This chapter began with an overview of Chinese perspectives on humans and nature. These were noted to be thousands of years old. The general view is that human beings need to live in harmony with nature in order to be healthy, since all human beings need to live in a geographical location and be subject to the influence of seasons. The concept of harmony is at the basis of TCM, which strives to bring unbalanced bodies back into balance, and so become healthy. Balance is achieved through firstly diagnosing health problems, using the main two elements of yin and yang energy. Where there is a health problem, either mental or physical, yin and yang are understood to be out of balance in one or more organs in the body, or in the body as a whole. The practitioner refines the diagnosis using the five elements – fire, water, air, wood, metal – which are related to the different organs. By looking at the patient through the lenses of yin and yang and the five elements, the practitioner can both diagnose illness and prescribe or provide treatment. This treatment brings the organs back to proper functioning as the yin and yang come back into balance. Since a patient is treated as a whole,

any physical problem may affect or be affected by emotions and any emotional problems may affect or be affected by the physical body. Thus the practitioner looks at both physical and mental states.

The Chinese view is however that a peaceful mind can maintain health and prevent illness so that treatment will not be required. Too much activity will lead to a busy mind and to ultimate health problems. To keep the mind less busy, Chinese culture has developed art forms which aid this, such as the practice of qi-gong exercise, calligraphy and the contemplation of nature. This contemplation is a reminder that a person should stay in harmony with nature to stay healthy. It's a positive hint. Thus the traditional art of China has largely featured nature paintings, which are seen as accessible views of real nature. Looking at paintings of nature thus becomes a means for calming the mind and staying healthy.

In the west, the notion of balance has come to prominence through the concept of stress. It is argued that too much stress – in the form of overwork or mental strain – leads to high pulse rates, high blood pressure, inability to perform activities, and various mental and physical health problems. Treatments for stress have included ideas similar to eastern practices of regaining balance and quieting the mind, such as relaxation response meditation, mindfulness training and various mainstream and alternative therapies. Treatments also include the use of calming environments which employ, for example, nature images, coloured lights and quietness. Like the Chinese approach, western treatments have employed images of nature, as well as experiences of nature to address the problems of imbalance, and increase relaxation and calm.

# Chapter 4

## Methodology

### 4.1 Overall aim of the study

The research question was as follows: what is the impact of the different elements and components of nature films, nature photographs and coloured light on a diverse range of subjects in China, and do they produce a calming effect for participants which is similar to some of the beneficial effects of meditation?

This whole study would be an exploratory attempt to bring some research understanding to this relatively under-researched field.

### 4.2 Objectives of the study

The objectives of this research work is outlined as shown:

1. To develop a body of material, including nature photos, nature films and coloured lights, to use in tests on participants in China.
2. To test these images and lights on people in the UK to find out whether they produce a calming effect, and thus refine the method.
3. To carry out tests on diverse groups in China to explore the extent to which these images and coloured lights may produce a calming effect.
4. To collect and analyse data which will demonstrate the extent of the impact of these images and lights on participants.
5. To present findings based on these data.
6. To present a body of visual material developed for and used in the study, including nature photographs and nature films.
7. To present further selected films and photographs which provide a visual description of how parts of the research were carried out.

### 4.3 The terms ‘relaxing’ and ‘calming’ in this thesis

The terms ‘relaxing’ and ‘calming’ have some distinctive differences in Chinese in association with mood (Oxford Dictionaries, 2010). To relax means to loosen up, ease off, sit back, unwind and rest. To calm means to be tranquil, quiet, still and composed.

To reflect this I have used the terms interchangeably in this thesis. This seems to be consistent with my general findings. Although I adopted the words, ‘relax’ or ‘relaxing’ as key words for the research questionnaire, participants nevertheless also used a variety of words associated with calm or calming, such as tranquil, serene, still, silent and so on.

Moreover, both words adequately describe the sense of mind and body slowing down. This can be distinguished from another positive descriptive word used by participants: ‘uplifting’. Uplifting would seem to describe the feeling of being elevated from one’s original mental state, and thus affected in a different way. Therefore, the term ‘relaxing’ was placed in a different cluster to the term ‘uplifting’.

### 4.4 Introduction

This chapter describes a three-stage method of conducting the studies as follows:

1. Stage one: research preparation and planning for recruitment
2. Stage two: research development and design development in the UK
3. Stage three: study in China.

This research is based on a mixed methods approach. A questionnaire was used which collected both quantitative data (Creswell, 2003; Bergman, 2008; Andrew, 2009) and qualitative data (Corbin and Strauss, 2008; Teddlie and Tashakkori, 2009; Ross, 2012). The qualitative data were dominant, and used to explain the quantitative information collected.

The development stage of the research, carried out in the UK was done through a series of studies based on an inductive methodology similar to action research (Stringer, 1996:17) which is explained in more depth on pages 46-49 later. A series of sequential studies (Bergman, 2008; Teddlie and Tashakkori, 2009; Vincent, 2009) were carried out and after each one, the researcher made slight alterations based partly on lessons learned from the previous test and partly on anticipations of what the next group would need. Each group was seen in different locations, in different organisations and

was comprised of different people with different needs. Thus some aspects of each study were different. Whereas with action research however, the principle is usually to discuss the findings and the revised plan with the participants (Frederick and Meg, 1995; Cooper, 2000; Munn-Giddings and Winter, 2001; Earl-Slater, 2004) for this current research, the reflection and revised planning were all carried out by the researcher alone without the involvement of the participants.

Because of the various combinations of each UK test, they were exploratory in nature (Teddlie and Tashakkori, 2009; Totton, 2010; Speziale et al., 2011; Ross, 2012) and in the overall methodology, In contrast, during the main study in China every effort was made to keep the research and the settings consistent, so that although the research was carried out in three different locations, the total amount of data collected were similar enough to be analysed as one data set.

Although part of the study used quantitative measures, it was a decision of the researcher not to conduct an orthodox controlled scientific study. Instead, a central focus of the study would involve a range of creative elements or artefacts - still photography, film-making and a space for coloured light contemplation and film review. This was to be an exploratory study which would adopt a range of these interventions for various groups of participants and adopt the opportunistic sampling of locations and participants and the gradual selection of materials (Teddlie and Tashakkori, 2009).

Importantly, the study was to be based on the researcher's prior learning and understanding of Traditional Chinese Medicine (TCM), Buddhist meditation, and visual art, particularly on the value of traditional links in Chinese art between nature images and the maintenance of good health (Law, 2011Jul 29; Shaw, 1988; Yang and Li, 2010).

The research method was designed to discover a range of personal details about each participant and used both closed and open questions to strengthen not only the validity of the findings but also provide the possibility for further detailed analysis regarding the differentiation of the impact of certain images and colours on different demographic groups. For this reason, more data were collected than were used in the current analysis

In brief, this research involved three stages: preparation, development and the research study using inductive studies in an exploratory sequential manner that formed a series of continuous cycles similar to the pattern of action research. The methodological approach was humanistic in that every effort was made to ensure as far as possible that the effects on participants were positive rather than



negative. The approach aimed mostly for the analysis of qualitative findings with some numerical data. The study importantly included the development of a body of artefacts for carrying out the tests, including coloured light and visual material.

## 4.5 Stage 1: Preparation of photos and films

### 4.5.1 Objectives

To experiment with and develop a body of material, including nature photos, nature films and aesthetic images to test first on people in the UK. This included the following:

- Creating photographs and films of nature scenes and nature images.
- Experimenting with films of aesthetic images.
- Collecting further films and re-editing them for research use

### 4.5.2 Preparation for Creating Images

The year before I started this research I had taken a MA course in Animation and Sound Design in the UK to build on my previous graphic design profession. Since then, I had searched for any visual images that may have a calming or positive effect on people's well-being in books, digital discs, movies and internet resources as well as creating my own collections. In 2003, I created a short animated film which featured a popular Buddhist symbol – a lotus flower - to be used for meditative contemplation, and in 2005, another animated film based on the visualization of the Indian Chakra system for healing (Virtue, 1998). This was tested in a complementary health clinic with generally positive feedback.

Eventually, I had amassed a great variety of visual images including films, photographs, paintings and art work that might be considered as calming or positive. I decided to narrow them down by focusing on nature images.

In my role of researcher as well as a visual artist, I set up the following two questions and used them as my main guidelines for selecting appropriate nature images.

- Which nature scenes are most associated with calming and relaxation amongst potential participants in the UK and China?

- Which nature scenes are likely to cause a negative effect or counteract the effect of calming and relaxation amongst potential participants in the UK and China?

In the beginning, I created a small number of challenging photographs and videos which were intended to provoke negative emotions, in case I needed them to demonstrate different impacts. This idea was influenced by the following two experiments:

- A series of functional magnetic resonance imaging (fMRI) tests on the effect of human emotion through the visual stimulation of negative and positive images in photographs (Goleman, 2003)
- The BBC series on “Alternative Therapies” (*Alternative Therapies - BBC Two*, n.d.): programme on “Meditation”. The presenter on the programme acted as a volunteer to be tested for the relaxation effect of guided meditation by medical devices including an EEG measure. Herbert Benson who coined the term, ‘relaxation response’, carried out the test (Benson et al., 1974). He asked the presenter to do a series of mathematical problems to induce stress before the relaxation process began.

Eventually however I dropped the idea of examining the impact of showing challenging images, partly because this contradicted my preference for promoting the care of participants, and partly because it was later prohibited by the hospitals in China for their own medical reasons.

One advantage of carrying out the UK development study first, was that any image found to evoke negative effects on UK participants could be excluded from the later China study.

#### 4.5.3 Considerations when selecting visual images: Western landscape paintings

According to my understanding of ordinary Chinese people in China who have not been educated in the West or had an art training, many paintings and artworks of nature, particularly those abstract or semi-abstract artworks displayed in UK hospitals would be unlikely to be understood and appreciated (Vincent, 2009). Without sufficient appreciation in viewers it would be difficult to promote calm or relaxation.

Basically, there is a difference between a classical Chinese landscape painting and a classical Western landscape painting. In the first, people are depicted as part of the landscape in the second people are either hidden (the observer safely looking at the painting) or very large (the person dominating or owing the landscape (Appleton, 1996). This observation had an effect on how I

selected my images for China and carried out my photography. I looked for images similar to Chinese paintings, to take account of Chinese culture and the expectations of the people who would view the images.

#### 4.5.4 Chinese nature paintings

The selection and creation of films and images were influenced by my understanding of ancient Chinese beliefs about healthy living. These came from Taoism, Buddhism and Naturalism, traditional Chinese paintings, particularly classical landscape paintings, and often emphasised the expression of a magical relationship between man and nature (*中国美术百科全书 Chinese Arts Encyclopedia*, 2009). For example, I understood that people were often depicted as a tiny humble person, perhaps a traveller or one of a group of small figures among magnificent landscapes. These might be mountains, forests or open sea, and were visualized by the artist as a whole scene from a distant prospect ('Taoism and its influence on the arts of China,' n.d.; Mackenzie, 2013). Landscapes without human figures are not rare but they often emphasise the positive aspects of nature rather than people.

The combination of my own art training and zen meditation gave me an awareness of these cultural phenomena. In order to expand the choices of visual images for the Chinese participants, I made several trips to China and captured a large collection of film and photographs on nature between 2007 to 2009 in addition to my continuing constant photography in the UK. It was my habit to carry a camera wherever I went and to capture photographs and film of nature. My image creation emphasized calm and peacefulness.

#### 4.5.5 Three categories of images

During the initial period of visual image creation, I originally planned to use three categories of images: a) nature scenes, b) nature images and c) aesthetic images.

##### 4.5.5.1 Nature scenes (photographs and films)

These consisted of scenes of nature which included mountains, forests, vegetation, rivers, ponds, oceans. There were a few animals and small insects in some of the films and photographs. There were also a few man-made objects and distant figures of people. However, they played only a small part in any scene.

##### 4.5.5.2 Nature images (photographs and films):

The subjects of nature in this category were loose and included all natural objects such as a plant, a flower, a piece of stone, a heap of leaves, pattern of vegetation or natural materials, clouds in the sky, water movements and so on. They were either in a natural setting or else there was no other specific man-made object in the same composition. They were often shot in close up.

#### 4.5.5.3 Aesthetic images (films only):

The subjects of this category could be natural or man-made objects which were normally used for decorations or enhancing the mood and atmosphere for calming and well-being effect. They included candles, crafted crystals and stones, movements of coloured inks in water, a calming space and an interior with furniture.

I experimented with all three. I selected some of the nature scenes and nature images for film editing and photograph printing to use for the development studies in the UK. For the aesthetic images I experimented with films of tea lights, water and fire. However, I decided at an early stage, to concentrate on nature only, and to drop the idea of these aesthetic films. This would allow me to focus on just nature rather than introduce too much diversity and I stopped developing the aesthetic images altogether.



Figure 4-1 Aesthetic images

#### 4.5.6 Ready-and-go photography to capture nature in the UK

From 2004 onwards, I took every opportunity to carry out what I called ‘ready-and-go’ photography or filming. Natural or interesting objects were recorded wherever I went whenever I could. For instance, a patch of blooming flowers swaying in the gentle breeze on a sunny day, sunshine moving through trees or leaves, water drops staying on plants after rain, ducks and swans swimming in ponds, smoke rising into the sky from a bonfire or dancing snowflakes under a street lamp. Most video clips were shot without a tripod and I managed to capture many short clips this way but the shaky movements were noticeable. If I planned ahead to film in a particular site, I did

carry a tripod along with a digital videocam and a small digital pocket camera. However, I usually found when had a tripod with me that the time was wrong, or that the mist did not spread in a way which might produce a calming effect. I was far more likely to see a scene unveil before me by chance, than when I had planned the trip.

The intensive filming was done between 2007 and 2009. I collected around 70,000 photographs and 800 video clips. My understanding of the calming effect of various aspects of a moving nature scene was greatly benefited by the ethnographic experience provided by my carrying out this photographic work myself.



Figure 4-2 Images captured from surrounding nature

#### 4.5.7 Field trips to capture nature scenes

As the participants who would be involved in my main study were Chinese, I made a number of photographic trips in China, Hong Kong and Malaysia between 2007 and 2009. I spent most of the time in China. This was for both scenic and practical reasons. I had to visit and discuss the possibility of research fieldwork with two universities and their affiliated hospitals in different provinces in China several times in between 2007 and 2009.

The majority of my landscape footages were captured in scenic places in the Yunan area of Sichuan Province which is close to the border of Tibet. They included Jiuzhaigou, Huanglong, Lijiang and Shangri-La. Outstanding landscapes with pure, inspiring, tranquil and beautiful lakes of various sizes are located in Jiuzhaigou and Huanglong. I deliberately selected many nature scenes with a large proportion of water because a quiet lake is often associated with the reflection of a practitioner during his or her meditation or contemplation. Furthermore, recent research in the West shows that pictures of landscape with water benefit people's health and well-being (Vincent, 2009).

Lijiang Old Town attracts many tourists but my interest was filming the majestic surrounding nature scenes with long ranges of massive big mountains, deep valleys with rivers and mountains with snowy tops or misty clouds. The scenery of Shangri-La is similar to some parts of Tibet which is

situated at a high altitude. I visited places with few residents except tourists. The vast and open grasslands, the rocky high mountains ridges connecting Himalayan areas and the absolute stillness of lakes reflecting the deep blue sky felt sacred, calm and serene.

In order to capture the blooming flowers of various pieces of lotus, I made three trips to Sanshui Lotus World in Foshan, in the southern part of China. The lotus flower has been a symbolic image for Buddhism and has been related to a pure and tranquil mind for over two thousand years (Watson, 1993). It is a common favourite flower with specific meanings in Asia. Though it may not be the most familiar flower to British participants, I was curious to find out how British participants responded to my photographs and films of it.

The phenomena of mist dispersing to gradually unveil a clearer scene is often used by masters in zen tradition as a metaphor for a zen student on how to observe his or her own true nature after the mist of illusory mind gradually disappears (Suzuki, 1970). During long journeys, I would shoot still and moving images of nature scenes on the way, especially on planes where I could capture the floating clouds or the rising sun underneath my eye level. In guided relaxation therapy, the request to a client or a practitioner to visualize him or herself sleeping or lying on top of clouds to reduce the heaviness of the mind is often used by therapists (Gawain, 2002). Inside a relatively steady vehicle - a train, coach or motorcar - I often looked for a clean window or opened part of the window so that I was able to film the moving journey of the nature scenes along the way. I thought that such fast movements of nature scenes might serve as a contrast to the natural slow movements of a nature film.

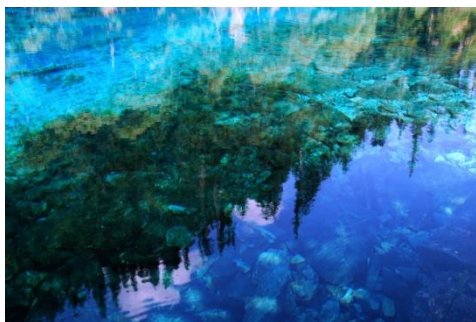


Figure 4-3 Tranquil lake in Jiuzhaigou, Yunnan, China



Figure 4-4 Clear water of a lake in Jiuzhaigou, Yunnan, China





Figure 4-5 Mist rising on mountain forest



Figure 4-6 Trees along both sides of the road



Figure 4-7 Lotus flower in Shanshui lotus World, Foshan, China



Figure 4-8 Sunset over the pond in Water Park in Chorlton, Manchester, UK

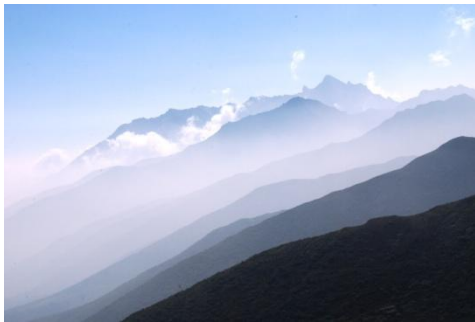


Figure 4-9 Lotus flower in Shanshui lotus World, Foshan, China



Figure 4-10 Sunset over the pond in Water Park in Chorlton, Manchester, UK

To increase the quality of the images I eventually used mainly films produced by professional filmmakers. However, my photographic experiments were helpful, and enabled me to get a clearer idea of what I was trying to do and a more focused means of selecting these professional films.

#### 4.5.8 Excluding images in this study

I adopted the guideline which was stated at the beginning of this chapter for deselecting certain visual images in this study. I asked: which nature scenes are likely to cause negative effects or counteract the effect of calming and well-being? Because of my own ethical views on healing and well-being, I wanted to minimise the risk of disturbing participants further.

The following features and characteristics were excluded:

- Figures of people –Any human figure or image of people likely to provoke thoughts and distractions especially where the details of the person or people could be clearly seen. Each individual has different connective feelings and associations, strong likes and dislikes associated with images of other people. Therefore, I tried to avoid the complications which might arise, by excluding clear images of people.
- Animals – Different cultures respond to animals differently. The same image would make one person want to eat the animal, another want to pet it, another may be afraid of it. Perhaps a very few species of animals are unlikely to cause offence such as birds, small fish and butterflies. Excluded animals were those generally aggressive and harmful to human beings. In fact, for the films, the few animals that I considered to be ‘safe’ to most participants were the water ducks swimming in the pond, a few birds flying in the sky and a few tiny insects including bees flying or crawling around the proportionally large flowers. In the still nature photographs that I used for the development studies, I excluded all animals except a bee and a small fish in their natural habitats.
- Manmade objects or buildings – Buildings, interiors and most man-made constructions and objects were not included, as something familiar to one person might be alien to another or might stimulate curiosity rather than relaxation. However, certain man-made constructions such as roads, bridges, distant houses or park amenities which played an insignificant part in the whole nature scene might be left there.
- Abstract images and animated films - I also experimented with abstract images and animated films, but again the final decision was to concentrate on real scenes of nature as noted earlier.

#### 4.6 A note about action research

Action research enables practitioners to carry out studies of their own practice. In the 1930s, Kurt Lewin, a social scientist, established action research as a new methodology. He believed that if workers were allowed to study their own activity, their work productivity would be improved (Koshy et al., 2011). In the 1970s, Stenhouse (McKernan and Ireland, 2013), Elliott (1991) and Whitehead (2006) developed educational action research in the UK. In this approach, a teacher would be both a researcher and a participant (Whitehead and McNiff, 2006). Elliott (1991) later also influenced



practitioners as action researchers in healthcare settings. Thus, the pioneering work of Lewin has expanded into other fields (Hart and Bond, 1995)

#### 4.6.1 What is action research?

Lewin, who first developed action research, suggested that research and action should be combined and that the purpose was to improve quality through changes suggested by, and acceptable to, practitioners. (Ross, 2012:97). He suggested a spiral methodology, in which each cycle would compose planning, action and findings of the action. Kemmis and McTaggart added observation and reflection to these. Each step of the research would go through these stages, and lead to a revised plan for the next stage (Munn-Giddings and Winter, 2001). Action research is commonly defined as a method to improve practice and it is often used by the researcher – practitioner to develop changes to practice and to evaluate these changes (Koshy et al., 2011).

Munn-Giddings and Winter (2001:5) state that action research forms a process of inquiry, action, practice and innovative thinking. In the process, decision-making and evaluation underpin reflective practice and practice-based research.

Stringer (1996) uses three simple stages: look, think and act, to describe action research. Other writers suggest there are five stages: identifying the problem, fact finding, planning for change, implementing the change and evaluating it. Cooper (2000) warns that since such research involves intervention in the real world it can be contentious, inconsistent and unpredictable, despite its aim being to improve practice and to produce new knowledge.

McNiff (1988) claims that the most accepted definition of action research was by Carr and Kemmis who define action research as a form of self-reflective enquiry which can be carried out by participants at any level. In a school for example this could be teachers, support staff, students or principals

Perhaps Cooper's (2000) definition of action research in health care is the most relevant to my study:

‘For most practitioners who generate studies on their own behalf, action research involves a small-scale intervention in a setting, process or treatment, and an evaluation or review of the

impact of this process (Holloway & Wheeler 1996). Policies and interventions in care thus become legitimate subjects for study in the workplace or care setting' (Cooper, 2000:18).

In recent years, the implementation of action research in the healthcare setting has widely increased. Its immediate effect helps to speed up the time frame so that needs can be identified and tasks reorganised efficiently. Because practitioners are closely involved, the gap between the theory and practice can be more closely integrated (Ross, 2012:99).

#### 4.6.2 Action research in the present study

From the very beginning I saw myself as a healthcare practitioner and designer, and my research as exploratory. I knew that as it proceeded, certain aspects which were not yet clear to me would become clear. I did not know at the start whether I would be able to recruit collaborators, such as film-makers and hospital partners, how easy it would be to recruit participants, which images were best to include, and how best to collect and analyse the data. I believed quantitative results would give a sense of the weight of people's responses, whilst qualitative results would help me to look in greater depth at the general idea of using images to quieten the mind, and so from the start I wanted to include both. I also wanted to make every effort to bring positive effects and avoid any negative effects on all participants throughout the whole process. Otherwise I followed Seung Sahn Zen Master's teaching, "Keep only a don't-know mind"(Sahn, 1999). As a Zen Buddhist myself, I felt that this dictum would help me to follow the correct situation whatever might happen

In this way I began the work of creating and collecting images and setting up the initial pilot studies. As this development process went on, and I read more about methodology it appeared that this 'organic-like' growing process had many similarities to action research (Hart and Bond, 1995; Munn-Giddings and Winter, 2001; Earl-Slater, 2004; Somekh, 2006; Koshy et al., 2011). Each small study became a cycle that involved planning, action, evaluation and reflection. According to the findings of the previous cycle, I made a new plan and acted upon it. After I evaluated and reflected on the results, changes were made in order to improve the methods, data, interpretation (Earl-Slater, 2004) and artefacts that I had to prepare for the next study. The artefacts included the images, coloured light and the tent space for viewing them. These cycles emerged as a series of studies, each informing the next, in the cyclic pattern of action research (refer to Figure 4-11) (McNiff, 1988). I continued this strategy through my developmental studies, and only settled on the final questionnaire and data collection method for the fieldwork in China. Thus the final piece of work presented here

was organised according to much preparatory work, alteration and improvement carried out in previous stages.

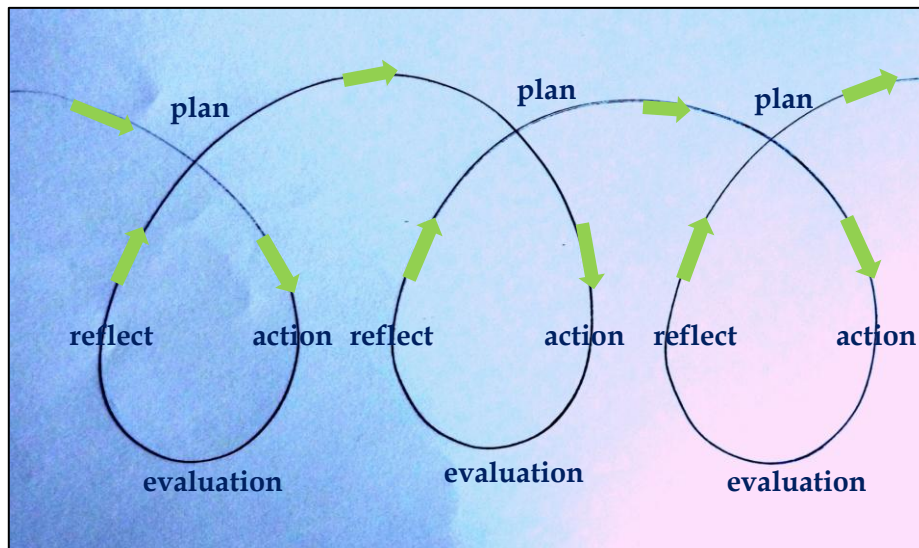


Figure 4-11 Cyclic pattern of action research (Adapted from McNiff, 1988, page 44)

#### 4.6.3 Why did I choose action research?

Because I am a visual artist, a healthcare profession and a meditation teacher, it was my wish to find ways to improve my own practice, particularly with regard to calming the minds of others. As a practitioner, I was always keen to carry out action, and as a researcher this study provided me with the opportunity to improve the understanding of my own practice, my situation and participants. Overall, it gave me the chance to bring all these aspects together into one integrated working and researching way of life.

I used the cyclic pattern of action research to develop and refine the methodology which would enable this research into my own practice. Although participants were not directly involved in the developing the research, their comments were taken into consideration in developing the methods, questions and images. Since my practice importantly required that nothing I do should intentionally create a negative effect for participants, their needs and preferences (for example regarding coloured light) were all included as part of the practice.

As a piece of research, I was aware that there would be additional effects as well as those which I was studying. Indeed, I hoped that the study would help to raise awareness of participants, partners and professionals who involved at any stage of the study, either directly through experiencing the films and coloured light or by being involved in the development or carrying out of the research. As

a practitioner, I attempted to adopt and maintain an overall humanistic approach to all communications and interactions. Whilst the effects of this were not examined, action researchers emphasise awareness-raising through collaborative work between researchers and practitioners and encouraging practitioners to become action researchers themselves (Hart and Bond, 1995).

#### 4.6.4 Questions addressed by action research

At the start of the study, I did not have any clear picture of how it would be carried out, or what it would involve. However, overall some key questions that the action research part of the study answered were:

- What kind of nature images are appropriate?
- Should I use moving or still images, or a combination of the two?
- How best to carry out the tests. (The idea of showing the films to individuals came slowly).
- How many participants should be involved at any one time?
- What is the best environment to carry out the tests? What kind of space and seat?
- Do I need to minimise distractions? If so, how?
- Do participants need to be prepared? If so, how?
- What sort of questions should I ask? What did I want to find out?
- How many questions should I ask?
- How can this list of questions be shortened and simplified and still provide the maximum useful information?

Overall the initial stages took longer than anticipated partly due to my unsuccessful attempts to extend the UK studies to hospitals and to recruit hospital collaborators. Cooper (2000) points out that action research is flexible in that it can be carried out very quickly, or that it may take years. Eventually however I ended up with a method which I was able to take to China, and felt assured that this method, based it was in practice, was the best I could achieve. Whilst each environment was slightly different, every effort was made to achieve similarity for every study. Unlike the action research stage, changes were no longer being made to the methods and all the information collected in China was done so on the basis that each test carried out was the same as all the others. Thus the data from the China studies could be combined and analysed as one data set.

## 4.7 Stage 2: Pilot and development studies

The pilot and development studies were carried out in the UK between 2007 to 2009. Through these, the research methods, materials and artefacts were developed and finalized before the fieldwork study in China.

Venue number	Location	Date of study	Name of study	Data collected
1	Manchester, UK	23/01/2007	Pilot Study 1	Film
2	“Prism” at University of Chester, Cheshire, UK	28/06/2007	Pilot Study 2	Film
3	“Through the Looking Glass: Investigating perspectives on arts and health” in Leeds, UK	30/11/2007	Pilot Study 3	Film

Table 4-1 Timetable of pilot and development studies in UK

### 4.7.1 Objectives

The objectives of pilot studies are outlined as shown:

- To make a preliminary exploration of the potential of the relaxing effects of the nature films.
- To develop a set of nature images and tests on the UK participants in order to refine the research method and improve the nature films and their presentation.
- To try out the addition of music to the films
- To try out the addition of testing changes in pulse rates before and after the films
- To develop the questionnaire and test out the idea of using a questionnaire to collect data.
- To experiment with using exposure to coloured lights

### 4.7.2 Pilot study 1 – Video clips shown to volunteers in the UK

I selected and edited 4 clips of nature videos of 12 minutes each. Two sessions were arranged for two small groups comprising respectively, 5 and 7 volunteers on 23 January 2007. The majority of these participants were my acquaintances who lived in Manchester.

The visual images included a lotus flower with bees, mist in the mountains, sunshine in the cloud and green leaves on trees. All were silent films. I borrowed a large film projector and designed a questionnaire with 5 simple questions for each participant to fill in after viewing two clips of nature films. These early questionnaires became the basis of the later questionnaire used in the development studies in the UK and later in China (see appendices section).

The events were held in a living room of a house in the evening. A group of participants watched the two clips of nature film projected onto the white wall with the screen size approximately 3 feet by 2 feet. The visual image was very clear as the room was dark. After the completion of a questionnaire by each participant, a short discussion was held and the session was ended.

Feedback from Pilot Study 1:

- The overall impression was positive. The majority of participants reported that the slow drifting clouds and swaying movements of the lotus flowers had a calming effect. The colour green of trees and vegetation was found to be soothing.
- However, one participant reported that the tiny bee flying around a flower was distracting. My intention had been to first capture the viewer's attention before the relaxation effect could occur. This response helped me to be aware of the possible counter effects of my intentions.
- The participants suggested that the steadier the camera shooting and smoother the interface between the videos, the better the promotion of the calming effect. They also preferred the slower movements of certain nature subjects.

#### 4.7.3 Pilot study 2 – The conference “Prism” in Cheshire and Pilot study 3 -

The conference “Through the Looking Glass: investigating perspectives on arts and health” in Leeds

I showed a five minute video clip with music to the audience at the conference in Cheshire and later in Leeds, both within the 20 minute sessions I was given to talk on my research. A questionnaire for feedback, which was simpler than the previous one, was given to each audience. In addition, I showed viewers how to measure their own pulse rates before and after viewing the films, to see whether it would be possible to use this physiological test to assess the relaxation impact.

Feedback from both pilot studies.

These two studies involved research students from different universities in the UK. They commented as follows.

- The majority of the participants gave general positive feedback regarding the calming quality of various aspects of the nature films. There were some useful comments for the improvements of nature scenes and nature images. For example, when the timing of a close-up of ripple movements was too long it caused one participant to feel impatient and dizzy, and a fish keeping too quiet in the water of a lake was thought by another to be dead. Around a quarter did not find the music was calming or relaxing. A few said the room was not dark enough to view the films, although the projected screens were relatively large. Two participants said that the people sitting in front of them caused obstructions. There were not many changes in pulse rates though a number of them increased slightly. Here though, the accuracies were uncertain as the participants measured their pulse by themselves. However, this experience gave me a better idea of how to operate the pulse rate procedure in later studies.

Reflection on the pilot studies:

- The quality of filmmaking could be improved and the control of room lighting for viewing films could be managed better by blocking the light if necessary. In order to provide a desirable environment for the participants, all possible visual and audio disturbances should be eliminated or at least reduced to a minimum. Otherwise, there would be so many variables that it would be too complex for the data analysis. I hoped that these conditions would not be too difficult to achieve within the healthcare organizations that I intended to work with.
- At this stage I was still considering the use of music to be added to my films. To do this I needed to collaborate with musicians. After a few attempts to do this, I decided it would not be possible in the time that I had, and gave up the idea. Thus this study does not comment on the effectiveness of music for achieving a calmer state.

#### 4.7.4 Development Studies 1 and 2: UK university students and staff

##### 4.7.4.1 Finding collaborators

Initially I wanted to locate my fieldwork in a hospital, medical centre or any health care unit in the UK, in order to work with patients as well as ‘healthy’ participants. I visited a few hospitals and healthcare centres in the UK, mainly those which had developed the Hospital Arts For Health project with MMU some years ago (Scher, 1996; Scher and Senior, 2000). These included the Westminster Hospital in Chelsea and the Royal London Hospital. Then, after discussion with my supervisors and investigation of NHS restrictions, I made a few trips to visit China. I found my TCM qualification would allow me to work with patients in China but not in the UK. I eventually decided to concentrate my effort on studying patient participants only in China and to carry out my development studies with healthy subjects in the UK.

In 2008, my proposal for a development study was accepted by the Visual Resource Centre (VRC) of MMU who agreed to work in partnership with me. The support of VRC with its sizeable space, allowed me to plan for a variety of visual images studies, exposing participants to nature images and coloured light. It was to be centred on an exhibition of still nature photographs and film clips of landscapes.

I carried out Development Study 1 at the VRC in February 2009, and Development Study 2 at another site of MMU five days later. Development Study 1 involved an exhibition of nature photographs, nature films and the coloured lights, whilst Development Study 2 involved only nature films and coloured light.

#### 4.7.4.2 The design of sequential studies of inductive research

The overall approach of the whole research focused on gathering qualitative data mainly through a structured questionnaire. A small quantitative measure was included in order to provide additional data.

1	UK, Visual Resources Centre, Manchester Metropolitan University (MMU), UK	16/2/2009-5/3/2009	Developmental Study 1	Photographs Coloured light Film
2	UK, Elizabeth Gaskell Campus	11/3/2009- 19/3/2009	Developmental Study 2	Coloured light Film

Table 4-2 Time table of developmental studies 1 and 2

#### 4.7.4.3 Objectives



The objectives to sequential studies are addressed as listed:

- To attract more people to the study including potential participants, collaborators and visual artists or film makers for the research fieldwork
- To develop and test a body of artefacts, including nature photographs, nature films and coloured lights, and the setting for the coloured lights and nature films, to assess their relaxing impact on participants during the development studies in the UK.
- To develop, test and finalize the questionnaire and the research method for the fieldwork in China
- To explore the possibilities of physical measures in China by trying the pulse rate measure in the UK.

#### 4.7.4.4 Development Study 1 (DS1) at VRC, MMU, UK 16 February – 5 March 2009

The support of the VRC, for the exhibition of still photographs, increased the publicity for the recruitment of volunteers to join the study and created an opportunity to introduce the study to more people.

Ten pairs of photographs were selected from my own collection and printed out for the exhibition and seven pairs of video clips were edited for viewing.

Before the film was shown, a short session of coloured light exposure was offered to participants. Pulse rates were taken by the researcher before and after each coloured light session and before and after each film session.

Preparation of work for Development Study 1 includes:

- Exhibition of photographs and sample film clips
- Creation of film clips for the study
- The tent structure design with coloured lights installation
- Questionnaire design
- Poster and flyer design
- Research plan design

#### 4.7.4.5 Preparation of material

##### The nature photographs

Ten pairs of still photographs were selected (Figure 4-12 to Figure 4-31). The two images in a pair were relatively similar but there were one or two differences between them. This was to explore the impact of those differences on participants, particularly between wild nature and nature with some man-made objects. Moreover, it was a method to narrow down the most and least relaxing elements of a still image. For example, in photos 2a and 2b (Figure 4-14 and Figure 4-15), the large lakes in the photographs were taken at the same site but in one a long queue of many small figures of tourists appeared beside the lake at the edge of the photograph, and the other one had no figures at all. (All the photographs are in the disc attached of this thesis.)



Figure 4-12 Photo 1A



Figure 4-13 Photo 1B



Figure 4-14 Photo 2A



Figure 4-15 Photo 2B



Figure 4-16 Photo 3A



Figure 4-17 Photo 3B



Figure 4-18 Photo 4A



Figure 4-19 Photo 4B



Figure 4-20 Photo 5A



Figure 4-21 Photo 5B



Figure 4-22 Photo 6A



Figure 4-23 Photo 6B



Figure 4-24 Photo 7A



Figure 4-25 Photo 7B

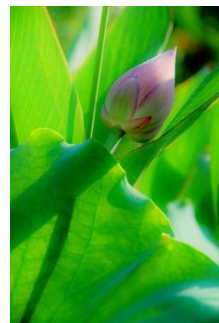




Figure 4-26 Photo ID: 8A



Figure 4-28 Photo ID: 9A

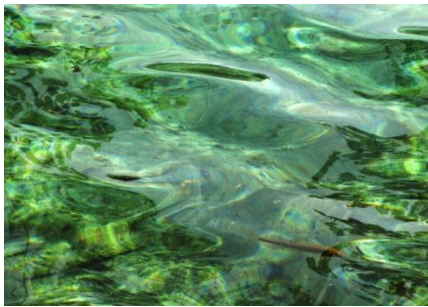


Figure 4-30 Photo ID: 10A

Figure 4-27 Photo ID: 8B



Figure 4-29 Photo ID: 9B



Figure 4-31 Photo ID: 10B

The photographs were printed in A2 size and mounted with white wooden frames. The large size of the framed nature photographs on the wall was intended to create a sense of a window view to increase the realistic impact of the visual images. According to Vincent (2011) ‘art on the wall or screen..., it does have the potential for high degrees of presence, a sense of being there, in the image’ (p.77). She argues that the sense of presence can affect a person’s positive or negative response to the level of relaxation and other therapeutic effects.

A sample video film with mixed footages of landscape was edited for all visitors who liked to have a glimpse of the type of nature films on offer before they made their appointments for the study.

### Moving images in film clips

I followed the same idea for pairing the film clips. Seven pairs of short film clips were selected and edited from a collection of mine and of a filmmaker, Lawrence Brannon. I tried to select mainly typical calming nature scenes (Figure 4-32 and Figure 4-33) sunset and sunrise.

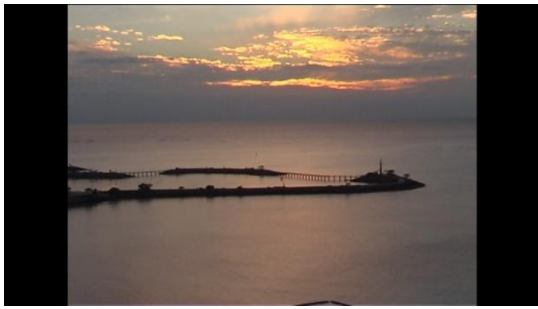


Figure 4-32 Sunset over the sea (Film ID: 9A)



Figure 4-33 Sunrise behind the mountain (Film ID: 9B)

Each clip lasted around twelve minutes and total timing for the two clips was twenty five minutes. This was due to evidence that the minimum effective timing for guided imagery for relaxation is between 20 - 30 minutes (Benson and Stuart, 1993; Jacobson, 1974). Altogether I edited seven pairs of films. .

### Coloured lights

A project which interested me at the beginning of my research was the animated coloured lights and numbers which was installed in a room of a hospice in Japan (Tatsuo Miyajima, 1999). I wanted to test out the effect of coloured lights as an intervention to increase relaxation, and to ultimately compare with the impact of nature films. Without the ideal facility available in Japan however, I adapted my own work by creating a movable tent structure.

- The tent structure design with coloured lights installation

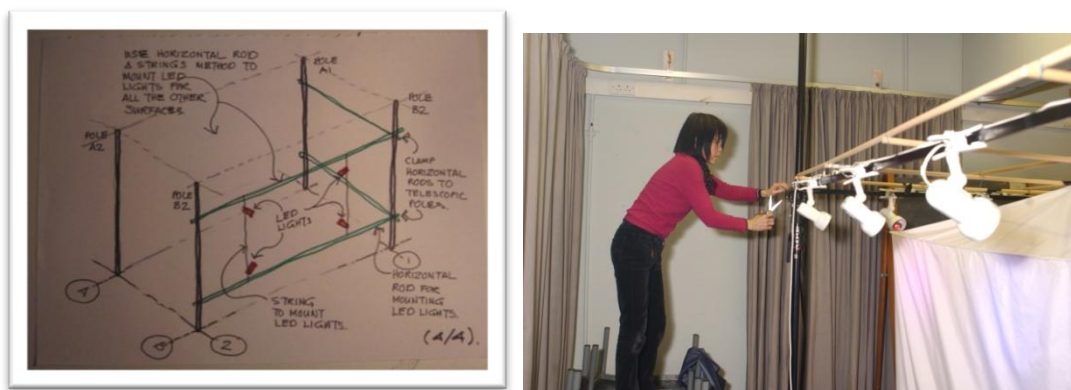


Figure 4-34 Tent construction and fieldwork in UK



Figure 4-35 Tent with lighting effect

This allowed me to create a quiet space with less interference for both coloured light immersion and film viewing in what was otherwise a large open-plan office, I designed and made a tent of light creamy translucent fabric which hung from strings attached to the four top corners. A 10 minute session of coloured light inside the tent was introduced. The general effects of soothing coloured lights are therapeutic and safe (Pellegrini et al., 1981; Wills, 1998; Birren, 2010). Colour therapy has been developed and practiced in the West for over five decades (Dinshah, 2009; Birren, 2010).

I intended to explore the differences between the coloured lights and nature films in terms of their relaxing effect. The participants were free to select one of their most comfortable colours from a full spectrum range of colours. This contrasted with the nature films, which had moving images that they could not chose. It was also intended to serve as a way to slow down the mind before watching the films that which would require more attention.

I designed a rectangular metal frame which was then constructed by the electrical department of MMU, which had 22 LED light bulbs fixed to it. This stood as a structure outside the tent, and was covered by thick dark heavy material. Thus all light from the environment was blocked out except at the entrance. The inner tent allowed the even transmission of the coloured light from the 22 light bulbs to create a sensation of being totally enveloped by it.

- Preparation of the questionnaire (including an information sheet, instruction form & consent form):
- Information sheet, instruction form and consent form design – I included questions on age, gender, ethnic background, educational level and occupation in case I later decided to use these in the analysis. The date, location and the code number for each session and each participant were also recorded on this questionnaire form. This sample form, the consent form and the information sheet are listed in the appendices section.

- Questionnaire design for the study of nature photographs Two photographs were arranged into pairs and participants were asked to select one as their preference. I wished to obtain as full an understanding as possible of their choice by giving them an open question and just asking, ‘Why?’ for their choice for each pair. This gave the participants freedom to write answers in their own words. A sample of this questionnaire is given in the Appendices section.
- Questionnaire design for the study of coloured lights and nature films – Since the answers to this questionnaire would comprise the main qualitative data of the research, I made a great effort to ensure the collection of the maximum relevant data. Because this would be the main research method that would be adopted in the final study in China, I needed to keep all the questions simple so that all the participants would be able to understand them well regardless of their various educational or cultural backgrounds. Therefore, I designed only four questions for each of the above studies. (See appendices section.)

In the questionnaire for the coloured lights, all four questions are simple and required answers which could be analysed for numerical data evaluation. Among them was a 5 level scale to assess relaxation, (Albaum, 1997) and a question asking for five descriptive words of participants’ own choosing.

The questionnaire for the film study was more complicated as it included two open questions. These were needed for obtaining as much relevant qualitative information as possible. Both questions were given three blank lines across the A4 page so that participants were free to write in their own words. The other two questions were simple and almost exactly the same as those for the coloured lights. Both questionnaires for stage one are included in the appendices.

In addition, pulse rates were taken before and after each test was included in the study of films and coloured lights in order to get some idea of how easy or difficult it would be to carry out this measure. I did not measure blood pressure during the development studies in the UK, but planned to do so later in China.

- Ethical consent – All participants were clearly informed by the information sheet and signed the consent form before they started the study and they had the freedom to stop at

any point. There was a coding system of numbers only that linked the consent form to the questionnaire form where the participant's name did not show. Therefore, when one analysed a questionnaire, the name of the participant was anonymous except to the researcher who could link up a completed questionnaire with the related consent form (Manchester Metropolitan University, 2007).

- Poster and flyer design

I designed a poster, flyer and invitation letter. The VRC and I both sent out invitation letters for the private view to contacts, mostly the staff and students of MMU, a week before the event started. Posters and flyers were displayed in various locations within the All Saint campus site of the university. The poster functioned as an informative promotion in public areas of the university and the flyers were handed out as reminder which would be convenient for participants to carry. Both documents are shown in the appendices section.

The response was positive. Approximately 30 people came for the private view. It was not possible to be entirely accurate with regard to numbers as people came to the exhibition without signing in. Furthermore, additional people came at other times to visit the exhibition. However, many of them went on to book a research session of nature films and coloured light.

#### 4.7.4.6 The research plan for Development Study 1:

- Participants – The majority were the students and staff of MMU. They were all generally healthy adults both male and female. Most were British, a few were international students and a few were British with Asian cultural backgrounds.
- Materials – Photos, films, equipment, tent and coloured lights as described above.
- Setting - The interior of the VRC was spacious. One assistant sat near the door and helped as a receptionist during this event. The photographs were mounted on the wall. The tent was set up near the back space and away from the windows.
- Measurement procedures –The researcher read each participant's pulse before and after the test with the technique of a TCM physician. Participants filled in the feedback questionnaires after the test.
- Procedure -- Participants were asked to read the information sheet and consent form. The signature of each participant was required for his or her first session. Normally, the



participants would complete both sessions - the coloured light and the films but they also had freedom to choose to stop watching at any point.

#### 4.7.5 Development Study 2 (DS2): Elizabeth Gaskell Campus, MMU (11 Mar-20 Mar 2009)

This study was the same except that there were no still photographs as there was no room for them. Also there were no assistants, and this enabled me to see whether I could carry out the coloured light and film studies by myself when I got to China.

##### 4.7.5.1 General feedback and reflection for DS1 and DS2

The general feedback of all the aspects from most participants were positive and encouraging. The display of 10 pairs of nature photographs in DS1 helped to bring more visitors and increased interest in the nature films and coloured lights.

As the access to the site of DS1 was convenient and easy for the participants to get there, I did not realize that the less convenient access to the room for processing DS2, some distance from the entrance of the building, would negatively impact on some participants and delay the process. During DS2, some participants asked to sit together so that there would be three people inside the tent for one session of coloured lights and films. I agreed to let them try but the result taught me not to do this in later studies. Not only could they not then have their individual choice of coloured lights, but also it turned out to be difficult to create a calming atmosphere with three people sitting close to each other inside one tent. Also, for DS1, I found that with one or more assistants to help the process ran smoothly. Without any assistants for DS2, the procedure took longer. Ultimately, in China, I might need to do everything myself, as I had done here. This practice run gave me greater confidence in dealing with the unpredictable conditions that I might meet in China. I realised too that I would need to find an alternative to the complicated installation of coloured lights on metal frames, although I was prepared to leave the lights out altogether if situations would not allow them.

A number of student participants of DS1 were from the fields of visual art, photography and filming. A few were professionals in filmmaking and gave beneficial advice. Among them, Mark Cameron Minard provided me with a large selection of his landscape footage and helped to create more appropriate new nature films for my planned study in China.

##### 4.7.5.2 Feedback for improvements to visual images

## Nature photographs

The feedback from the photographs improved my understanding of the calming impact of the details of nature images as observed and reported by participants. The participants could take as much time as they wished to look at the photographs, which was not the case in watching nature films. The following are brief descriptions of participants' feedback:

Photos 1a & 1b – More participants preferred a spacious landscape but a few felt uncomfortable with the foreign or unknown look of the environment in 1b. Some felt relaxed with a comfortable interior surrounded by trees. I learned that any indication of a foreign or unknown object or environment may evoke feelings which counteract calm whilst an interior of a man-made building can promote calming effects.

Photos 2a & 2b – More participants preferred the balanced composition of water, forest and sky scene of 2a. Participants liked the clear still water and did not mind the distant queue of figures, but one was worried by the unknown depth of water in 2b

Photos 3a & 3b – more participants preferred the mist spreading in the mountains of 3b. Some felt less relaxed with rushing water in 3a. However, some felt relaxed with this, saying that it reminded them of their home villages or it felt as if it were washing away their stress.

Photos 4a & 4b – The large road dominating the landscape did not affect the calming impact when compared to 4b because it reminded people of driving their cars on holiday. Most people liked to watch friendly animals but one person felt sad, imagining the animals in 4b would be slaughtered sooner or later.

Photos 5a & 5b – Most people like to watch a typical distant golden sunset scene on calming sea. The close up water reflection of sunset of 5b caused a few people to experience strong likes or dislikes due to the abstract quality. One was reminded of the Loch Ness monster in Scotland.

Photos 6a & 6b – There was not much difference in preference between 6a and 6b. People liked the roof tops because they indicated the depth of field but a few found they disrupted the nature scene, one person imagined jumping from one roof top to another. One could not relax due to the close up view of vegetation in 6b, which he found disturbing.

Photos 7a & 7b – Most said the autumn trees with orange and yellow colours were relaxing although some commented on the busy composition in 7a. People found the colour green and plants with water were relaxing but one commented that the plant looked unhealthy.

Photos 8a & 8b – Slightly more people preferred 8b because they associated the new life of a flower bud with new growth and greater potential in life. The majority of people liked the beautiful blooming flower but a few projected ahead to the sad moment of fading.

Photos 9a & 9b – more people liked 9a because there was more space for the subject, the flower, and they saw the photo as less busy. Some people liked the close view of a blooming flower but a few were disturbed by the tiny bee inside it.

Photos 10a & 10b – More people reported that the calming clear water of 10a was more relaxing than the slightly rougher water of 10b. People liked the rich fresh green patterns and a swimming fish. A few said that the little flowers were disrupting the view.

For the majority of participants, the calming effect came from:

- landscapes which are empty of human figures
- landscapes with human figures, provided these are small and indistinct
- spreading mist
- autumn leaves
- green leaves
- flowers in bud
- flowers generally - close up or more distant
- calm water
- calm water with fish
- sunset over water

Some people reported less calming reactions to:

- a close up of sunset reflected in water
- rough water
- a flower in full bloom
- animals
- insects

- lake

On looking more closely at people's reasons for finding these pictures were less calming, it seems that viewers interpreted them through their own gloomy or dangerous thoughts. For example, the flower would soon fade, the animals would be slaughtered, the lake was a reminder of the Loch Ness Monster, the insect may sting. Moreover, it was useful to discover that an image with space in it – e.g., a picture of a flower, is found more calming than a close up of a flower, which though interesting may be experienced as 'too busy'.

The calming effect for most people was not especially lessened by

- A road dominating the landscape
- A small creature
- A scene of rooftops

These were included to explore the researcher's theory that some images may disturb rather than calm. The data showed that for different personal reason participants found them to be calming.

On reflection, it is unlikely that any image will have a calming effect on everyone who sees it, since each individual will bring their own understanding to bear on it so that there will be unpredictable perceptions. Nevertheless, the overall findings for these still images suggest that the most likely images to be calming will be images of nature and natural scenes.

### Film data

The films were shown in pairs and data collected from the participants who watched them. This was later analysed so that the effect of each film in the pair could be understood, and a comparison between the two films could be made. Ultimately this was to inform the film-making and the questionnaire for China. The qualitative results from a comparison between one of the pairs, 9a and 9b, are discussed here to show how this stage was achieved. The two films were:

- 9a: a sunset over the sea with a distant harbour across the screen and a few tiny figures walking on the harbour compared with:
- 9b: a sunrise scene behind the mountains with sunlight emerging through thick mist

Both films were shot by Lawrence Bennon a professional filmmaker who edited them to my requirements.

The questionnaire asked participants to comment on their reactions to the films, say which one they found the more relaxing, and which scenes were most relaxing. They were also asked to comment on the aspects they found disturbing rather than relaxing. Altogether, in Development Studies 1 and 2, a total of 31 participants watched these two films.

About two thirds of participants found film 9a, the sunset, to be the more relaxing and most of these singled out the slow movement of the water, the sun setting and the changing colours and light over the sea and the sky. Over half of the participants found that watching the tiny distant figures walking along the bridge over the sea was relaxing and engaging. Some said they could not see what they were wearing or what they looked like, as they were too far away. This was seen as an advantage, since they could not therefore make judgements about them. Some imagined sharing the relaxation moment with those figures wandering in the sunset scenery or found that the scene evoked memories of holidays.

Some participants said that such movements helped them to maintain their interest in watching the full length of the film. They also mentioned the camera and editing movements which had a relaxing effect, for example the changing distance of the scene and the changes of interface between frames. The slightly different degree of stability of the camera was also noted, mainly by participants who were in the photography profession, although these also commented favourably on the standard of the film and the photography.

Most participants reported that they associated the theme of sunset and the gradual changing light from brighter to dimmer, with the end of the day, and said it seemed to remind them of the time to slow down and relax. Some said the changes in light led them to feel reflective, sentimental or hypnotised.

The natural environment of the calm sea reflecting the setting sun brought a calming effect to the majority of participants. Many of them mentioned that they felt calmer with water or the sea. A few reported that the lapping waves washed away their worries.

Film 9b showed a sunrise in wild mountain scenery without any figures at all. Most participants who preferred this film associated sunrise with positivity and new hope in life and said that the changing intensity of the sunrays helped their concentration. This film was found to have a relaxing effect mainly because of the mist slowly rising from the forest in the mountains. The slowly

disappearing mist and the gradual appearance of sunrays in the mountain scene were reported by most participants as calming, soothing and comforting. One associated the flowing mist with the feeling of slower flow in the body.

The only negative responses to the films were comments from three people that the pace was too slow and in their view this made them seem boring.

### Comparing the two films

There were distinctive differences between these two films. One was a sunset, the other a sunrise. One was of water the other of mountains. One included figures, the other did not.

In general, participants liked watching sunsets and sunrises in nature though most participants associated sunrise with uplifting aspects and sunset with relaxation. The feedback showed that more movement captured the interest of many participants. However, a minority preferred watching the quieter and simpler sunrise scenery.

Both films were shot at a single spot without moving. The sunset scene was filmed from a far distance high up so that it revealed a wider scenery of the sea and the sky. The changes of the sky and its reflection could be seen on the sea at the same time. The sunrise scene was closer to enable the viewers to watch the mist spreading through the changing lighting of the sunrays.

#### 4.7.6 The learning from showing and analysing this pair of films

The theme or the message behind the film could provoke participants' immediate emotions because of their previous experience. For example, the meaning of sunset implies that it is time to rest or slow down, and sunrise provokes feelings of new hope and positive developments.

The pace and the quality of movements in a nature film is the most important element that causes the effect of calming. Movements seem to cause a mirror effect on people. Slower moments can cause similar slow effects on viewers but finding the right pace is important. Participants may be bored if the pace is too slow.

I had not expected positive feedback from the UK participants on the people who were walking along the bridge over the sea. The people in the film were extremely distant and small however, and this suggests that while people are not averse to watching other people, it helps promote calm rather

than the possibility for judgement when information about them, such as what they are wearing and what they look like, is reduced.

The gradually rising mist with the morning sunshine appealed to all participants who preferred Film 9b. It indicated to me that the simple changing appearance of one dominant natural element like mist together with the changing light was sufficient to draw the viewer's attention to keep watching for the full 12 minutes. The natural background of the mountains enhanced the overall atmosphere of nature.

#### 4.7.7 Conclusion of the studies in the UK

On the basis of findings from the development studies in the UK, several conclusions can be outlined:

1. The still nature photographs provided detailed information of all the aspects that may affect the possibilities for calming effects except movement. This was important to determine what, where and how to capture a film in nature that would produce a calming effect on the viewers. Thus the still photos provided information which was then used in creating and selecting films.
2. The content of the answers to film questionnaires in the UK studies, regarding aspects which people found relaxing or disturbing, gave me a clearer picture of how to select, edit and prepare the pairs of films for the fieldwork in China. For example, movements of certain objects in nature, such as the slow movements of waves at sea, may express calming qualities that can be naturally mirrored by viewers themselves.
3. The activity of analysing these answers gave me some idea of what would be involved in the analysis for the study in China. Although the qualitative questions would be the same, I hoped for larger numbers and could anticipate from the experience of this smaller development stage, that the analysis for China would be complex and time-consuming.
4. The carrying out of the whole operation, the setting, the tent and the media for the presentation of the nature films were a necessary rehearsal to discover what would work, what would not work and what could be better improved for the final stage in China.

### 4.8 Stage 3: The Study in China

### 4.8.1 Aim

To carry out tests on diverse groups in China to explore the extent to which these images and coloured lights may produce a calming effect

### 4.8.2 Objectives

The objectives were:

- To develop working relationships with hospital and university staff which would:
  - Provide some assistance in carrying out the tests
  - Provide premises in which tests could be carried out
  - Provide a variety of participants for the study, including patients and ‘healthy’ non-patients.
- To translate all documents and questionnaires from English into Chinese for the study
- To collect quantitative data on pulse rate and blood pressure changes which would demonstrate any physical effects on participants
- To collect reported data from participants on the effects they experienced
- To translate all participants’ answers from Chinese into English for the analysis
- To analyse the data and report the findings

### 4.8.3 Methodology for the fieldwork in China

Whilst carrying out the UK studies I thought about what kinds of adjustments and adaptations would be most beneficial for Chinese participants. For instance, I knew I would need to use a more portable coloured light source as I would only use the foldable inner hanging tent which was made with light fabric. All the relevant documents for this study had to be translated from English to Chinese for the fieldworks.

The most important factor for this study was to secure sufficient numbers of participants at each stage. No matter how competent I was in managing all the different aspects by myself, without reasonable numbers of participants this study would not be useful. My experience from the UK study indicated that it was crucial to achieve some kinds of collaboration with the hospitals in order to get enough participants, particularly hospital patients. In practice this matter of developing relationships became a long-drawn-out but ultimately successful initiative, as detailed below.



#### 4.8.4 Networking with China

##### 1<sup>st</sup> trip to China 2007

The purpose of this trip was to learn more about the possibilities of carrying out the fieldwork in China. I visited Xiamen University and met with the Principal of the College of Art and Music, Professor Su, who was interested in collaborating with my study, and some of his students who were studying the MA in Art for Health. I also met the Director of the cancer ward of The 2<sup>nd</sup> Affiliated Hospital of Guangzhou University of TCM in China.

##### 2<sup>nd</sup> trip to China – May 2008

This trip was to confirm the possibilities of securing some kind of collaboration with hospitals in China. I wanted further discussions regarding visual images and the type of cooperation with some of my potential collaborators before I finalized the film editing. I was able to visit three potential collaborators during this trip, including Yi An Hospital in Beijing which I had been unable to visit previously.

Xiamen University (XU) – During a three-day visit at Xiamen University, I gave a brief introductory talk about my research and fieldwork to the College of Art and met with the director and students of the Art for Health MA course. We went to visit the rehabilitation centre of the Xiamen People's First Hospital in order to meet the hospital principal and assess the potential for fieldwork there. Although the Principal was interested in working with me, the director of the rehabilitation centre was not willing to accept my proposal, on the grounds that his patients were not educated enough to participate.

Before I left Xiamen, I had a discussion with the principal of Xiamen University again and he confidently told me that he would find other alternatives for me on my next trip if I continued to pursue our collaboration.

Yi An hospital - Here, a doctor who was introduced by my friend worked as a specialist in liver disease. He showed me around and discussed with me how I should propose my fieldwork to the hospital. His suggestion was to show my film clips on a monitor or TV screen in the public area of the hospital to the outpatients and he would recommend his own patients to try my visual images. I was not certain how to reduce the disturbance of noise and objects, and I saw that the interior lighting might affect the quality of the visual images. However, I kept this option in mind.

Guangzhou University of TCM - Towards the end of this trip, another director of Yi An hospital set up an introduction to the vice-director of the rehabilitation department of the chiropractic ward of the 1<sup>st</sup> Affiliated Hospital of the Guangzhou University of TCM. He expressed his enthusiasm for my study and suggested I try my research on his patients by myself. He explained that the doctors and nurses there were too busy to get involved in my study. He showed me all the patients' rooms and a large gym room for physiotherapy training. He said that whenever I was ready for the study, he would cooperate with me regarding the recruitment of patient samples and a space for viewing the nature films.

By this time I had greater understanding about the practical operation of a general government hospital in China and the authority of the director and vice director of each individual ward of that hospital. It was very different from the system in the UK. It seemed there would not be many ethical problems if the director of the hospital ward had assessed my TCM background and approved the study. However, there would be a problem if the director of the ward disagreed with my proposal even though the principal of the hospital might have approved it, as had happened with the Xiamen People's First Hospital.

#### 4.8.5 Research studies in China

##### Ethical consent

The three sites studied were: Xiamen University, Xiamen University Hospital and the First Affiliated Hospital of Guangzhou University of TCM.

Before I began the studies, I gave open talks to explain my research to the students and staff of Xiamen University and the patients at the Guangzhou site, and I spoke individually to the patients at Xiamen University Hospital in their rooms. I had been introduced to the patients in hospitals by the Vice-Dean of Faculty of Medicine of Xiamen University, and the Director of the Rehabilitation Centre of the Orthopaedics Ward of Guangzhou University of TCM. I made sure that all potential participants understood my research, and knew that I was keen to optimise the health benefits for them, in particular the likelihood that they would feel less stressed and calmer as a result of getting involved. The ethics procedure required by the sites consisted of my providing an information sheet and a consent form, which would be signed by participants when they elected to join the study. This ethical process was discussed and cleared by all the relevant universities and hospital authorities, who

based this decision partly on their recognition of my TCM qualifications, which are accepted fairly widely in China.

My own ethical standards, which stem from my TCM principles and from my Buddhist practice, required that I would maintain confidentiality and that I would as far as possible create no ill effects for participants.

I was given reference letters from Professor Su, the Principal of the College of Art of Xiamen University and Dr. Shongquan Qi, the Vice-Dean of Faculty of Medicine of Xiamen University to aid me in my fieldwork (see Appendices)

### Adaptation of the UK research method for the studies in China

After two visits to those hospitals and Xiamen University, I gained a better understanding how my study could be carried out there and the possible minimum support from those organizations if they could not set up a formal collaboration with this study. At least, they would provide a suitable room and a TV set. Most organizations had various sizes of rooms. The lighting from the windows of a small or medium size room could be blocked off by thick cards or fabric. Thus, there would be no need to construct the metal tent with thick fabric to keep the tent dark enough for viewing the films and coloured lights.

### Adaption of research materials

To maintain the consistency of my study of nature films and coloured lights, I managed to find and buy a large Philips coloured light in the UK (Philips Living Colours Colour Changing Mood Lamp) to replace the small light bulbs used previously. I reused the soft fabric inner tent which was simply hung by the four strings. I translated all the informative documents and the questionnaire into Chinese. I planned to buy a small reliable measuring device, similar to a watch, for pulse rate and blood pressure reading when I arrived in China. This would provide the physical data.

My revised research plan using the nature films, a coloured light, a soft hanging tent and a simple blood pressure measuring device would be adequate to adapt to most conditions that I experienced in China. In addition, I also bought a recorder, a video-cam and a small digital camera for documentary records. Any additional required materials, such as a poster or flyers for publicity, and cushions or a mat for comfortable positioning could be sorted out after my arrival. Even if I only had one assistant, I should be able to manage the whole process of the studies in China.

#### 4.8.6 Timetable of the three studies in China

1	CHINA, Xiamen University, Outpatient ward	7/7/2009- 17/7/2009	Inductive Study 1	Coloured light Film
2	CHINA, Xiamen University, Inpatient ward	22/7/2009- 28/7/2009	Inductive Study 2	Coloured light Film
3	CHINA, First Affiliated Hospital of Guangzhou University of TCM	30/9/2009- 5/10/2009	Inductive Study 3	Coloured light Film

Table 4-3 Timetable of three studies in China

#### 4.8.7 Study 1: Working with the Art College and TCM College, Xiamen University, China from 7 Jul - 17 Jul 2009

As there had been little communication since my last visit to Xiamen, before I returned to begin the research in June 2009, I only knew that I was supposed to cooperate with two colleges there. I presented a series of three talks in Chinese to the students and staff of the colleges and was offered a spare room at the outpatient department of the TCM hospital, which was located inside Xiamen University hospital, a medium size hospital in China affiliated to the University. I was left alone with some students who were interested in learning about the process of working with participants.

The students helped to arrange everything and put up my posters in the university buildings including the outpatient department. I did not know what kind of participants to expect because I was not sure if any or both colleges had communicated well with the outpatients' department regarding my study. There were always some subtle and unspoken rules that I did not understand, and was always trying to learn when I was in China.

During the whole period of my study in Xiamen, it was mainly students, university staff and some friends of theirs who came to view the visual images. Only a minority of participants were outpatients and on medication. Neither of the two colleges helped to provide patient participants. Having student assistants to help out was beneficial, but without sufficient patient participants, I became a little anxious and started looking for the other opportunities through my relationship with the University.

The research plan for Study 1: Xiamen University, TCM Hospital:

Materials - For this Xiamen study, I had prepared 8 pairs of short film clips of nature images on DVD (saved in attached USB memory). I used the big coloured light from the UK and adapted the inner tent that I had used previously. A mac computer with 32" monitor screen was provided to play the film clips. A comfortable seat was placed inside the tent for the participants watching the coloured lights and films. I bought a few cushions and a large light towel for the viewers' comfort and a large thick towel for the hard tiles floor if they preferred to lie down Figure 4-36. I also bought a digital watch-like device, which gave accurate readings for measuring blood pressure (BP) and pulse rate in a professional medical equipment store in Xiamen.



Figure 4-36 Tent with lighting effect in China

A poster of A1 size and flyers of A4 size were designed and printed for publicity within the university campus Figure 4-37. All relevant information and documents were translated into Chinese (listed in the Appendix section)



Figure 4-37 Group photos with volunteer students in front of the printed poster at Xiamen University

Setting - The room was a training room for the TCM students located in the Outpatient Ward on the 5<sup>th</sup> floor of a multi-story building. It was a large room with many teaching aids, desks and chairs. One side of the wall was fitted with wide windows from the one end to the other. We covered all the windows with thick gloss golden-coated cards in order to blot out the strong sunlight. It was around 33-40C during the day when I was there. I also bought a few pieces of large cloth to cover up all the teaching equipment and hide it from participants' sight (Figure 4-38).



Figure 4-38 Room decoration for fieldwork

All desks and chairs were moved to one end and the tent was hung up by its strings. The computer screen was placed at one end of the tent and the seat was at the other end for viewing film clips. The computer had to be removed for the coloured light session and the colour lamp placed in the middle of the tent pointing the light on to the fabric so that it spread light evenly around the whole front part of the tent Figure 4-39. I required an assistant most of the time in order to keep the schedule smooth and efficient.

Measurement procedures – The new participant read the information sheet and the consent form before being asked to sign their name. One student assistant measured the pulse and BP for the participant before the session started after the participant had had around 5 minutes rest. The measurement procedure was repeated after the session ended. Participants were then asked to fill in the questionnaires.



Figure 4-39 Coloured tent with lighting effect

#### Feedback and reflection:

My talks at the university resulted in my recruiting a group of students and some lecturers who were interested in participating in my study. Some brought their family members and friends. A few participants were patients. Thus the sampling procedure was contingent, based on voluntary offers of participation rather researcher choice. Whilst this would not provide a properly devised representative sample, it did provide access to enough people, with some variation, to allow me to acquire and explore the kind of information I wanted.

The partnerships with the Art College and the TCM College of Xiamen University helped to increase the interests of the students and some staff of the university in my research. Furthermore, it provided me with some assistants so that I was able to arrange to see more participants within the tight schedule.

There were around ten student assistants who took turns to help during the whole process of the study, at least one or two students per day. I taught and guided each of them who came to participate for the first time, in a bid to help them both understand the procedure and to deliver it in a consistent way. As much as possible I wanted them to behave like each other, so that all the participants would have a similar experience, and the data collected would have equality. A few enthusiastic assistant students continued to help in my next study at the inpatient ward of Xiamen University Hospital.

As regards the tests themselves, and the participants, I learned the following:

- The majority of the participants showed interest. Some repeated the experience more than once, and were shown different pairs of films. For the purposes of learning about their reactions to the films, these repeat participants were given questionnaires each time they attended, which were then analysed along with the others.

- Most of the participants were relatively young university students and a few of them tended to fall asleep easily, perhaps due to their busy schedules at university. Some art students expected more sophisticated or dramatic visual effects in the film clips.
- The temperature was very hot during mid-day. The heat dried up the sticky tape on the thick cards and the windows. It was difficult to hold them up onto the windows for many hours. I did not want to use extra-strong tape which would leave marks. The only solution was to keep re-sticking the cards each day.
- There was a lack of communication among the three parties, the Art College, the TCM College and myself before the study started. I had thought they would have made arrangements with their affiliated hospital to access some patient participants for the study, as we had discussed in my early proposals to them. I only realized that it was not the case after the study had been going for a few days.
- However, through this experience, I now knew that I had to try to communicate directly with their affiliated hospital myself rather than through the existing partnerships with the two colleges of Xiamen University.

#### 4.8.8 Study 2: Xiamen University Hospital, China (22 Jul-28 Jul 2009)

I managed to contact the principal of the affiliated hospital of Xiamen University and had a meeting with him before the end of my study there. He arranged a suitable room for another study within the inpatient ward of the hospital. He introduced me to a PhD research doctor and the director of the hospital who were both keen to cooperate with me. The outpatient ward where I had been working was very near to the inpatient ward, and so it was convenient to move the whole set up of my study from one place to another. I was offered two adjoining rooms. The tent was set up in the smaller room and the other was adapted as a reception area. Their sizes were very suitable for this study (Figure 4-40). The reception room was of a comfortable medium size and the study room was just large enough. It was easy to block out all the natural light from the windows because they were small.





Figure 4-40 Fieldwork in Xiamen University Hospital

The PhD research doctor and a few GPs encouraged some of their patients to come for my study during the first two days. Then, the director of the hospital suggested that I visit some patients by myself and explain to them in their rooms the potential benefits of my study. Most of the patients I was recommended to visit were recovering from illness or surgery, including one elderly patient in a wheel chair. A few nurses were interested and tried the experience. The majority of the participants were healthy students and staff of Xiamen University who had seen the posters.

All aspects of the research and procedures were almost the same as Study 1 except a few minor changes. The location of the room for the study had changed and more patients were referred by doctors.

### Reflection

- The hospital was relatively small and it appeared to me that cooperation among the principal and doctors or nurses was more effective than with the large hospitals. With some support from the doctors and nurses, which was more forthcoming in the smaller hospital, patients began to see possibilities in the study, and seemed more interested in joining in.
- The size and the setting of the twin rooms were the most appropriate for this study compared to the previous developmental studies and China Study 1. One of the twin rooms was a comfortable size and there were big chairs for participants to wait, ask questions and fill in their questionnaire forms. The other room was just large enough for the hanging tent.
- Although Xiamen University Hospital was comparatively small, I found that it was hard to find enough time to explain my study to patients individually. Instead I gave an

introductory talk to all potential participants including related doctors, nurses and hospital staff.

- It was too far for wheelchair patients and patients with walking difficulties to travel from different floors to the study room. The journey from their rooms to the study location might have caused negative effects to their body or mind which I was trying hard to avoid. Thus, the future design of an instant movable setting for those patients who had mobility problems would be more beneficial.

#### 4.8.9 Study 3: The Rehabilitation Centre of the Orthopaedics Ward at The First Affiliated Hospital of Guangzhou University of TCM, China (30 Sep-5 Oct 2009)

##### The process

The agreement to conduct this third study had been made in 2008, with the vice director of the ward. On my arrival there on 29 September 2009, I was able to find an assistant, which was helpful. We spent half a day setting up the study room which was small with a small window.

After my previous experience, I discussed with the vice director of the ward about how we could help all the potential patients understand the study better and have sufficient trust in it. He suggested I present an introductory talk to all patients, doctors and nurses who were at the Rehabilitation Centre at the time.

##### The research plan for Study 3 in China

One distinctive difference between this study and studies 1- 2 was that the majority of participants were hospital patients and their relatives, who were staying in the hospital to look after them for a long period of time. Another difference was that I only had one assistant for the whole process instead of the ten I had had in the previous two studies. Otherwise, the procedure was the same.

##### General Feedback

- The introductory talk about the study at the beginning was effective in attracting the interest of potential participants. The better understanding of the doctors and nurses there at the time meant there was more cooperation with my study. The introductory talk also

increased the interest and trust of the potential patient participants' and improved the rate of participation this study.

- A number of participants easily became sleepy during the study. However, they struggled to stay awake in the first session because they thought that they needed to in order to gain beneficial effects. I explained to them afterwards that the experience would be beneficial even if they did fall asleep after feeling relaxed by watching the films or the coloured light.
- The position of one patient participant's legs, who had had to sit on a wheelchair for over twenty minutes, caused swelling and pain related to the after-effects of surgery. This was contrary to my professed intention to improve rather than degrade a patient's experience. However, it was not possible to know beforehand that this would happen, and was part of the learning from this project.

### Reflections

- National Day of China is on the first day of October and the national holiday for this celebration is normally one week off work in most areas. Those patients whose conditions were not serious and who had family members, relatives or friends to take care of them during the holiday, got permission to leave the hospital for a holiday before they returned to the hospital again. Therefore, the remaining patients – those whom I saw for my study - were either very sick patients who were not given permission to leave, or patients who could not manage by themselves without care from the hospital.
- All the patient rooms of the Rehabilitation Centre were on the same floor which made it convenient for patients to move to the study room even those in wheelchairs or walking with crutches. It was also efficient for me to visit them in their rooms because all the rooms were laid out in two rows on both sides of a long central corridor.
- A few hospital carers who brought in patients on wheelchairs whenever they were required were helpful to my study. Without them, some patient participants could not have attended.
- The doctors and nurses there were friendly and helpful to the patients which contributed to maximizing the numbers of the participants and the harmonious atmosphere among everybody.
- The room was found to be a little too small for the study. It felt stuffy and noisy sometimes, with the traffic outside the window. Indeed, at one point the air-conditioner

failed, and the participant present at the time began to feel dizzy, but negative incidents like this were rare.

- The participation of patients' relatives was interesting. These were people staying in the hospital to support their sick relatives. An unusual feature of Chinese hospitals, is that relatives may stay, often sleeping for weeks or months on end, in crowded conditions on mattresses or blankets on the floor. They were subject to a good deal of stress because of their situation. Because their role was different from that of the 'healthy' staff and students who had participated in the study, I created a separate category for these people in the analysis, which would now compare specifically the effects of moving images and coloured light on three groups: 'patients', 'relatives of patients' and 'healthy subjects'.

#### 4.8.10 The experience of a 'typical' participant

To begin with, a participant in China would hear about my research from my introductory talk. In this, I explained what I was doing, how it might help them relax, and what they could expect if they joined my research study. That participant would then have the information to decide whether or not they wanted to proceed.

Having decided to join in, the participant signed up on the list and arranged a time with me or my assistant to attend for the study. At the appointed time, the participant would arrive in the room I had been allocated. They were greeted and asked to sit down and read the information sheet which described the test, and to read and sign the consent form.

They were then asked to sit in the tent and were shown the entire coloured light spectrum three times so that they would have a good idea of the choices available and could thus choose the colour they found most relaxing. At this point, their blood pressure and pulse rate were measured and recorded. They would then be left to sit in the tent for 10 minutes in the coloured light of their choice.

They stayed in the tent and their blood pressure and pulse rate were measured and recorded again. The light source was removed and the monitor brought into the tent on a trolley. The participant was given a remote control device. On the screen were two boxes labelled A and B. The researcher explained to the participant that in order to watch a film they would need to use the remote control device.

The researcher turned on film A and left the tent. The participant watched the whole of film A. At the end of the film, the two boxes reappeared on the screen. The participant highlighted the box labelled film B, and watched the whole of film B.

Their blood pressure and pulse rate were then measured for the third time. They were then asked to come out of the tent and returned to a seat with a table. They were given the questionnaire and asked to fill it in. (Occasionally, if a participant was a poor reader or too weak to write, the researcher or assistant would help them with the questionnaire.)

Typically participants would then briefly discuss their experience with the researcher before leaving.

#### 4.8.11 Conclusion of the studies in China

Through the three studies in China, I collected the following data:

- Completed questionnaires for films and coloured light
- Observations and fieldwork notes by the researcher
- Documentary recording through photographs and videos

Before the analysis of the data, I needed to organise the data using the following steps:

- Step 1: Translation of all Chinese data into English
- Step 2: Grouping together shades of colours - for example 'bluish purple' and 'pinkish purple' were both listed under 'purple'.
- Step 3: For films and coloured light data, descriptive words were grouped if they had similar meanings. For example 'relaxing,' 'calming', 'tranquil' and 'restful' which were words used by respondents on the questionnaires were all put into the group named 'relaxing'.
- Step 4: All the data were then typed out onto three master tables in Excel format, one for films and one for coloured light.

I translated the Chinese data myself and then sent them to be approved by professional translators. Most of the data were qualitative. Participants had been asked to come up with their own words and there was a lot of variation in the words they used. Clustering these and developing them into categories formed a major part of the analytic work.

The findings then are:

- Partly qualitative – in that unprompted words used and phrases used by participants to describe and explain their experiences would be examined, grouped into themes and described in words which derived from the participants themselves.
- Partly a mix of qualitative and quantitative – in that qualitative data such as unprompted words used by participants to describe the experiences were clustered and counted.
- Partly quantitative - using the ‘hard’ data of the pulse rates and blood pressure readings, and participants’ assessments of the relaxation effect they experienced.
- Researcher’s observations - a summary of notes and visual records kept during fieldwork.

Overall then this study is an exploratory piece of work. It is not definitive, but offers an account of the impact of coloured light and nature films on participants. This is a relatively under-researched area of study, and the research here provided both qualitative and quantitative findings.

# Chapter 5

## Analysis

### 5.1 Qualitative data analysis

Eight pairs of films were used in the tests in China. Participants were each shown one pair of films and asked to say which one they found more relaxing and why. They were also asked which scene they found most relaxing. They answered these questions in their own words. These qualitative data were then read through and sorted into categories which derived from the data themselves. As the analysis progressed, it became clear that the comments the participants made about the films could be sorted into five main categories which were:

- Subject and visual context
- Movement (of the images)
- Colour and light
- Point of view
- Camera/ editing technique

From the information in these five categories, a ‘results’ category was derived which covered the ‘inner experiences and emotions’ reported by the participants. I have called this category ‘feelings and associations’.

The data were initially sorted into these categories, as shown on the following pages. Some quotes have been chosen from what people wrote on their questionnaires. A summary is then given of each film, and the results of participants’ comparisons between the pair of films which they watched. The procedure is repeated below for the eight pairs of films.

In the analysis below, the figures in brackets indicate the number of participants who produced the words, or words like it, to indicate what they noticed about the film that was positive. Since it was up to them to offer the words – they were not ticking boxes here but writing freely – the numbers give some indication of their preferences but do not add up to a complete total figure.

### 5.1.1 The 5 key elements diagrams

Please refer to next pages for 5 elements diagrams and respective summaries.



### 5.1.1.1 Summary of Film 1A – Autumn woods in gentle breeze

18 out of 45 participants reported Film 1a was more relaxing than Film 1b and 1 stated that both films had an equal relaxation effect. All of these 19 participants liked the subject of autumn leaves in the natural forest scene.



Most reported that the yellow leaves and the soft tone of the whole scenery were relaxing, calming or soothing and a few reported that the small parts of red or orange leaves uplifted them. However, one participant reported the orange-red coloured leaves promoted sleep.

The majority described the gentle movement of the leaves in the breeze was calming to them. A few felt the presence of the natural scenery was comfortable, soothing and peaceful.

Most participants preferred to watch the trees and leaves from the distance but a few preferred the close-up view of a branch or a leaf in a gentle breeze. One participant associated the clip with his enjoyable student days as if he was lying down under a big tree, and another was moved by the autumn leaves.

#### Quotes from the questionnaires

*“(Most relaxing scene): ending: further view of the tree, autumn leaves and multi-yellows, little movement, evening scene, feeling calm and peaceful,...but full of vitality – (Why): favourable subject, view of the scene calm me down easily, better focus”*

*“the view made me feel calm and peaceful; as if lying down under a big tree in the university garden, feeling very enjoyable”*

*“colours bright and clear but also soft; made people feel relaxed and calm”*

*“like maple leaves in autumn, gentle breeze with sunshine, felt tranquil, peaceful”*

#### The overall most relaxing scene

The swaying autumn trees and leaves with various soft yellow tones in gentle breeze from a distant view were most relaxing to the majority of participants. A small number of participants reported the close up of branches or a leaf of the autumn trees was most relaxing.



### **Movement**

- Autumn leaves/trees swaying in gentle breeze (13)
- Autumn trees/forest moving slowly in drizzling (2)



### **Subject and Visual Context**

- Autumn leaves (15)
- Autumn trees (6)
- Autumn scene of whole woodland (6)
- Autumn with sunshine or in evening (2)



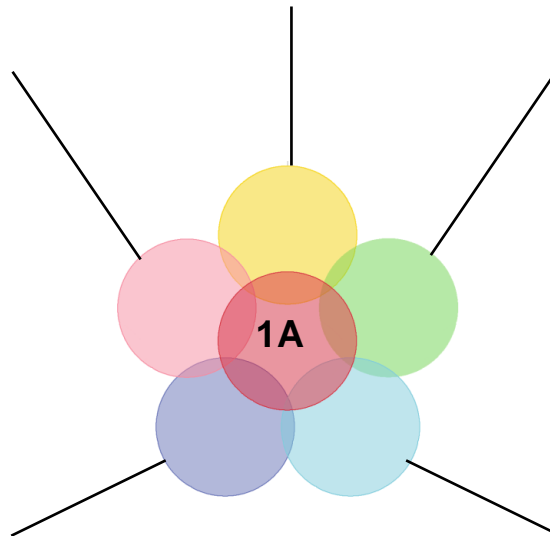
### **Colour and Light**

- Autumn colours of trees/leaves in various yellows (7)
- Soft/light yellow colour and tone (7)
- Bright or rich colours including orange and red (5)



### **Camera/Editing technique**

- Changes of frames-natural (1)
- Zoom out view from near to distant scenery (1)



### **Result**



### **Point of View**

- Distant view of autumn trees/leaves (10)
- Distant view of all 3 trees (5)
- Distant view of a single branch (1)
- Close view of a leaf (1)
- View from bottom of a tree pointing upwards to see the whole screen of leaves (1)

### **Feelings and Associations**

- Calming/tranquil/quiet (6)
- Peaceful (6)
- Relaxing/comfortable (9)
- Delightful/pleasant/enjoyable/happy/energizing (9)
- Safer (1)
- Soft (1)
- Beautiful/nice (2)
- Sleepy (3)
- As if lying down/ walking under a big tree (2)
- Reminding past happy days (1)
- Moved-by autumn leaves (1)

### 5.1.1.2 Summary of Film 1B – Springfield with flowers

26 out of 45 participants reported Film 1b was more relaxing than Film 1a and 1 reported that both films had an equal relaxation effect.



The highest amount of feedback concerned the elements of colour and light. Those participants said that the fresh green grass and many little yellow flowers in a large field had relaxing, pleasant and other positive effects on them. The various colourful flowers towards the end of the film were found to be either comfortable or uplifting. Most participants said that the swaying movements of the grasses and flowers in the gentle breeze were calming. A tiny insect crawling in a flower or in the grass also attracted a few participants' interest. About equal numbers of participants preferred either the distant view of spacious grassland with flowers or the various close up views of the grass, flowers and flower with an insect.

5 out of 27 reported that the effect of the camera and editing technique also produced calming and positive impacts, such as the focused flowers in the foreground and blurred grass in the background or the grass gradually becoming out of focus. 24 out of 27 gave positive feeling words for this film. The words: 'calm' and 'relaxing' were reported most though the combination of all other positive words was higher. The positive associations and memories evoked through this film included: peace, harmony, happiness, energetic, warm sunny days outside, home village, broadened mind and back to nature. 4 participants reported their negative emotions were reduced or removed by watching the film.

#### Quotes from the questionnaires

*"vital energy in the green, yellow and purple, no anxiety because of harmony"*

*"(Most relaxing scene): as soon as the 2nd film appeared, became calm immediately - peaceful, little changes reduced wandering mind, easier to be calm"*

*"comfortable to the eyes, the environment was relaxing and calming"*

#### The overall most relaxing scenes

The majority of participants reported the many little yellow flowers and the other coloured flowers among the green grass swaying in gentle breeze were most relaxing though the preference for the distant or close up view was the same.







**Subject and Visual Context**

- Large spring field with grasses with many little flowers (17)
- Changing scene of various flowers (8)
- Spacious open wild nature scenery/natural environment (8)
- Little insect/s in a flower or in the grass (4)

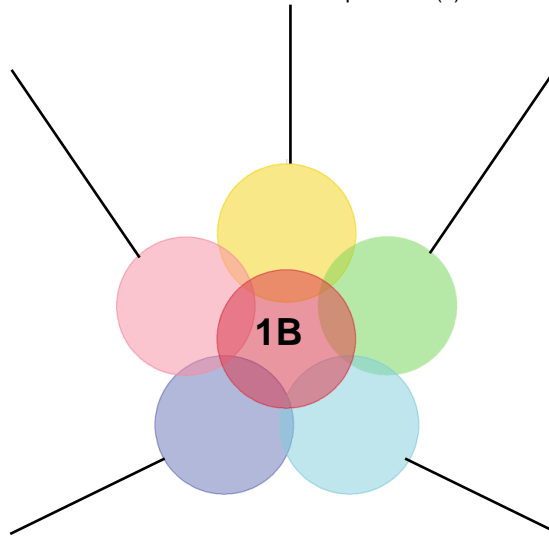
**Movement**

- Grasses/leaves swaying in breeze (3)
- Flowers swaying in breeze (4)
- Bee-like insect moving in a flower/the green (4)
- Flowers changing/opening (3)
- Combination of movements and quietness (2)



**Colour and Light**

- Yellow/fresh yellow flowers (13)
- Large area of green grassland (11)
- Large area of many little yellow flowers in the green (7)
- Bright colourful flowers (4)
- Natural green of a spring field (4)
- Red flower (1)
- Purple flower (1)



**Camera/Editing technique**

- Continuously changing frames of various flowers (3)
- Clear view of flowers in foreground with blurred grass in background (1)
- Grasses...gradually becoming out of focus (1)

**Result**



**Point of View**

- Distant grassland with many little yellow flowers (9)
- Close up view of grass (5)
- Close up flowers with grass (4)
- Close up of an insect in a flower/green (4)
- Spacious open wild natural scene (3)

**Feelings and Associations**

- Calming (4)
- Relaxing (4)
- Peaceful/comfortable/harmonious (7)
- Happy/refresh/energizing/enthusiastic (6)
- Reduced thoughts/negative emotions (4)
- Broaden the mind/open up prospects (2)
- Beauty of nature (2)
- Sleepy (2)
- Invoked good memories of warm sunny days (1)
- Reminding home village (1)
- Feeling of going back to nature (1)

### 5.1.1.3 Summary of Film 2A – 2 water birds in the lake

20 out of 31 participants reported Film 2a as more relaxing than Film 2b and 2 reported both films were equally relaxing.



The majority of participants felt calm and peaceful because of the harmonious movements of the two water birds and the gentle ripples of the pond. Most participants were interested in the mutual activities between the two water birds, particularly some close up views of their interplay, such as touching heads or dipping their heads into the water this left them with the sense of their peaceful, free and easy life style. A few participants mentioned the calming and relaxing effect of the gentle ripples and water plants in the pond. Others liked the colour scheme or the wider view of the pond and nature scene. One participant reported that the distant views caused him or her feel sleepy.

#### Quotes from the questionnaires

*“water movements on the surface of the lake make people feel comfortable and calm”*

*“ (Most relaxing scene): the later part, close up view of the water birds swimming and dipping their heads into the water for food - animals in water, felt lively, particularly peaceful, lovely animals”*

*“felt very relaxing, especially watching the 2 ducks swimming by”*

#### The overall most relaxing scene

The slow and harmonious moments of the two water birds swimming, interacting, playing with each other in a large pond in a sunny day was felt to be the more relaxing by most people.



### Subject and Visual Context

- Lifestyle of 2 water birds in a pond (17)
- Water/ripples in a pond (6)
- Plants in a pond (4)
- Water birds in the air (1)

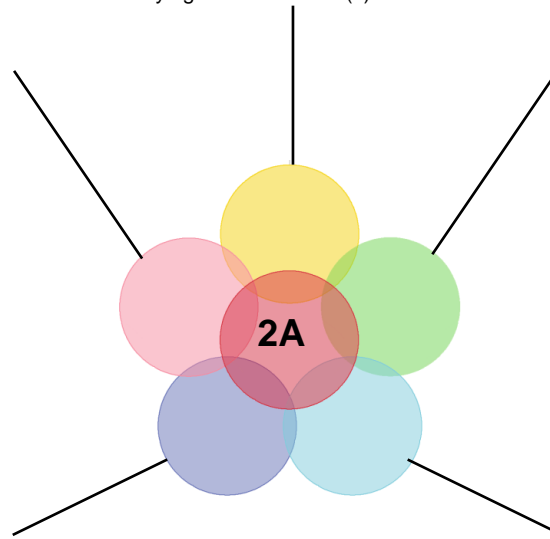
### Movement

- 2 water birds swimming slowly and easefully in water (9)
- 2 water birds playing and interacting with each other (9)
- Movement of gentle ripples (3)
- Water birds dipping heads in water (2)
- Water birds flying here and there (1)



### Colour and Light

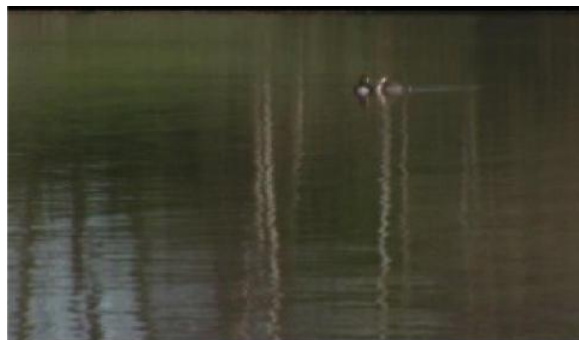
- Clear and detail texture of water birds (2)
- Clear texture of flowers (1)
- Nature scene in details (1)
- Overall colour scheme (1)
- Colour and clean look of water (1)
- Green ripples (1)
- Light green plants on screen (1)



### Camera/Editing technique

- Slow down the pace of the movement of water/ripples/water birds (13)

### Result



### Point of View

- Close up views of water birds (5)
- Distant views of water birds (5)
- Distant views of water/ripples/scenery (3)
- Wide view of water at the beginning (1)
- Plants in front of water birds (1)

### Feelings and Associations

- Relaxed/free/easeful- living style of water birds in water (6)
- Calming/still -scene of 2 water birds moving in the pond (5)
- Comfort/peaceful/gentle (8)
- Pleasant/pleasing/lovable (3)
- Sleepy- distant view/slow motion (2)
- Got rid of boredom (1)
- Did not think about stressful situation (1)
- Beautiful nature (1)
- Greatness nature and self-reflection (1)

#### 5.1.1.4 Summary of Film 2B – Sunset reflection on water

9 out of 31 participants reported film 2b as more relaxing. 2 participants reported both films were equally relaxing to them. All participants were able to engage in the sunset reflection on gentle moving water. Most of them described the golden lights sparkling or glittering slowly on water as calming, comfortable or uplifting. Only 4 out of 11 participants reported on the point of view as there were not many changes of frames. Two participants liked the darker shade of the duck swimming among the golden waves and another two found the wider view of glittering light on water more relaxing.



#### Quotes from the questionnaires

*“(Most relaxing scene): the end part, large view of glittering light gradually fading away with the sunset – lovely lighting on the lake, warm colours reminding the past- happy days”*

*“liked the calming ripples on the lake surface, the reflection of the sun light cheered up the mood, alive”*

*“water feels clean, comforting, open, inclusive of all things; through the sunset and the calming water, expressing the greatness and beauty of nature, also reflect the tiny self”*

#### The overall most relaxing scene

The reflection of golden evening sunlight glittering on the gentle moving water of a large pond with a constant soft and almost monotonous colour tone was found to be the most relaxing scene. Sometimes the scene was further away, sometimes closer, and there was occasionally a dark water bird swimming in the golden waves.





### Subject and Visual Context

- Sunset reflection on water of a large pond (11)
- Flowing water/ripples (3)
- Water bird swimming across in dim light (2)
- Sunshine through plants (1)

### Movement

- Movement of glittering sunset reflection on the water of a pond (9)
- Movements of water/ waves/ripples (3)
- Water bird appearing/swimming across the pond (2)
- Golden lake appearing slowly at the very beginning (1)



### Colour and Light

- Sparking/flicking/glittering lights of sunset on water (11)
- Constant soft/monotonous golden waves (3)
- Fading of glittering light at the end (1)
- Dark water bird among golden waves (1)
- Sunrays through branches (1)



### Camera/Editing technique

- Slowed down movement of ripples and light reflections on water (11)

### Result



### Feelings and Associations

- Calming/relaxing (3)
- Comfortable/peaceful/soft (4)
- Hypnosis effect (1)
- Cheered up my mood- sunlight reflection (1)
- Lovely, warm colours- reminding past happy days (1)
- Openness, greatest beauty of nature, reflection of tiny self (1)
- More interesting and attractive- glittering water (1)
- Better focus than Film 2a (1)



### Point of View

- Distant view of large glittering water in a pond (2)
- Wider view of golden light on whole surface of water (1)
- Large glittering light fading at ending (1)
- From near to distant waves of light reflection (1)

#### 5.1.1.5 Summary of Film 3A – Close view of dawn in woodland

7 out of 15 participants reported this film was more relaxing than Film 3b and 1 reported both films were equally relaxing.



Almost all participants described the various movements of nature during sunrise including the sun, clouds, vegetation and birds as calming, comfortable and some felt uplifting. Half of the participants reported the nature scene and colours of sunrise were cheerful, alive and hopeful.

#### Quotes from the questionnaires

*“more natural, very happy when the sun rise slowly”*

*“the gentle movements of the branches made me feel comfortable, stable and calm”*

*“sun was about to rise from the horizon, the cloud in the twilight was beautiful; birds flying pass sometimes that expressed the vitality of life”*

#### The overall most relaxing scene

The most relaxing scene was the moment of the sun rising from the horizon in a natural open field with gentle changing golden clouds, swaying vegetation and occasional flying birds.



**Subject and Visual Context**

- Sunrise and clouds (4)
- Sunrise in the open natural environment (2)
- Sunrise and plants/trees (2)
- Birds passing in the sky (1)
- Nature (1)

**Movement**

- Sun began to rise slowly (2)
- Clouds changing/moving during sunrise (2)
- Plants/ branches/ leaves swaying gently (3)
- Clouds became golden in twilight (2)
- Birds flying past (1)

**Colour and Light**

- Golden clouds in twilight (2)
- Sunlight during sunrise (2)
- Shadows of vegetation (1)



**Camera/Editing technique**

- (No report)

**Result**



**Point of View**

- Sun rising from the horizon (1)  
(This entire film was shot from one point of view)

**Feelings and Associations**

- Tranquil/calm (2)
- Comfortable (2)
- Vitality (2)
- Hope/happy (2)
- Felt together with nature (1)
- More natural (1)
- Beautiful (1)
- Stable (1)

#### 5.1.1.6 Summary of Film 3B – Wide view of dawn in woodland

7 out of 15 participants reported this film was more relaxing than Film 3b and 1 reported both films were equally relaxing.



The bright morning sun was shining on a spacious open field from a distance through closer patches of grass, trees and vegetation in the foreground. Most participants reported the wide-open space and vegetation that moved gently in the breeze with sunshine was relaxing, warm and uplifting. One participant felt the soft vegetation in the background and the blue sky were more peaceful.

#### Quotes from the questionnaires

*“liked both clips, felt together with nature - the tranquillity of the nature”*

*“leading into a spacious and quiet world, becoming one with nature; the open air and tranquillity, the breeze and sunset; feeling safe, warm and calm”*

*“the golden yellow colour, feeling warmth of the sun”*

#### The overall most relaxing scene

The distant nature scene of the morning sun shining on the grass and trees with some swaying plants in the foreground of a spacious open field with gentle breeze was most relaxing, but was also found by some to be uplifting.





**Movement**

- Sun shining on all things/grass, trees (2)
- Trees/grass swaying in breeze (2)
- Birds flying (1)
- Movement of breeze (1)

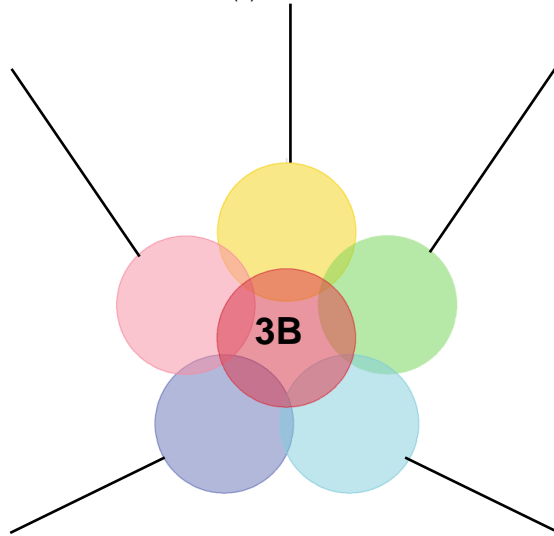


**Colour and Light**

- Sunrays/sunshine of sunrise (3)
- Sunlight on grass, trees/all things (3)
- Golden yellow colour during sunrise (1)
- Blue sky with soft background (1)

**Subject and Visual Context**

- Morning sunshine on wild nature/ woodland (3)
- Sunrise and grass/trees (3)
- Blue sky with soft background (1)
- Nature in spacious opened space (1)
- Flying birds (2)



**Camera/Editing technique**

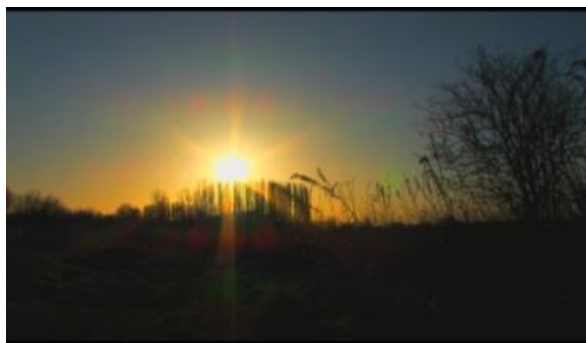
- (No report)



**Point of View**

- Spacious open nature (2)
- Close view of wild grass (1)

**Result**



**Feelings and Associations**

- Tranquil/calm/quiet (4)
- Warm/safe/peaceful (4)
- Openness/free/lively (4)
- Hope/affection (2)
- Together with nature (1)

#### 5.1.1.7 Summary of Film 4A – Snow drifting in countryside

4 out of 14 participants reported this film was more relaxing than 4b and 2 participants found it equally as relaxing as Film 4b.



All 6 participants wrote about the movements of snow falling in the sky, on vegetation, reeds, flowers and trees were calming and uplifting. 2 participants reported less snow or slow snowfall was more peaceful and calming.

2 participants reported that watching the snow scene reduced their disturbing mind. Another 2 participants felt soothed and positive because of the large view of the reeds and their unified and harmonious movements.

#### Quotes from the questionnaires

*“at the middle: close up and clear view without depth; now and then, the obscure background promoted relaxation”*

*“liked to watch the nature, snow, grass, the wood, the sun, no disturbing mind”*

*“less snow falling, mind was more peaceful”*

#### The overall most relaxing scene

The bright and soft snow scene with snow falling and drifting gently on a large field of reeds and in natural scenery was most relaxing.



**Movement**

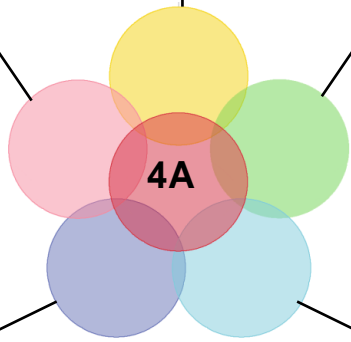
- Snow falling (5)
- Snowing slowly/less snow (2)
- Snowing in natural environment (2)
- Direction of reeds movement (1)
- Reeds flowers flying in sky (1)

**Subject and Visual Context**

- Snow scene: with nature/reeds/trees/forest (5)
- Little snow (1)

**Colour and Light**

- Clear view of forefront with obscure background (1)



**Camera/Editing technique**

- Close up clear view of forefront and obscure background (2)
- Direction of the reeds/ flowers (1)

**Point of View**

- Distant snowing scene (1)
- Close up clear view of snow scene (1)
- Large view of reeds (1)

**Result**



**Feelings and Associations**

- Relaxing-less snow falling slowly (2)
- Peaceful/gentle/soft (3)
- Light/bright/beautiful (3)
- Harmonious and unified (1)
- No disturbing mind (1)
- Relax the body and mind (1)

#### 5.1.1.8 Summary of Film 4B – Heavy snow in woodland

8 out of 14 participants reported this film was more relaxing than 4a and 2 marked both films as equally relaxing. All of them liked the subject of snow scene in open nature with trees in a wood. The majority felt the heavy snow falling or drifting in the sky, the field or on the trees promoted their relaxation and released their stress. Over half of the participants mentioned the appearance of the fine weather with sunshine and blue sky after the snow brought them greater relaxing and positive effect. A few reported their mood was uplifted.



Comparatively, fewer participants mentioned about the elements of colour and light, perspective and camera technique.

#### Quotes from the questionnaires

*“liked both clips (Film 4a & 4b), watched them while depressed, they could relax the body and mind”*

*“heavy snow, falling and drifting in the field and on the trees- released stress from inside; feeling a great relaxation”*

*“(Most relaxing scene) - ending: from the snowing and a big unmovable tree till the appearing of a blue sky with white clouds”*

#### The overall most relaxing scene

Most participants reported that the scene of heavy snow that was falling and drifting in the sky with open field, trees and wood was most relaxing but half of them also mentioned the uplifting effect of the appearing of sunshine and blue sky after it had been snowing.





### Movement

- Snow falling in sky, on grass, trees /a wood (9)
- Sunshine/clouds appearing after snow stopped (6)
- Heavy snow falling drifting in natural environment (5)
- Snow falling and accumulating on a big tree (4)
- Less snow falling slowly in nature (2)
- Branches swaying in snow scene (1)

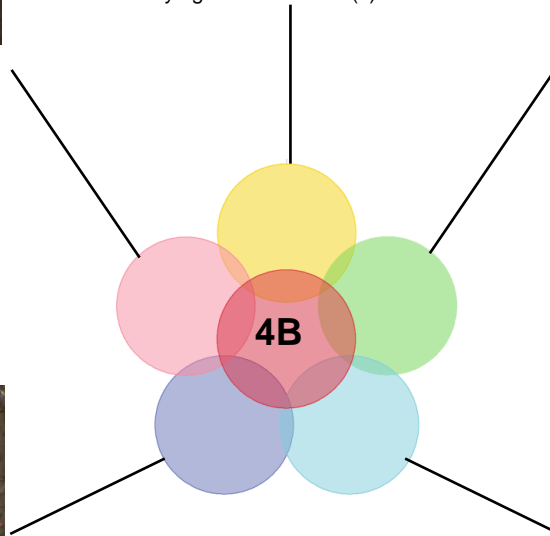


### Subject and Visual Context

- Snowing in nature with grass-filled/ trees in a wood (9)
- Sunshine and clouds after snow (5)
- Snow on a big tree (4)
- Heavy snow in open nature (5)
- A lake/steam in snow scene (2)

### Colour and Light

- White cloud after snow (4)
- Sunshine after snow in sky/nature (4)
- Blue sky after snow (1)
- Silvery white world in heavy snow (1)



### Camera/Editing technique

- (No reported)
- (Slow down motion in some parts of the footage)

### Result



### Point of View

- Close view of snowing on a big tree (4)
- Distant view of white clouds/blue sky (5)
- Distant large overall view of white scenery after heavy snow (1)

### Feelings and Associations

- Relax/calm (4)
- Soft/gentle/warm/soothing (4)
- Beautiful/simplicity (4)
- Warm/soft/delightful/refreshing (3)
- Reduced stress, negative emotion and uplifting (3)

### 5.1.1.9 Summary of Film 5A – Tranquil lake in summer

9 out of 13 participants reported this film was more relaxing than Film 5b and 2 stated that parts of both films were equally relaxing. The majority of participants described the gentle movement of the ripples and the crystal clear calming water of the lake had a calming impact and positive effect on them. Half of them said that the quiet fish in the lake also had a calming quality and a few felt free and uplifted by the fish when it was swimming more actively. The other few participants were interested in the water plants or water reflection of the sky. One participant felt sleepy and a hypnotic effect because of the calming lake.



#### Quotes from the questionnaires

*“ripples moved in gentle breeze, waving slowly, calming the mind”*

*“because the lake was calmer; felt sleepy after some time, had hypnotic effect”*

*“the calming lake promoted peace and secure feeling”*

#### The overall most relaxing scene

A calming lake appearing with soft, slow ripples and crystal clear water in gentle breeze; occasionally, a fish was staying quietly or swimming peacefully in the water on a fine day.



**Movement**

- Slow movement of ripples in breeze of a lake (4)
- Calming lake/water (3)
- A fish staying quietly in water (4)
- A fish swimming freely (2)
- Calming weeds (1)

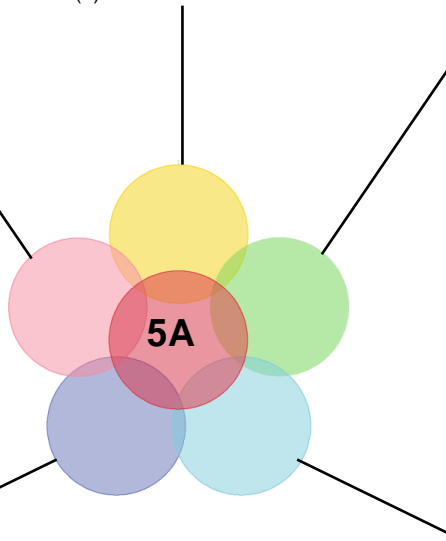


**Subject and Visual Context**

- Gentle water/ripples of a lake (7)
- A fish in water (6)
- A calming lake (3)
- Water plants/green weeds (2)
- A lake/scenery with surrounding trees (2)
- Reflection (of sky) on water (1)

**Colour and Light**

- Crystal clear water (2)
- Blue water (1)
- Green weeds (1)
- Reflection (of sky) on water (1)



**Result**

**Camera/Editing technique**

- Slow motion of the ripples (2)



**Point of View**

- Distant view of ripples/water of a lake (3)
- Distant view of water surface with surrounding trees (1)
- A fish near the surface of the lake (1)

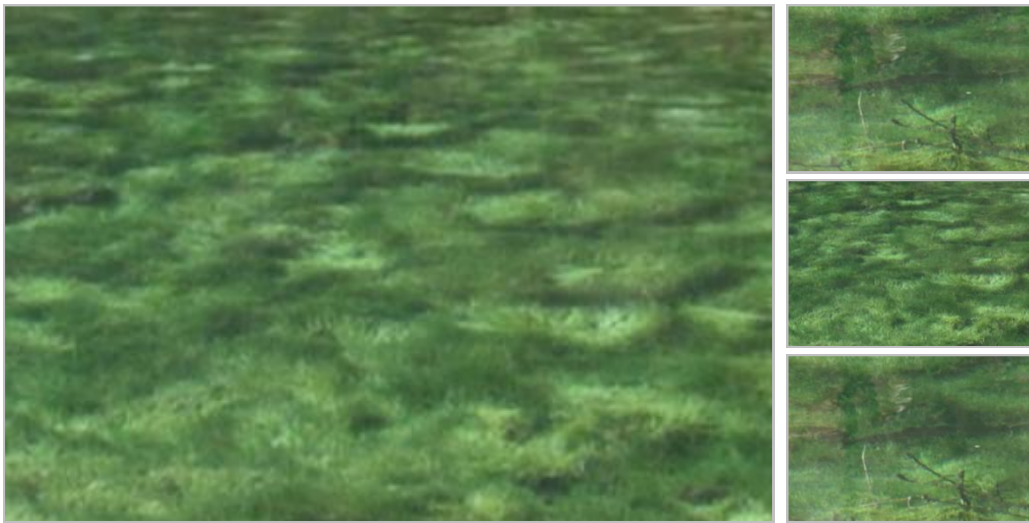


**Feelings and Associations**

- Calming (6)
- Peaceful (2)
- Free/joyful (3)
- Sleepy/hypnotic (2)
- Focus (1)
- Beautiful (1)
- Reflective (1)

#### 5.1.1.10 Summary of Film 5B – Green weeds under the water

4 out of 13 participants found this film more relaxing including 2 of them also mentioned some parts of Film 5a more relaxing. Two of them liked watching the fish in the water. The flowing water was relaxing to one and the green weeds under the water relaxing to another.



#### Quotes from the questionnaires

*“the fish was swimming freely; feel delighted and free; comfortable and happy”*

#### The overall most relaxing scene

The slow flowing water of a lake with green weeds under the water and a fish swimming occasionally had a relaxing effect.





**Subject and Visual Context**

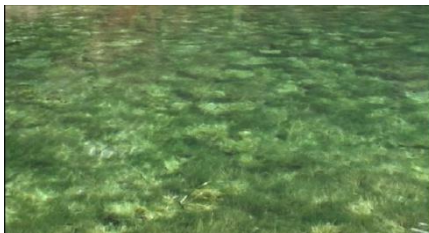
- A fish in the lake (2)
- Water of a lake (1)
- Weeds under the water (1)

**Movement**

- Water flowing (1)
- Fish swimming freely (1)
- Weeds (movement) under the water (1)

**Colour and Light**

- Clear water (1)
- Green weeds under the water (1)

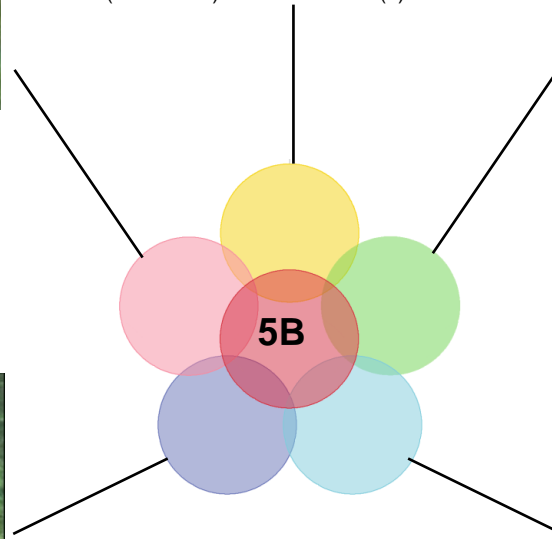


**Camera/Editing technique**

- (No feedback)

**Point of View**

- (No feedback)



**Result**



**Feelings and Associations**

- Comfortable (2)
- Delighted, free, happy (1)

#### 5.1.1.11 Summary of Film 6A – Purple water lily flower

Only 1 out of 7 participants reported this film was more relaxing. The image of a water lily flower was animated using a series of still photographs to give an impression of a flower opening at a really slow pace from the bud to the full blossom in a pond. The one participant stated that the moment when the flower bud was about to open was most relaxing but the impression of the entire film made the participant felt hopeful, energetic and uplifting.



#### Quotes from the questionnaires

*“full of hope, energy, youth; particularly when the flower-bud was about to open; giving people hope and growth”*

#### The overall most relaxing scene

The very slow and gradual opening of a water lily flower from a bud in a pond



**Subject and Visual Context**  
• A water-lily flower in water (1)

**Movement**

- Flower bud about to open (1)



**Colour and Light**  
• (No feedback)



**Camera/Editing technique**

- Animated very slow movement of the opening of a flower bud (1)

**Result**



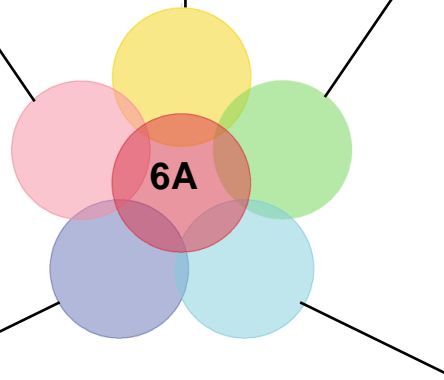
**Feelings and Associations**

- Hopeful, energized/uplifting (1)



**Point of View**

- (No feedback)



#### 5.1.1.12 Summary of Film 6B – Pink lotus flower

Half of the participants felt more relaxed by watching a close up of a big blooming lotus flower swaying under the gentle breeze with occasional bees flying around. However, one participant preferred the half opening of a lotus and another stated that the most relaxing scene was the distant view of a lotus flower with leaves.



#### Quotes from the questionnaires

*“lots of close up, big, peaceful view”*

*“the flower did not fill the whole screen, with green leaves, relaxing”*

*“towards the end where there were bees”*

#### The overall most relaxing scene

A fully blooming lotus flower with soft pink colour and tender appearance swaying gently in the breeze on a sunny day; and occasionally a few bees flying around the flower





**Movement**

- Bees moving/flying/working on a lotus flower (2)
- Flower swaying in breeze (1)

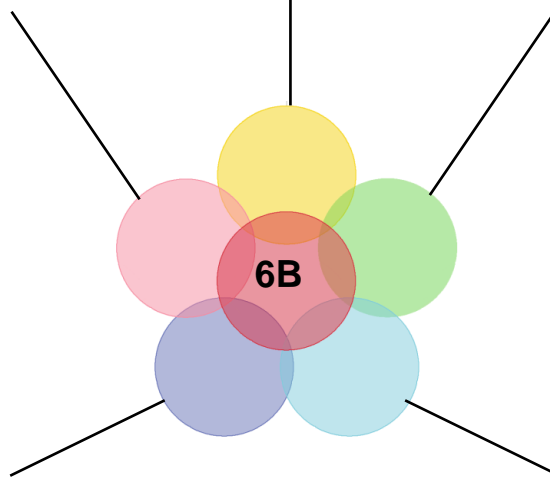


**Subject and Visual Context**

- A lotus flower (6)
- A close up of a big lotus flower (4)
- Bees on a lotus flower (2)
- A half opening of a lotus flower (1)
- A distant lotus flower with leaves (1)

**Colour and Light**

- Pink flower with bluish green leaves (1)
- Vividly clear of a lotus flower (1)
- Gentle sunlight (1)



**Result**

**Camera/Editing technique**

- Lots of close up and big of a flower (1)



**Point of View**

- Close up of a lotus flower (3)
- Distant view of the flower with leaves (1)
- Half opening of a lotus flower (1)
- Linear lines of petals of a flower (1)



**Feelings and Associations**

- Peaceful/tasteful-close up of big lotus flower (2)
- Relaxing-distant flower with leaves (1)
- Bright, soft and tenderly-lotus flower (1)
- Beauty-petals (1)

#### 5.1.1.13 Summary of Film 7A – Green in nature

This was an animated film with a collection of still photographs of a variety of green leaves and a large lily pond. 3 out of 7 participants reported that the pond filled with lily flowers attracted them and 2 were also engaged by the various green leaves. A participant felt the vitality in nature.



#### Quotes from the questionnaires

*“lotus associated with purity as "growing from mud without stain"”*

*“green symbolises ‘hope’ and life-force, feeling of vitality in nature ”*

#### The overall most relaxing scene

A large pond which was full of blooming water lilies and leaves was most relaxing to all participants.



**Subject and Visual Context**

- Lilies in a pond (4)
- Dew-drop on a leaf (1)
- Various leaves (1)
- Flowers (1)

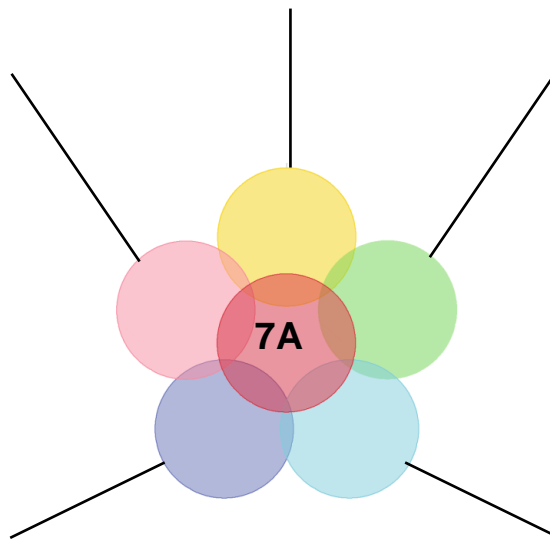
**Movement**

- A dew-drop falling from a leaf (1)



**Colour and Light**

- Various green leaves (2)
- White flowers (1)



**Camera/Editing technique**

- (No report)



**Point of View**

- A dew-drop falling from a leaf (1)

**Result**



**Feelings and Associations**

- Calming-lily pond (1)
- Vitality-in nature (1)
- Beautiful/attractive/nice (2)

#### 5.1.1.14 Summary of Film 7B – Mist and mountain

This film was shot from a point of view without changing frames. All participants who reported this film was more relaxing because of the slowly changing movements of the mountain mist. In fact, 2 of them felt the moving mist was tranquil and brought relaxing effect to them.



#### Quotes from the questionnaires

*“tranquility (of the mountain mist) brings relaxing feeling ”*

*“the mist and mountain were tranquil environment in nature, brought peace to the mind”*

#### The overall most relaxing scene

The misty clouds drifting, rising, spreading and disappearing slowly in the mountains from a distance



**Subject and Visual Context**

- Mist in the mountains (4)

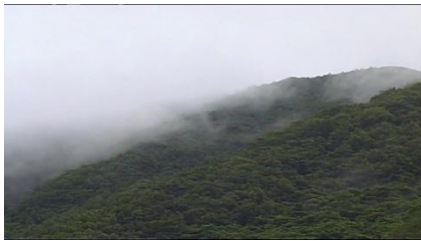
**Movement**

- Movements of mist/clouds moving/driftng slowly in mountains (4)
- Misty clouds changing in tiny way-rising, scattering and disappearing slowly (1)



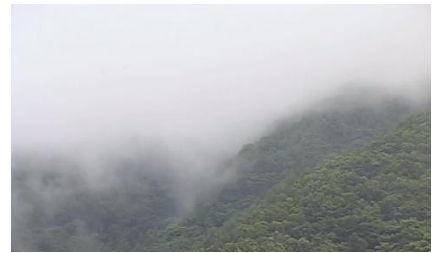
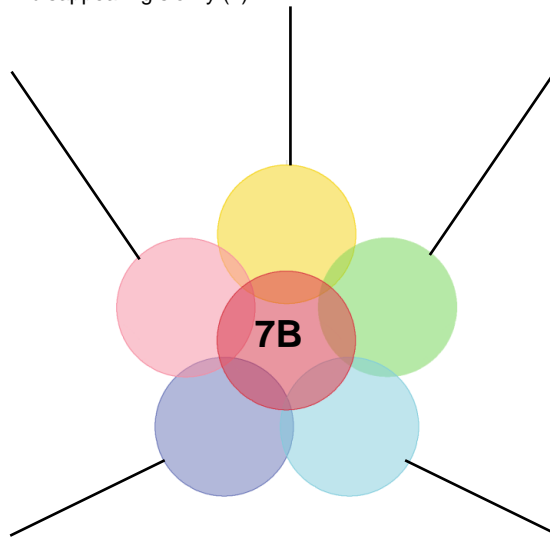
**Colour and Light**

- White misty clouds (1)



**Camera/Editing technique**

- (No report)



**Point of View**

- Distant view of mist in mountains (1)

**Result**



**Feelings and Associations**

- Tranquil (2)
- Relax (1)
- Peace (1)



#### 5.1.1.15 Summary of Film 8A – Cheery blossom in the park

2 out of 4 participants reported this film to be more relaxing than Film 8b and 1 stated that both films were equal relaxing. All participants liked the blossoming trees in a natural environment. 2 mentioned the scene was beautiful and tranquil.



#### Quotes from the questionnaires

*“cherry blossom, beautiful wood, felt (mind) very clear, tranquil and comfortable”*

*“blossoming cherry trees, the wood and green grass full of life, also feeling peaceful”*

#### The overall most relaxing scene

The scene of the cherry trees with blossoming pink flowers in a natural environment and green grass in a wood was most relaxing.



**Subject and Visual Context**

- Trees with blossoming flowers (2)
- Green grass and meadow in the wood (2)

**Movement**

- (No report)



**Colour and Light**

- Green grass (1)



**Camera/Editing technique**

- (No report)

**Result**



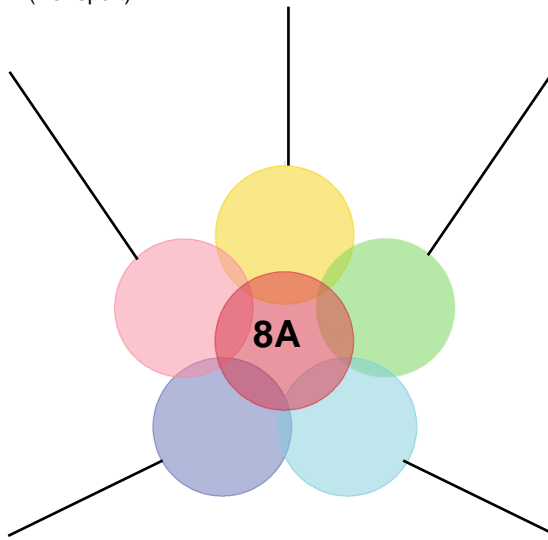
**Feelings and Associations**

- Tranquil (2)
- Relaxing (1)
- Peaceful, comfortable (2)
- Natural (1)
- Beautiful, aesthetic (2)
- Felt (mind) very clear (1)
- Full of life (1)



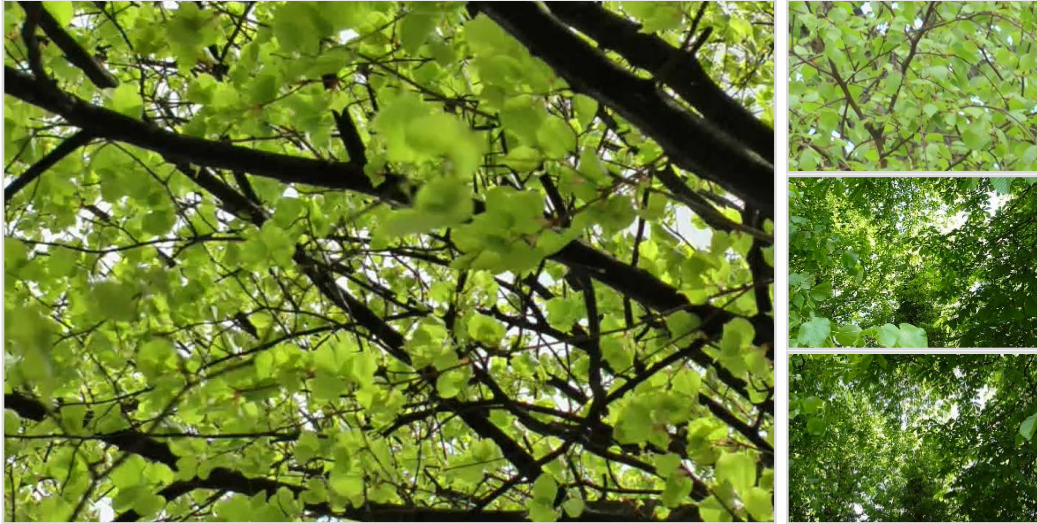
**Point of View**

- Distant view of the wood and meadow (1)



#### 5.1.1.16 Summary of Film 8B – Spring leaves of tress

1 out of 4 participants reported this film to be more relaxing than Film 8b. One reported both films were equally relaxing. One participant preferred the green trees and leaves to the pink blossoming trees. The movements of the leaves and clouds in this film were more noticeable in this film but none mentioned the movement in Film 8A.



#### Quotes from the questionnaires

*“full of vitality, hope, relaxing, (mind) not drifting”*

#### The overall most relaxing scene

The green leaves and trees were swaying in breeze with white clouds drifting in the sky.





**Subject and Visual Context**

- Trees and leaves (1)
- White clouds (1)

**Movement**

- Trees and leaves swaying in breeze (1)
- White clouds drifting in sky (1)



**Colour and Light**

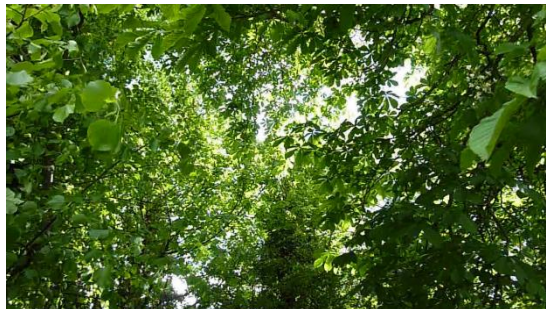
- White clouds (1)



**Camera/Editing technique**

- (No report)

**Result**



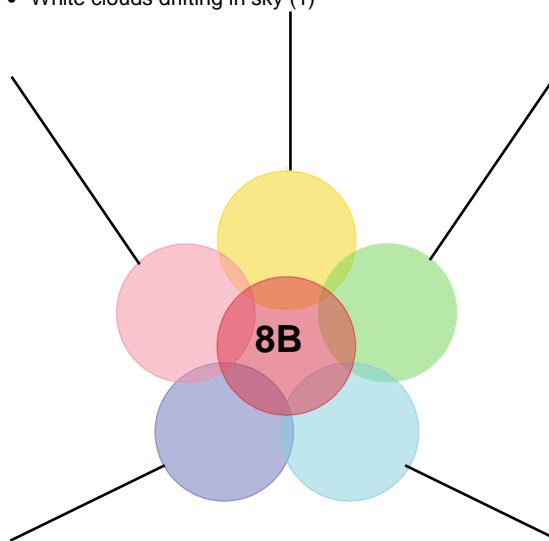
**Feelings and Associations**

- Tranquil (1)
- Relaxing (2)
- Natural (1)
- Beautiful, aesthetic (2)
- (Mind) not drifting (1)
- Full of vitality, hopeful (1)
- Hope (1)



**Point of View**

- (No report)



### 5.1.2 Summary of qualitative film analysis

Each of these eight pairs of films has been analysed here separately so that it is possible to see which specific scenes and images were found to be most relaxing. However for the purposes of an overall summary I have pulled much of the information together, and present it here, to give a broad sense of the impact of the films.

#### 5.1.2.1 Summary of positive responses found in qualitative film data results

I developed a method called The Key Elements to categorise all the qualitative data from the 9 pairs of films. In this method, I organised the data into 5 key elements: movement; subject and visual context; colour and light; point of view; and camera/editing technique. From the 5 elements I derived results named as ‘feelings and associations’. In order to help the reader understand the complexity and variety of responses, I produced diagrams – one for each film - to represent my findings. The diagram contains visual images of each film, and participants’ responses, classified into the five analytic elements and into the final category of ‘feelings and associations’. The layout was designed to be as reader-friendly as possible in the presentation of these findings.

I selected different representations of visual effects in the nature films. Some were shot as a single frame, others were a compilation of frames. The variations in pace and movement in the videos allowed me to explore how these affected participants’ responses.

Altogether, 136 participants watched a pair of films. Since the content of the films was something which it was not possible to explain easily to participants before they viewed them, and because in any case the study wanted to gauge participants’ responses to material new to them rather than ask them to choose on the basis of some prior knowledge, the pair of films they watched was chosen by the researcher. Some films were watched more than others. Although this was unsystematic, the research was always seen as exploratory, and this approach provided sufficient information on participants’ responses. Total numbers are shown below. This suggests that the information received about some films may be more reliable than that received about others, since more people commented on them. However, in order to make detailed sense of the large amount of information received in people’s own words and phrases, the remainder of this section summarises comments on all the films, regardless of how many people made them.

Film nos.	Total viewers	No. who preferred 'a'	No. who preferred 'b'	No. who like both equally
1a and 1b	45	18	26	1
2a and 2b	31	20	9	2
3a and 3b	15	7	7	1
4a and 4b	14	4	8	2
5a and 5b	13	9	4	2
6a and 6b	7	1	6	0
7a and 7b	7	3	2	2
8a and 8b	4	2	1	1
All films	136	n/a	n/a	n/a

Table 5-1 Comparison of 5-elements diagrams

#### 5.1.2.2 Summary of negative responses found in qualitative film data results

Beginning with the negative responses, there were very few of these found in the qualitative film data, and because of this they have not been included in the main analysis above. Some movement was seen as distracting, such as large water movements and duck movements. Some respondents simply didn't like the subject for example ducks and birds. Colour and light was reported to be too bright or glaring such as yellow and golden light. A few people said there were not enough frames or the pace of the film was too slow. One person found the lights on the DVD player distracting and another found the venue too stuffy or noisy. It was reported that participants had difficulty focusing or concentrating on the image. Negative responses largely occurred due to the way the film was presented rather than to the content, but since people were distracted from the content by these negative aspects they are important to these findings.

#### 5.1.2.3 Positive aspects

I will start off by discussing movement because the element of movement appears to be the most predominant in participants' responses to the questionnaires. All of the materials shown to participants were film clips except for two which were animated pictures created from still photographs.

#### 5.1.2.4 Movement

Films that contained a lot of movement elicited more comments about movement. Overall the element of movement was found to be very calming to participants. Snow falling, mist dispersing, water rippling and leaves swaying in the breeze were all considered relaxing aspects of the film. The natural smooth and soft movements in the films created an echo effect on the participants mind. Some positive responses from the films were:

- 1a – “Feeling light and relaxed in the breeze”
- 2a – “felt the 2 water birds were swimming comfortably, calmly; and the rhythm of their movements were very gentle and calming”
- 2b – “the movements and stillness of the water, felt very comfortable of the reflection of the water-drops”
- 3a – “Plants/branches/ leaves swaying gently”
- 4a – “less snow falling, mind more peaceful”
- 5a – “when the breeze passed by, the ripples on the surface were very beautiful”
- 6b – “bees flying on the lotus flower”

#### 5.1.2.5 Subject and Visual Context

The type of subject matter adopted in this study was chosen because of the links between nature and health in Chinese culture. The specific images were chosen because they seemed to be aesthetically pleasing. Images like a sunrise and the snowfall in the countryside are both popular subjects. The more the subject expressed positive feelings about an aspect of nature the greater the positive effect on them and the more likely they were to report feeling relaxed. Participants tended to like images such as blooming flowers, clear gently flowing streams and green fields. Below are some positive responses:

- 1b – “the little insect which was moving in the green, the feeling of going back to nature”
- 2a – “Water and those water birds are lovable subjects”
- 2b – “Water feels clean, comforting, open...through the sunset and the calming water, expressing the greatness and beauty of nature, also reflects the tiny self”
- 3a – “nice to watch the shadows of vegetation”

- 4a – “snowflakes, trees, wheat in nature; the lake in the snow scene was beautiful, soft and gentle”
- 5a – “the calming lake promoted peace and secure feeling”
- 7b – “the mist and mountain were tranquil environments in nature, brought peace to the mind”

#### 5.1.2.6 Colour and Light

If colour and light are more predominant in films they attract more attention and produced more detailed feedback. In film 2b the movement of colour and light is the main key element. Colour and light seem to be very important factors to the participants and are mentioned frequently. The studies suggest that colour and light are vital for creating a calming effect on people. Soft, less glaring, subtle and natural colours are favoured. Some comments were as follows:

- 1a – “the view is soft, light yellow without other outstanding colours”
- 2b – “lovely lighting on the lake, warm colours reminding the past-happy days”
- 4b – “the silvery white world is a style of simplicity”
- 7b – “the dusk blue sky and clear mountain scene gentle and peaceful feeling”
- 8a – “reflection of sunlight on water, gradual changes in water as the light faded”
- 8b – “the sun rays appearing, mist disappearing lighting up the mountains is soothing”

#### 5.1.2.7 Point of view

Perspective, composition and point of view are grouped together as one element. These factors were mainly mentioned in the comments of films with changing scenes. Film 2a contained changing scenes of water birds filmed close up. Distant views of nature were on the whole favoured, though some preferred a closer view, as in Film 2a. The comments about point of view are more precise illustrating the exact scene that is most relaxing. So it is easier to pin point the detail they find the most relaxing. Participants responded with:

- 1a – “the view made me feel calm and peaceful; as if lying down under a big tree”
- 2b – “the large view of golden light....on the whole surface of the water”
- 4a – “at the middle: close up and clear view without depth, now and then, the obscure background promoted relaxation”

### 5.1.2.8 Camera or Editing Technique

Comments on this key element were not as frequent as other key elements. I noticed that the few comments that were made appeared to come from participants with some art and design background. Responses included: steady shooting, changing of frames and zooming in and out. Various comments about these mentioned they felt more relaxed if the zooming was slower and if the frames changed with a gentle pace. Roughly half the participants made no reference to this key element therefore I feel it is not as important as the other 4 key elements. A few responses are:

- 1a – “the zoomed out view from near to distant scenery”
- 1b – “flowers changing constantly” =(different flowers appearing in new frames)
- 6a – “water lily moving very slowly and opening” (animated clip)

### 5.1.3 Conclusion of qualitative data

Most feedback was positive, and many qualitative responses indicated that the experience of watching the films felt calming. Written answers suggest this was due to a delicate balance of stillness and movement, harmonious lighting, soft colours, subjects of nature that were unthreatening and familiar landscapes.

Man-made objects in the films were found to be pleasing but only if they were familiar to the viewer. If man-made objects were associated with security and comfort they elicited a relaxing effect. For example the harbour allowed the viewer to see the sunset and also protects a viewer from the sea. According to the classifications suggested by (Appleton, 1996) and (Vincent, 2009), the view counted as a ‘mixed prospect, including both ‘prospect’ and ‘refuge’. However, it is necessary to be aware of a viewer’s preference before including man-made objects and animals, since participants may attach a lot of feelings to them, and experience both negative as well as positive responses. Birds flying in the sky seem to have been a welcome subject to all participants but a few did not like ducks or insects in flowers.

I also noted that it’s important for the subject that is moving to be in a relaxed state to create the mirror effect. The film needs to show natural cycles of nature. A static scene of nature tended to reduce interest. If there was too much movement or unnatural movement participants felt disturbed, but if there was too little they felt bored. Striking bright colours were not felt to be relaxing except in a sunset. Dull light was not found to be engaging but sleep-provoking instead. Films shot on a

single frame were more engaging if there was movement in them. Otherwise they were considered slow and uninteresting.

It is clear to see that movement really engaged the participants, regardless of their positive or negative responses to it. Not all the films were not shown in real time. Some had been purposely slowed down to a slower pace, and this seemed to aid the mirror effect. Viewers felt that they too slowed down, and commented that helped them to feel more relaxed. Film 8a was very successful in aiding relaxation due to a balanced variety of key elements, so that participants could choose what they watched from many features for example, a boat moving or birds flying in the distance. Also if they wanted to focus on a very slow change they had the sunset with the changes in light. Water was one of the most influential subjects in creating a relaxing effect. Some key words produced by participants' responses were: swaying, gentle ripples, soft colours, gentle movement, gentle breeze, fading colours, fading light, clear water, quietness, distant views, close views, open views and open spaces.

The analysis suggested that participants needed to be engaged by a film. It was not enough simply for a film to be slow. The viewer is first attracted by what is happening in the film, and then relaxed by the pace. Importantly, in the films I showed in China, the subject of nature was central and it was often the beauty of a nature scene which first captivated the viewer. Once attracted, a viewer could settle to pay attention to the film, and slow down.

## 5.2 Quantitative data analysis

This section on quantitative analysis looks at the effects of firstly the films, and secondly the coloured light on the three groups: patients, relatives of patients and healthy participants. For both films and coloured lights, the results for each group comprises the following information:

- Pulse rate changes
- Systolic blood pressure - BP(S)
- Diastolic blood pressure - BP(D)
- Relaxation level (self-report on a 5-point scale)
- Numbers of self-generated descriptive words (clustered and counted)

Because blood pressure is usually presented as a double number, and is written as systolic BP over diastolic BP, it would have been complicated to calculate these with large numbers of participants. It was therefore thought easier to report the two types of blood pressure separately. For information purposes, systolic measures the pressure in the arteries when the heart beats (contracts) and diastolic measures the pressure between beats (when the heart muscle is resting between beats and refilling with blood). Blood pressure rises with each heartbeat and falls when it relaxes in between.)

For simplicity, percentages have been rounded into whole figures. Any which ended .5 or less have been rounded down, and any ending .6 or more have been rounded up. Thus for example, 8.5% would become 8%, and 5.6 % would become 6%. Because this is an exploratory study, more robust statistical tests were not carried out. The intention was to use a fairly simple calculation – percentages - to indicate the direction of change rather than to establish the extent of the difference

### 5.2.1 Impact of films on healthy participants

The following charts show the quantitative results.

#### Pulse rate difference

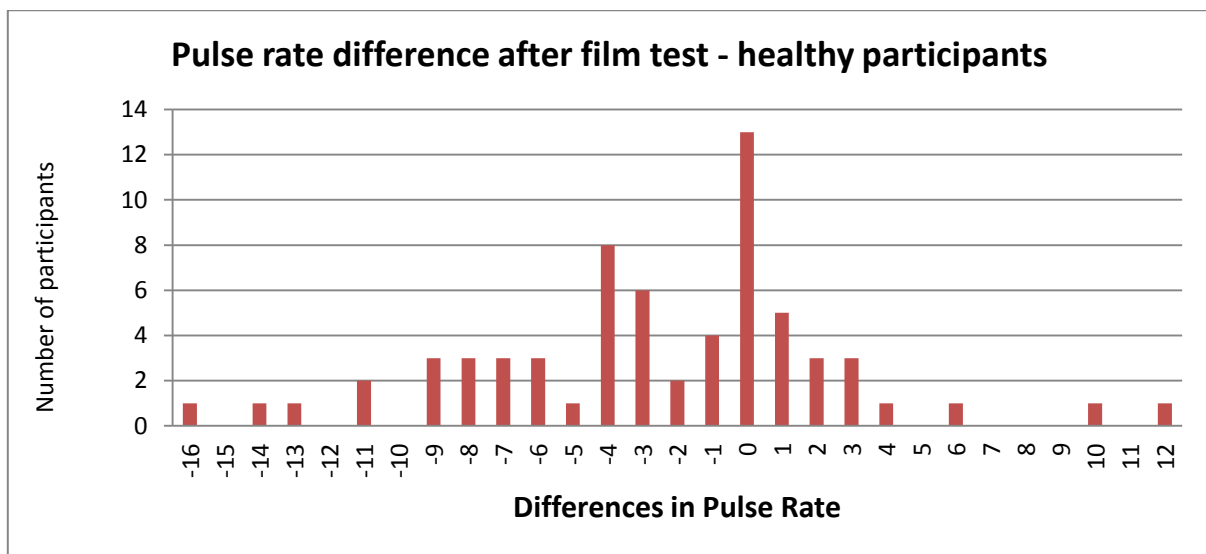


Figure 5-1 Pulse differences after the film test on healthy participants

66 participants were involved in the film test. Pulse rates were lower for 58% of participants and higher for 23% after viewing the films. The graph also shows that the reductions in pulse rates were greater than the increases.



Systolic blood pressure

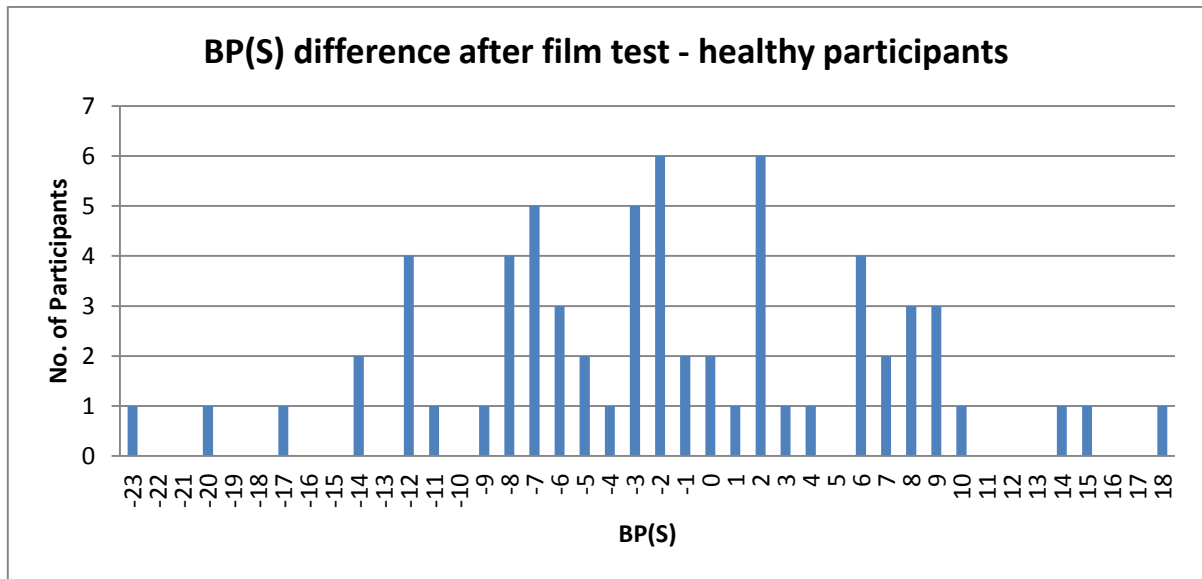


Figure 5-2 Systolic blood pressure changes after the film test on healthy participants

59% of participants had a reduced BP(S) after viewing the films, and 38% participants had an increased level.

Diastolic blood pressure

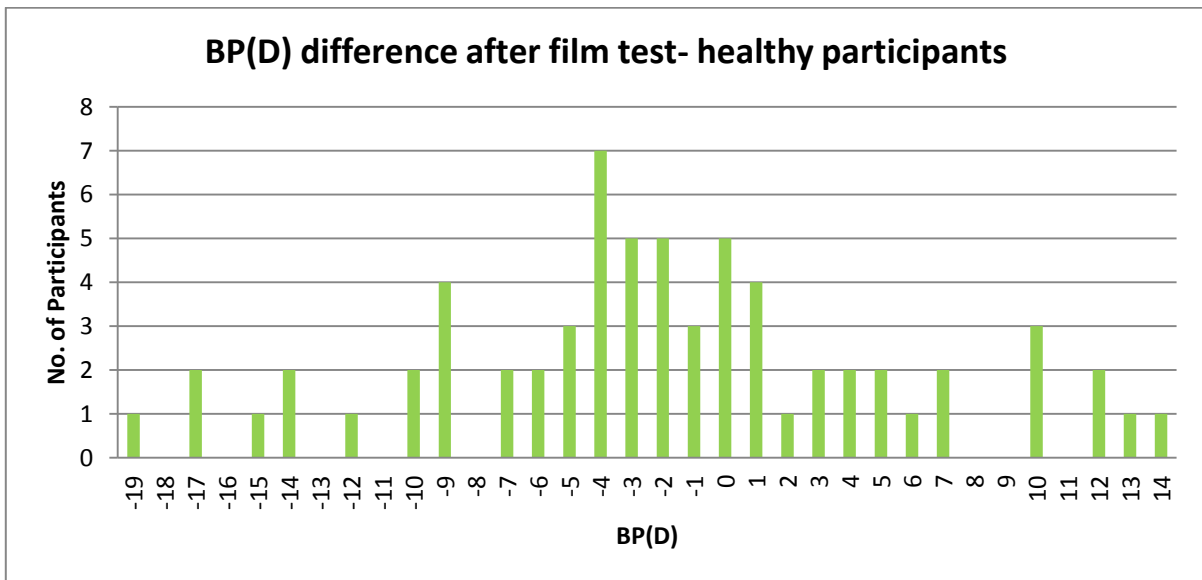


Figure 5-3 Diastolic blood pressure changes after the film test on healthy participants

After viewing the films BP(D) decreased for 57% of participants and increased for 39%.

## Relaxation effect

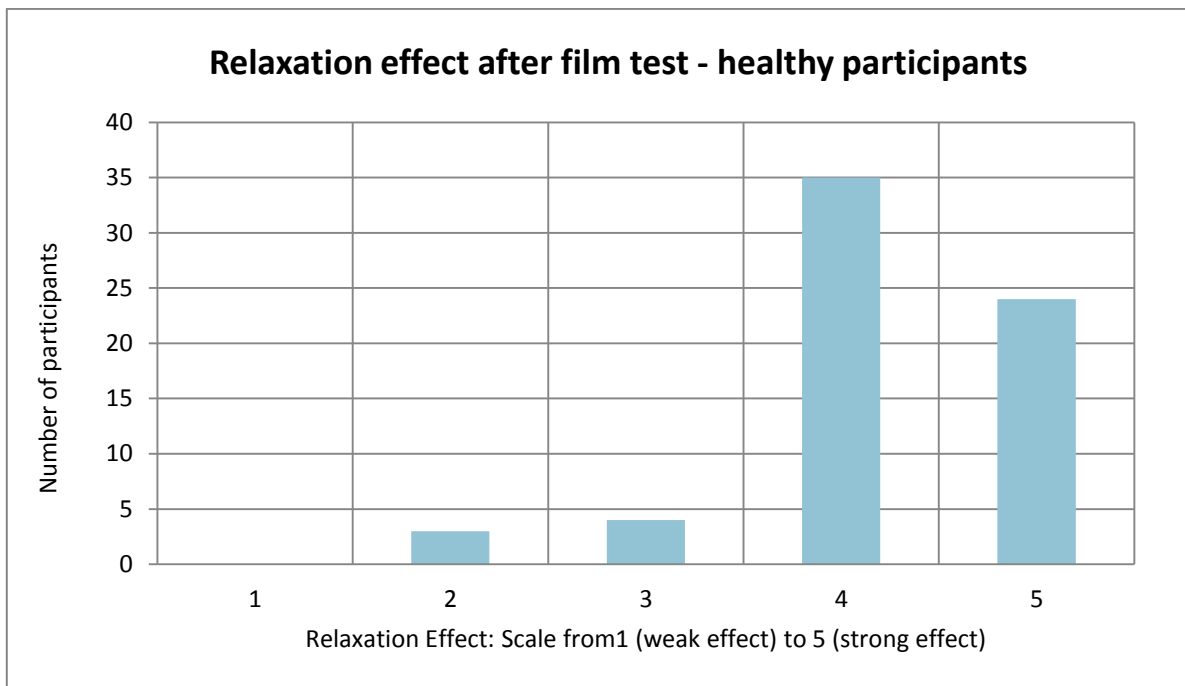


Figure 5-4 Self-reported measurement on relaxation effect - healthy participants

The majority reported a positive relaxing effect after viewing the films, with 89% of these scoring the effect as 4 or 5 (fairly strong or strong) on a 5 point scale.

## Descriptive words

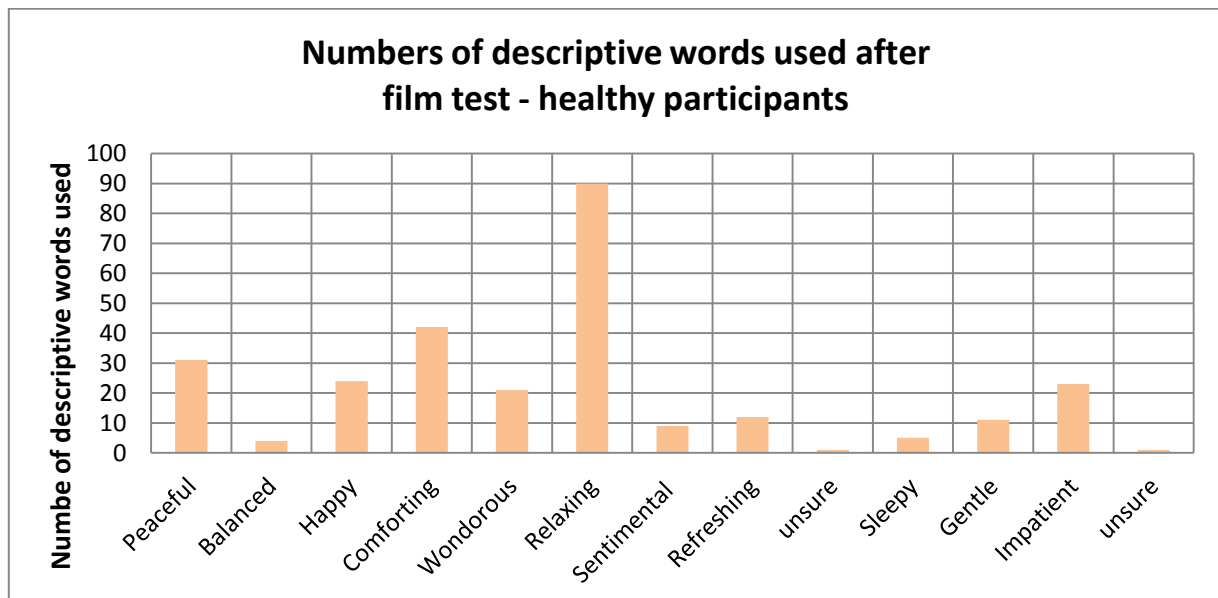


Figure 5-5 Chosen description words by healthy participants after film test

The largest number of words chosen related to 'relaxing'. The effect was also, though less often, identified as 'comforting' and 'peaceful'.

### 5.2.1.1 Summary of effect on the 'healthy' participants

58% of participants had a reduced pulse rate, 23% had a higher rate and 19% had the same pulse rate after viewing the films. 59% of participants had a reduced BP(S) and 57% a reduced BP(D).

89% reported the relaxation effect to be 'fairly strong' or 'strong'. The highest percentage of words to describe the effect was "relaxing" at 33%. The second highest at 15% was "comforting". Two negative words were given but scored less. These were "impatient" (8%) and "unsure" (1%).

### 5.2.2 Impact of films on patients

The following charts show the results of the film studies on patients.

#### Pulse rate difference

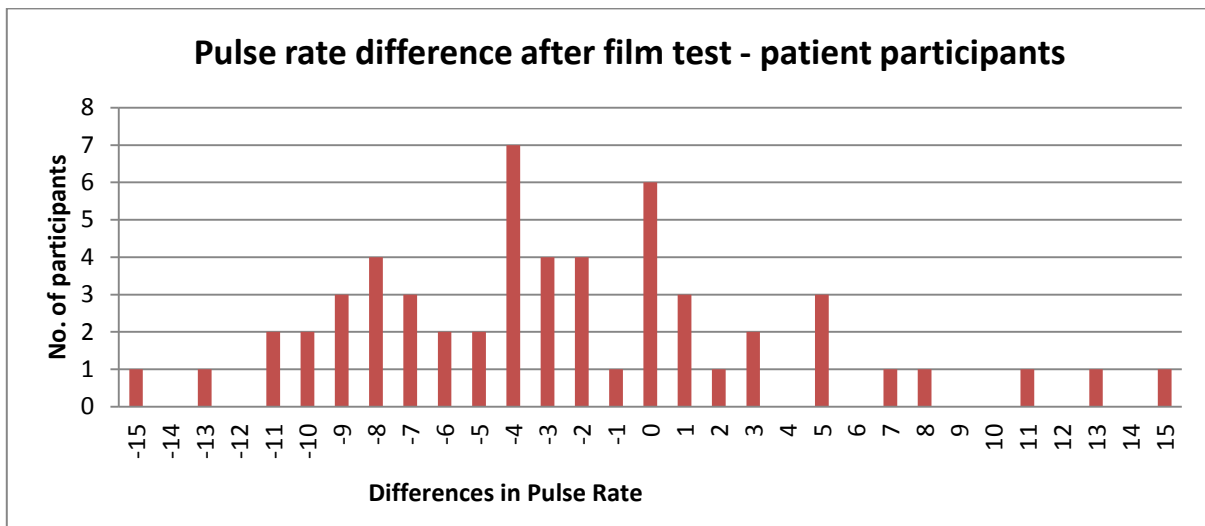


Figure 5-6 Pulse differences after the film test on hospital patients

56 participants were involved in the film test and the result is shown in Figure 5-6. 64% of patient participants had a reduced pulse rate and for 25% had an increased rate after viewing the films. The reductions in pulse rate were greater than the increases.

Systolic blood pressure

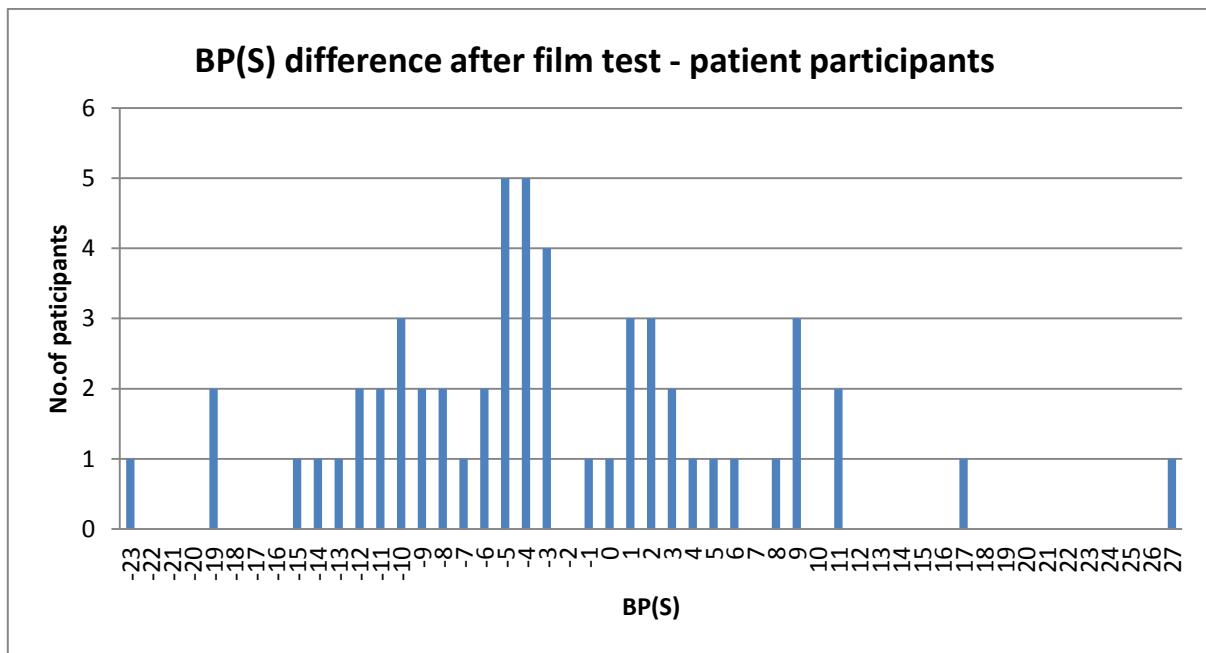


Figure 5-7 Systolic blood pressure changes after the film test on hospital patients

62.5% of patient participants had a reduced systolic blood pressure BP(S) after viewing the films and 34% had a higher level.

Diastolic blood pressure

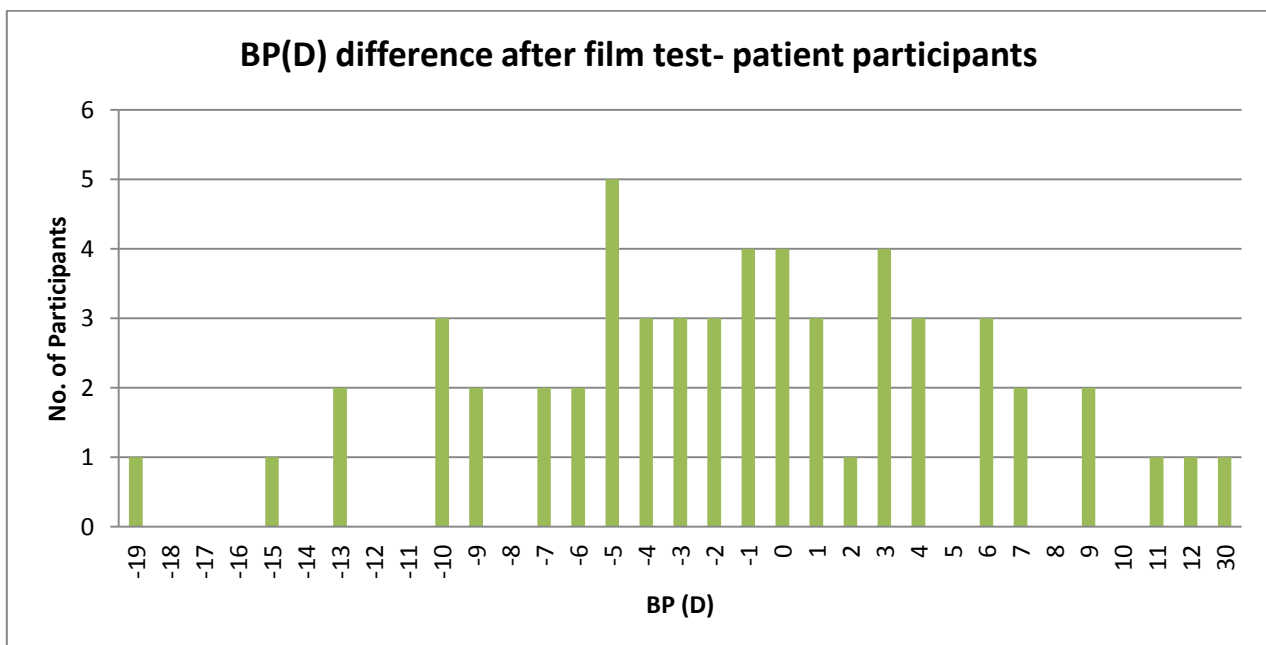


Figure 5-8 Diastolic blood pressure changes after the film test on hospital patients

55% of patients had a reduced systolic blood pressure BP(D) after viewing the films and 37% had a higher level.

## Relaxation effect

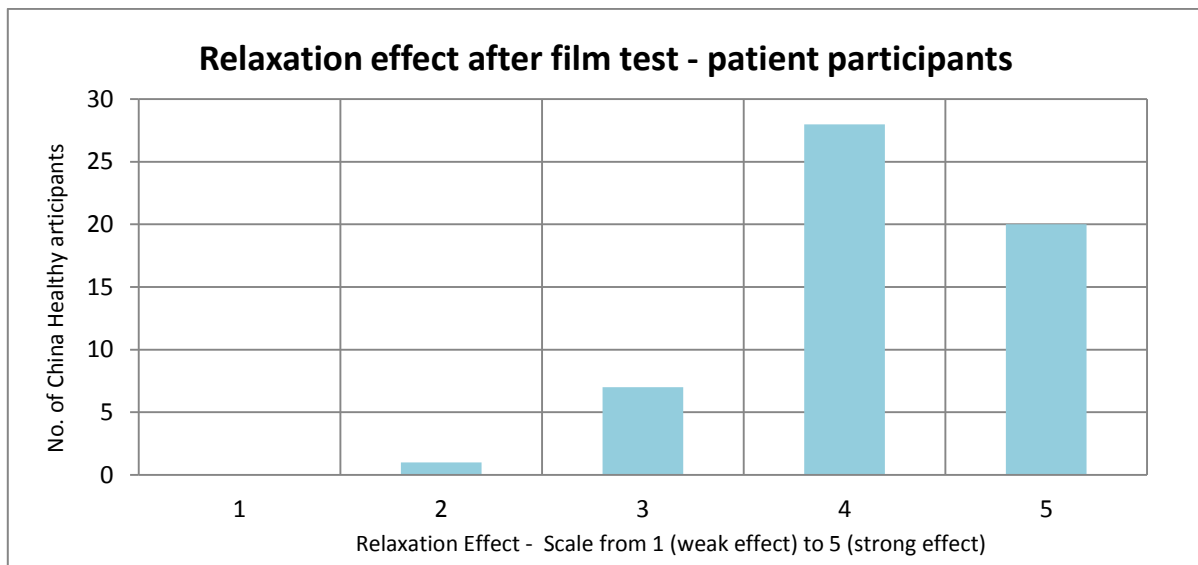


Figure 5-9 Self-reported measurement on relaxation effect after the film study on hospital patients

The majority reported a positive relaxing effect after viewing the films, with 86% of these scoring the effect as 4 or 5 (fairly strong or strong) on a 5 point scale.

## Descriptive words

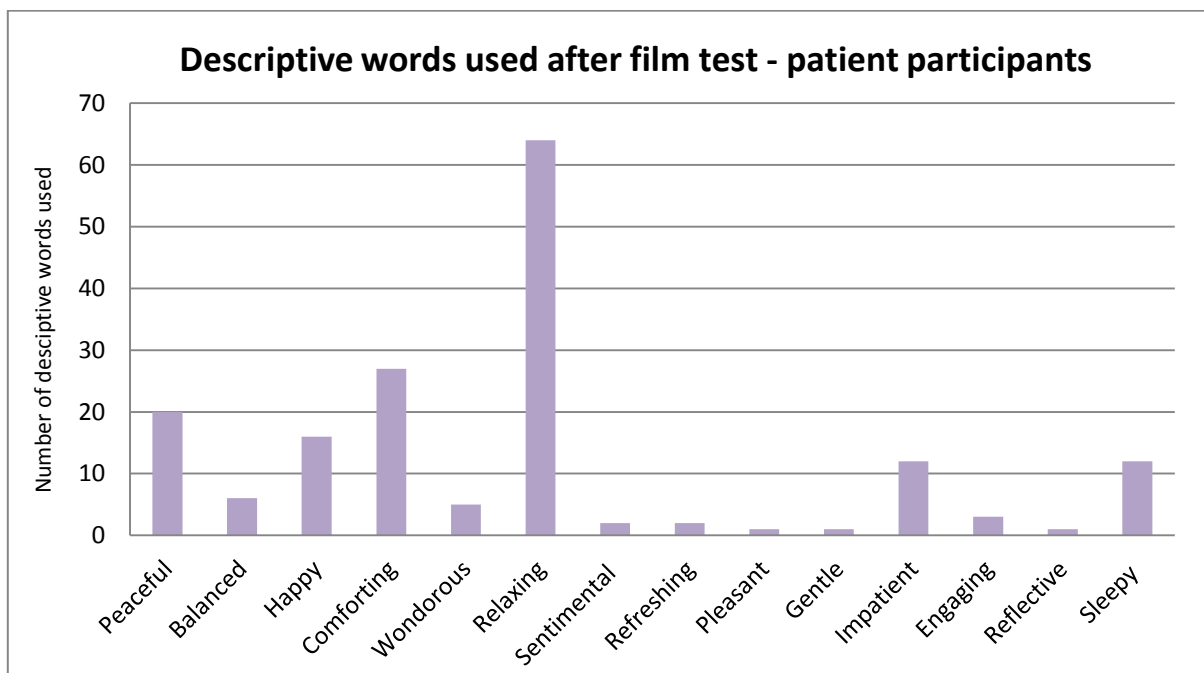


Figure 5-10 Chosen descriptive words by patient participants after film test

Figure 5-10 shows the numbers of all descriptive words written by participants after viewing the films. 'Relaxing' was the most popular.

### 5.2.2.1 Summary of effect on hospital patients

64% of patient participants had a reduced pulse with decreases from -1 to -15 beats per minute. BP(S) reduced by 62% and BP(D) by 55%. 85% found the relaxation effect to be strong or fairly strong and the highest percentage of descriptive words given by participants was “relaxing”, at 37%. The second highest, at 15%, was “comforting”. 6% of participants felt ‘impatient, which is seen in this context as a negative association since impatience would be unlikely to induce a sense of calm or relaxation.

### 5.2.3 Impact of films on relatives of patients

The following charts show the results of the film studies on relatives of patient participants.

#### Pulse rate difference

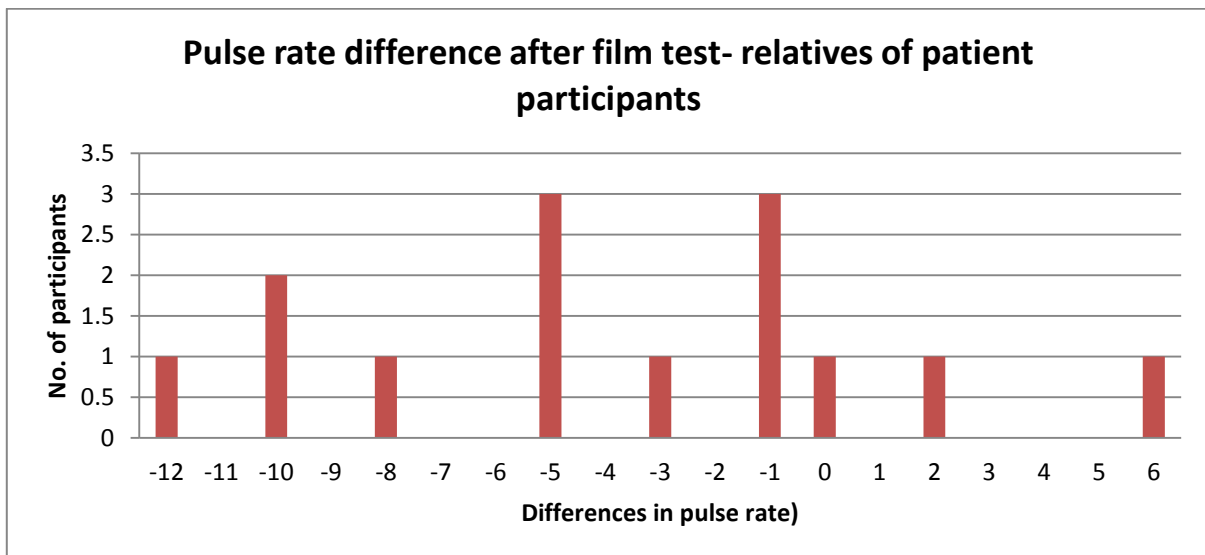


Figure 5-11 Pulse rate difference after the film test on relatives of patient participants

14 participants were involved in the film test. 78% of participants had a reduced pulse rate, and 14% had an increased pulse rate after viewing the films.

Systolic blood pressure

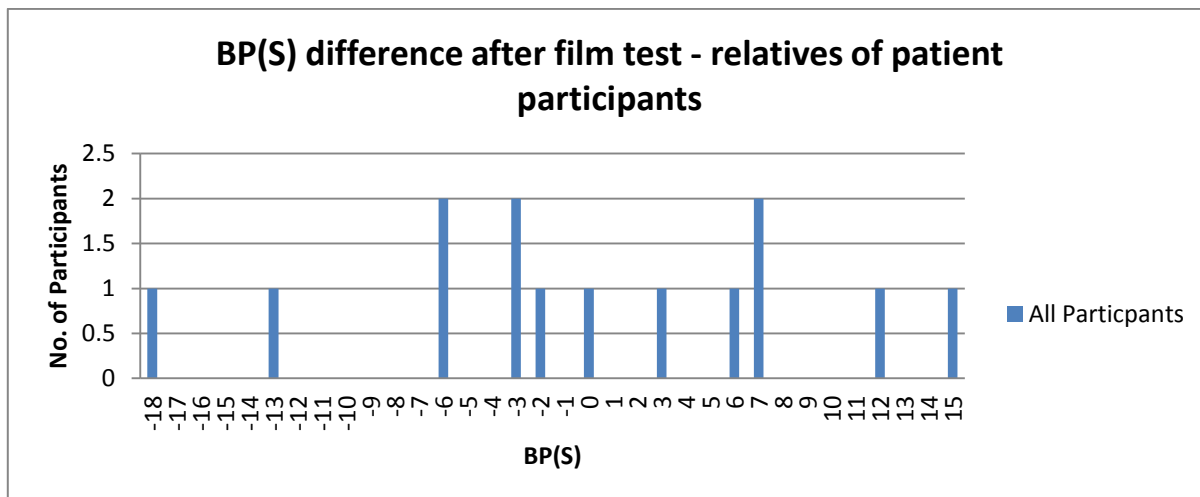


Figure 5-12 Systolic blood pressure changes after the film test on relatives of patients

50% of patient of relative participants had a reduced systolic blood pressure BP(S) and 43% had an increased level after viewing the films.

Diastolic blood pressure

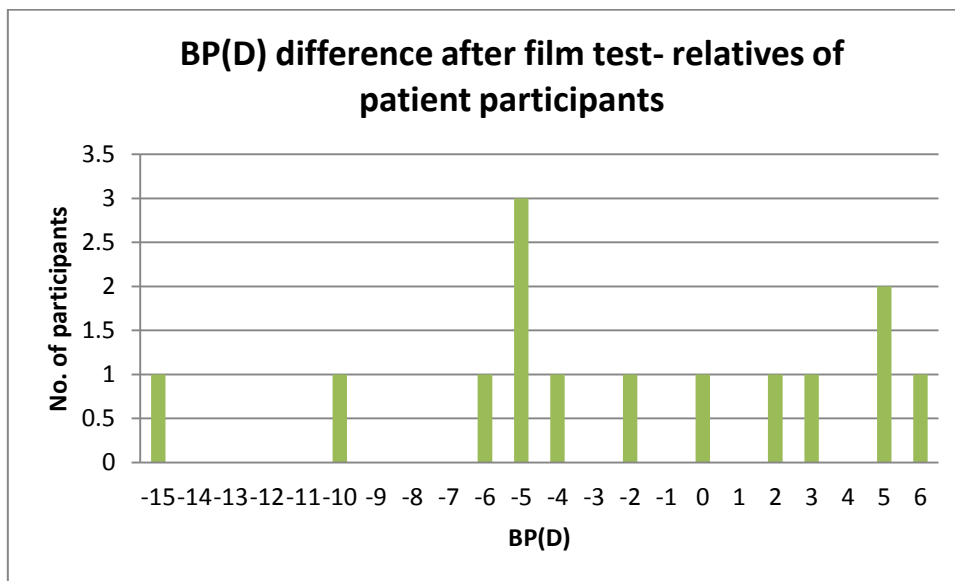


Figure 5-13 Diastolic blood pressure changes after the film test on relatives of patients

57% of patients' relatives had a reduced systolic blood pressure BP(D) and 36 had an increased level after viewing the films.

## Relaxation effect

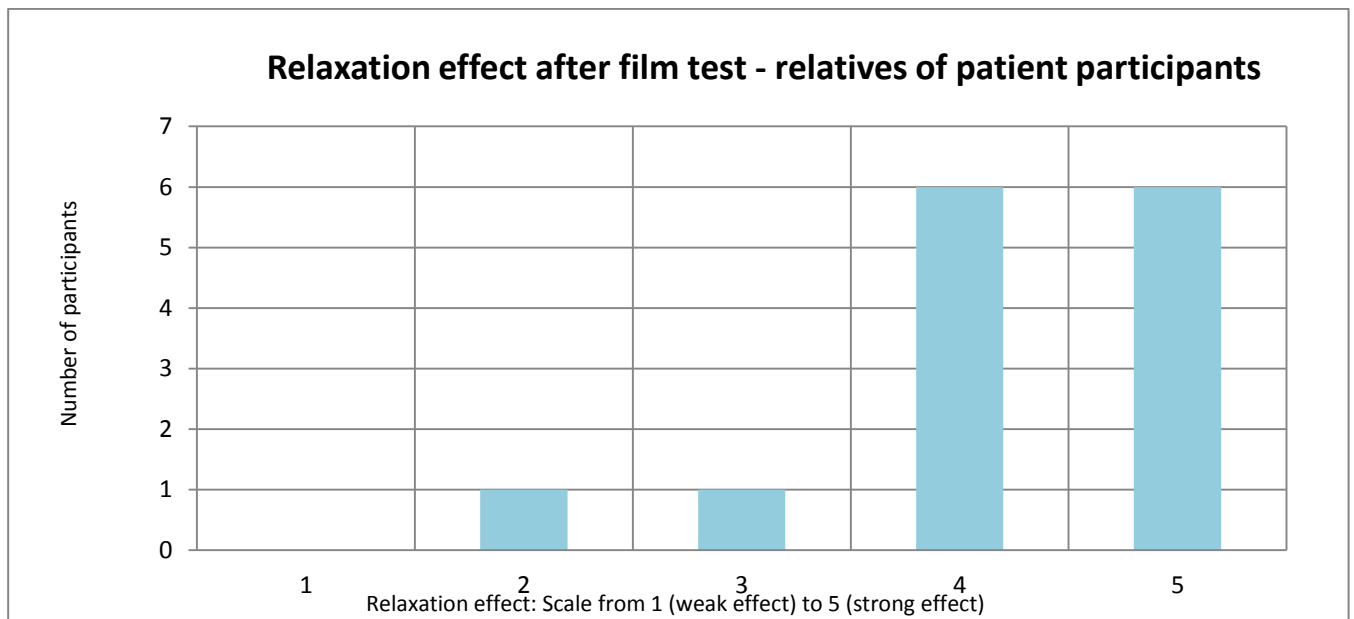


Figure 5-14 Self-reported measurement on relaxation effect after the film study on relatives of patient participants

The majority reported a positive relaxing effect after viewing the films, with 86% of these scoring the effect as 4 or 5 (fairly strong or strong) on a 5 point scale rule.

## Descriptive words

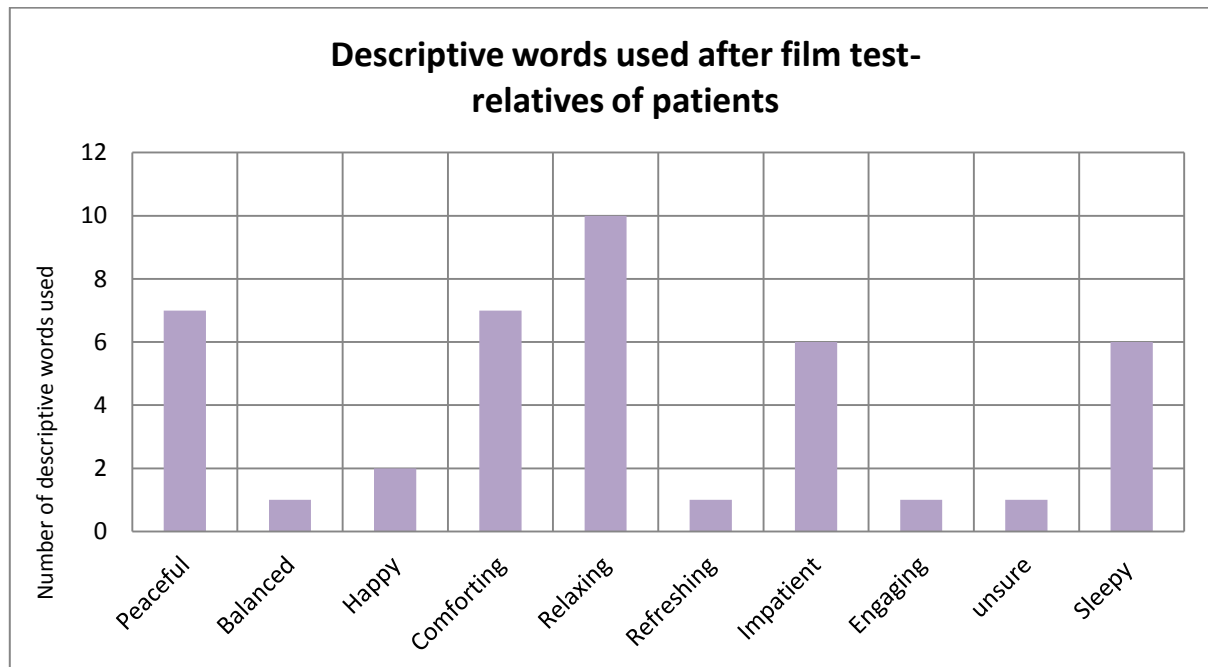


Figure 5-15 Chosen descriptive words by relatives of patient participants after film test

Figure 5-15 shows the numbers of all descriptive words written by participants after viewing the films. The words 'relaxing', 'comforting' and 'peaceful' were the most popular, although a number of



people said they felt impatient, which is seen as counter to relaxation. A number also said they felt ‘sleepy’, which may be considered to be a form of relaxation rather than a contrary experience.

### 5.2.3.1 Summary of effect on relatives of patients

57% of participants had a reduced pulse rate, 50% a reduced BP(S) and 57% a reduced BP(D) after viewing the films. 85% reported the relaxation effect as strong or fairly strong, and the descriptive word used most often was “relaxing”. When analysed, a total of 61% of the other words given were related to relaxation or positive qualities. 14% said they felt “impatient” when watching the films, and 2% were “unsure” of their feelings. Both of these, especially ‘impatient’ are considered as negative impacts, and unlikely to induce feelings of relaxation.

### 5.2.4 Comparison of results between healthy, patient and relative participants

3 groups of results were analysed: patients, patients’ relatives and healthy participants. They are compared here. Differences in pulse rate, systolic and diastolic blood pressure are shown in the figures below. The results suggest that viewing nature films has great potential to enhance the relaxation level of all three groups.

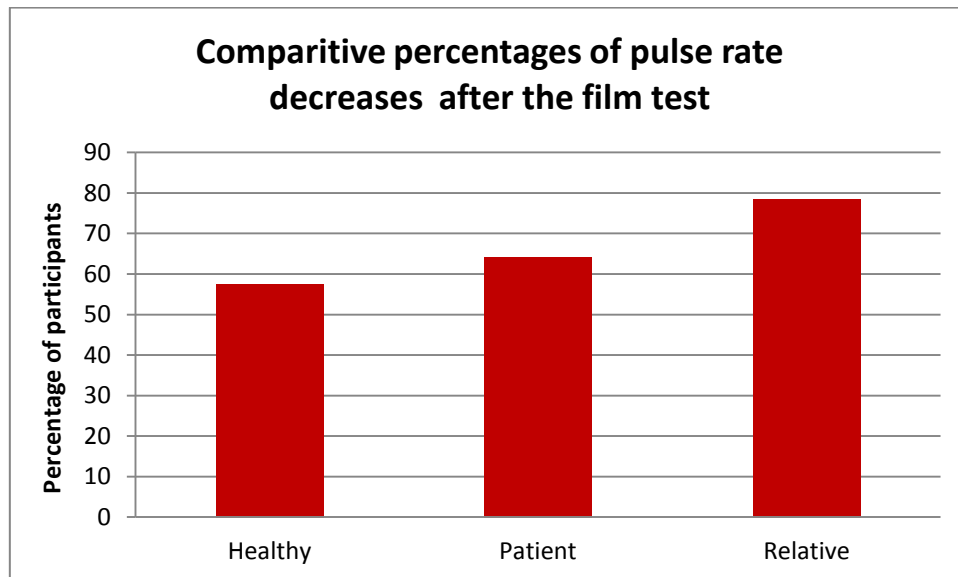


Figure 5-16 Percentage comparison of pulse rate decreases.

The graph shows the greatest decrease for relatives, although all three groups show a decrease: healthy – 57%, patients – 64%, and relatives of patient- 78%

Comparison of systolic blood pressure among the three groups

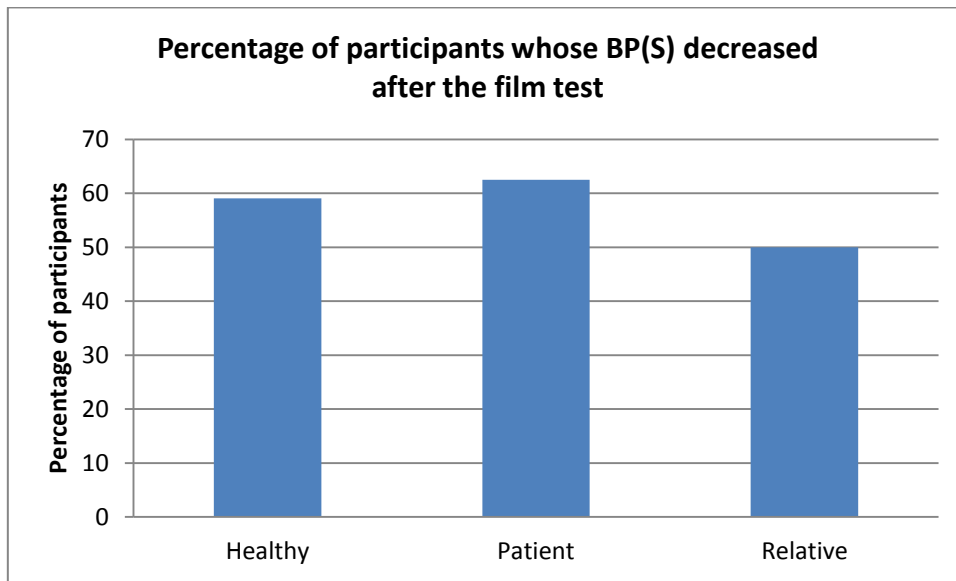


Figure 5-17 Comparison of the percentage of participants whose systolic blood pressure decreased

The graph shows the greatest decrease for patients, although all three groups show a decrease: healthy – 59%, patients – 62%, and relatives of patient- 50%

Comparison of diastolic blood pressure among 3 groups of participants

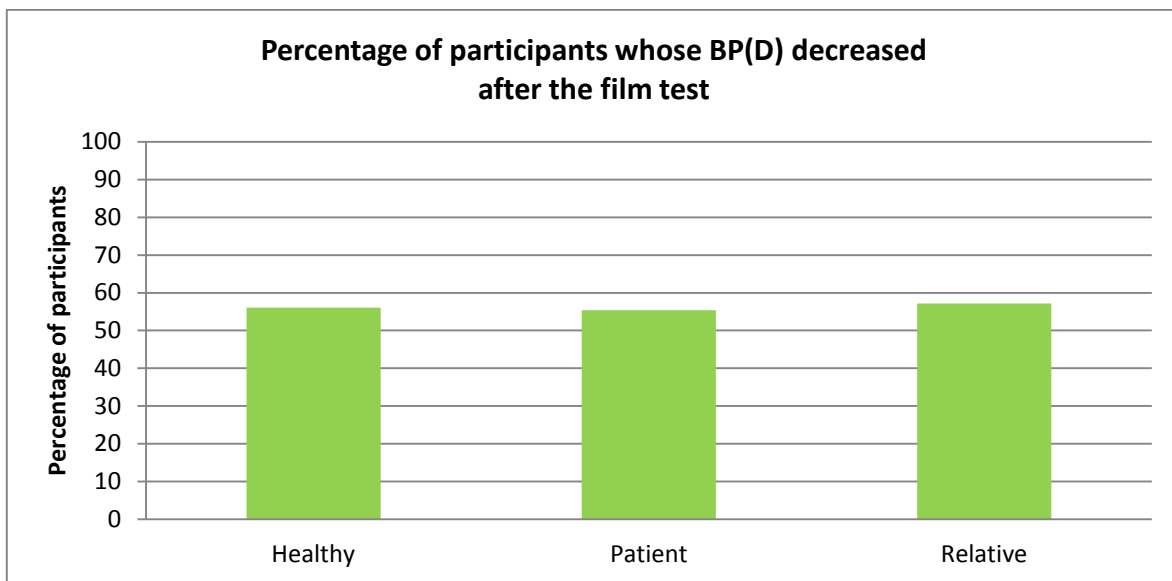


Figure 5-18 Comparison of the percentage of participants whose diastolic blood pressure decreased.

The graph shows a marginally greater decrease for relatives, although all three groups show a decrease: healthy – 56%, patients – 55%, and relatives of patient- 57%

Comparison of the relaxation effect among the three groups of participants

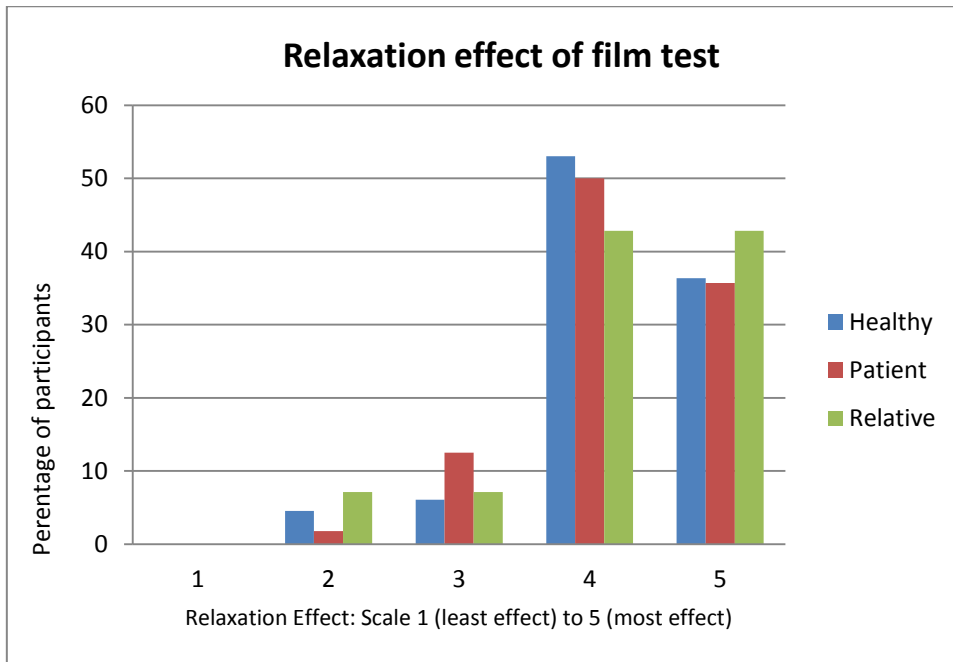


Figure 5-19 Comparison of percentage of relaxation effect among the three groups of participants

Comparison of the relaxation effect among the three groups of participants

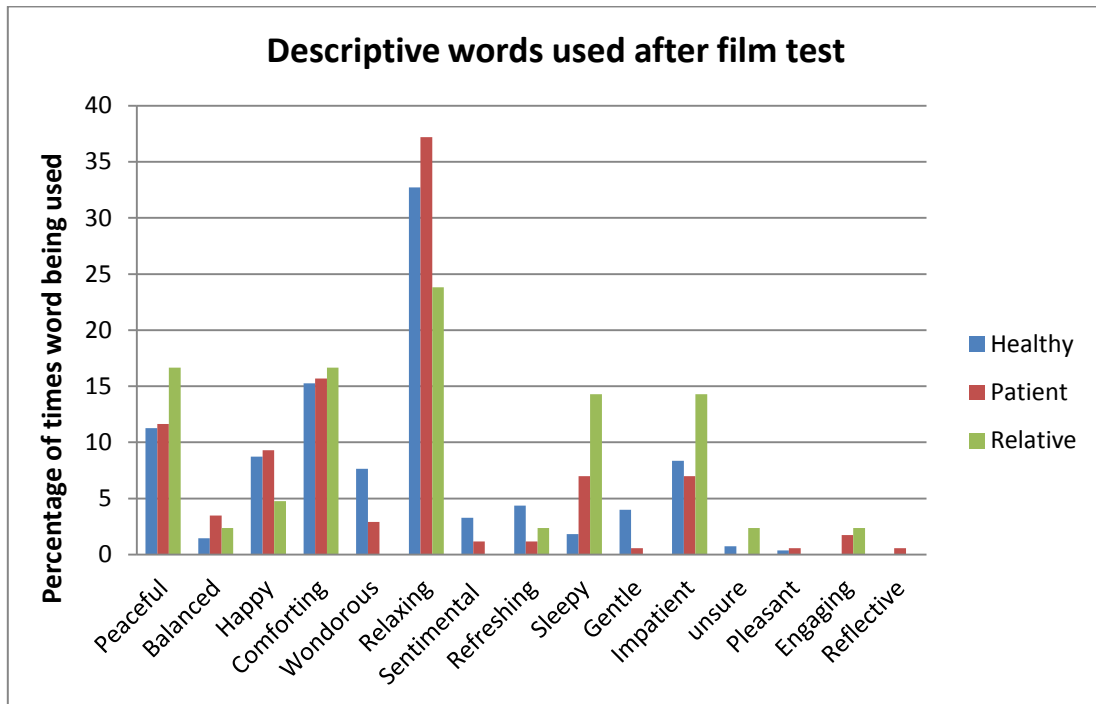


Figure 5-20 Comparison of percentage of descriptive words used among the three groups of participants

For all groups, words associated with relaxing were the most popular. ‘Comforting’ and ‘peaceful’ were other positive words given. The relatives group in particular said they felt ‘sleepy’ or ‘impatient’. Whilst ‘sleepy’ may be a positive feeling in this context, ‘impatient’ is seen as negative and unlikely to induce relaxation.

## 5.2.5 Quantitative Film Data Summary

### 5.2.5.1 Comparison between healthy, patients and relatives of patient groups

The highest reduced pulse rate, 78%, was in the 'relatives of patients' group and the least reduced, 57%, was in the healthy group. The patient group was 64%. The highest reduced level of BP(S) was the patient group with 62%, the second was the healthy group with 58% and the least reduced level was the 'relatives of patients' group with 50%. The levels of BP(D) reduction were similar for all groups, with 57% for the relative of patient, 56% for the healthy participants and 55% for the patients.

All 3 groups scored level 4 on the five point scale most, suggesting the relaxation of the films was fairly strong for all of them, especially the healthy group, which had the highest percentage here. At level five – a strong relaxation effect - the highest percentage was for the relatives of patients. However, all three groups scored fairly high on both of these points

The highest number of descriptive words given by the 3 groups of participants after viewing the films was 'relaxing'. Among them, the patient group had the highest rate at 37% and the least was the relatives of patient group who had 23%. The healthy group had 32%. The relatives group was more likely to report feeling impatient (14%) as opposed to 6% of the patient group and 8% of the healthy group. Many of the words chosen had meanings which suggested a relaxation response was possible, such as 'happy', 'engaging' and 'refreshing'.

Overall, whilst there were differences between the groups, more members of all three groups had lower pulse rates and blood pressure, reported higher levels of relaxation and chose words to describe positive rather than negative feelings after viewing the films. Broadly then, the films were found to promote relaxation.

## 5.2.6 Quantitative data analysis of coloured light study

As noted above, participants were asked to choose the coloured light they would find most relaxing, and the charts below indicate the colours they chose.

### 5.2.6.1 Coloured light study on healthy participants

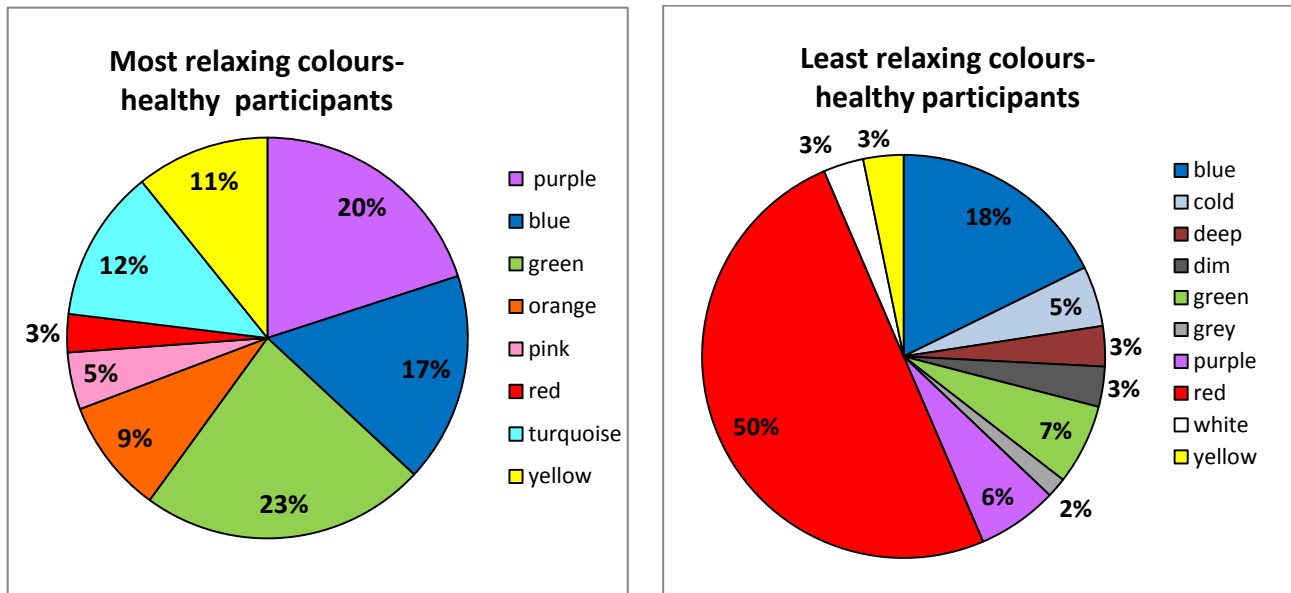


Figure 5-21 Pie charts representing least and most relaxing colours among healthy participants

The most relaxing colours were the cooler colours of green, blue and purple. Least relaxing was the hotter colour of red. The colours of ‘cold’, ‘deep’ and ‘dim’ were also noted by participants. This points to one of the differences between Chinese and UK concepts of colour. Although these three words would be used by Chinese people to refer to colours, in the UK the terms would be used to refer to aspects which mediate colours. Thus ‘cold’ would roughly be associated with cool colours, ‘deep’ with strong colours and ‘dim’ with pastel colours. It was very difficult to adequately translate these meanings from the questionnaires, and so they were left as they were reported by the participants. Total numbers of healthy participants and their colour preferences, are shown below.

Total number of responses: 65

Green	15	Orange	6
Purple	13	Pink	3
Blue	11	Red	2
Turquoise	8	Yellow	7

**Most relaxing colours: healthy participants**

Total number of responses: 62

Red	31	Deep	2
Blue	11	Dim	2
Green	4	Grey	1
Purple	4	White	2
Cold	3	Yellow	2

**Least relaxing colours: healthy participants**

Pulse rate differences

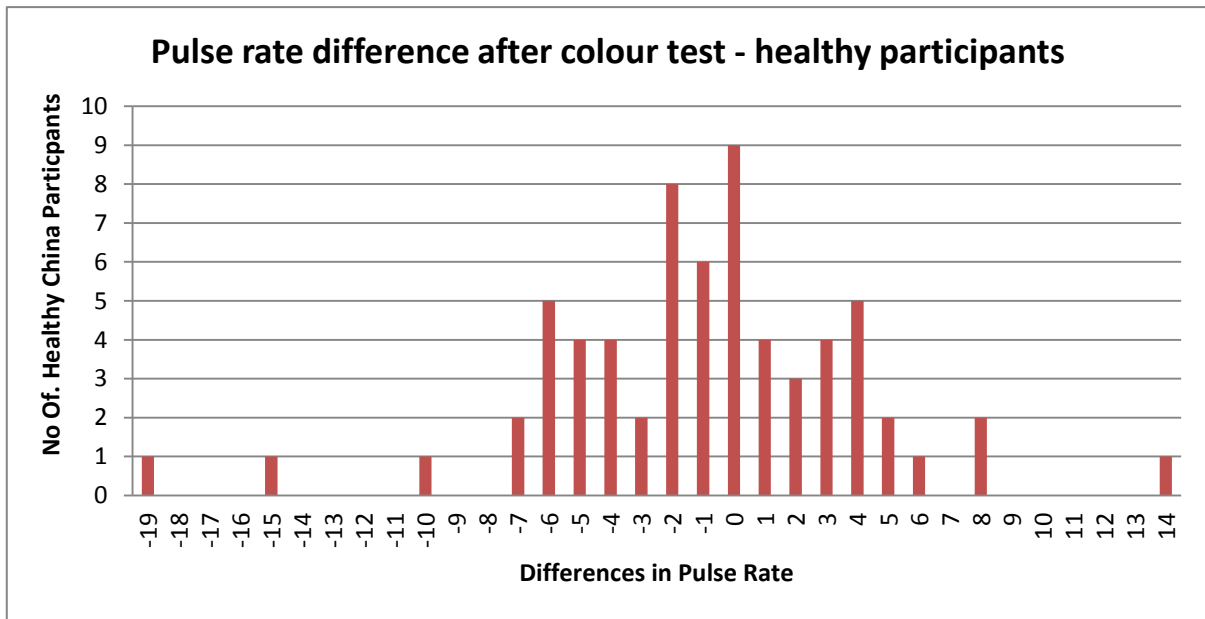


Figure 5-22 Pulse rate difference after colour test among healthy participants

52% of healthy participants had a reduced pulse rate after the coloured light test.

Systolic blood pressure

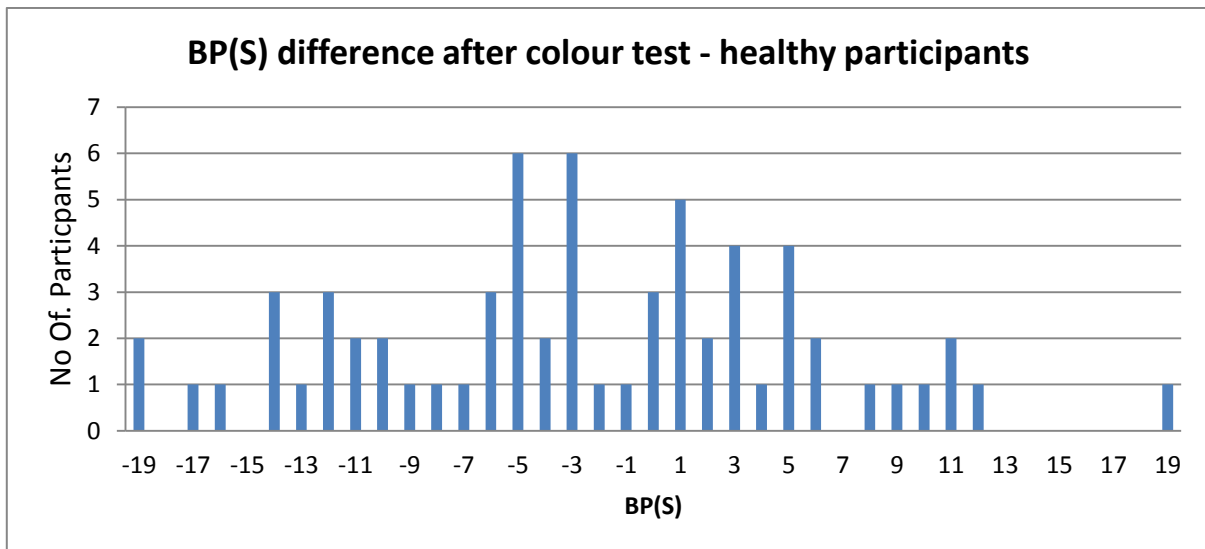


Figure 5-23 Systolic blood pressure difference after colour test among healthy participants

57% of healthy participants had a reduced systolic blood pressure after the coloured light test (6 participants did not want to be tested)

Diastolic blood pressure

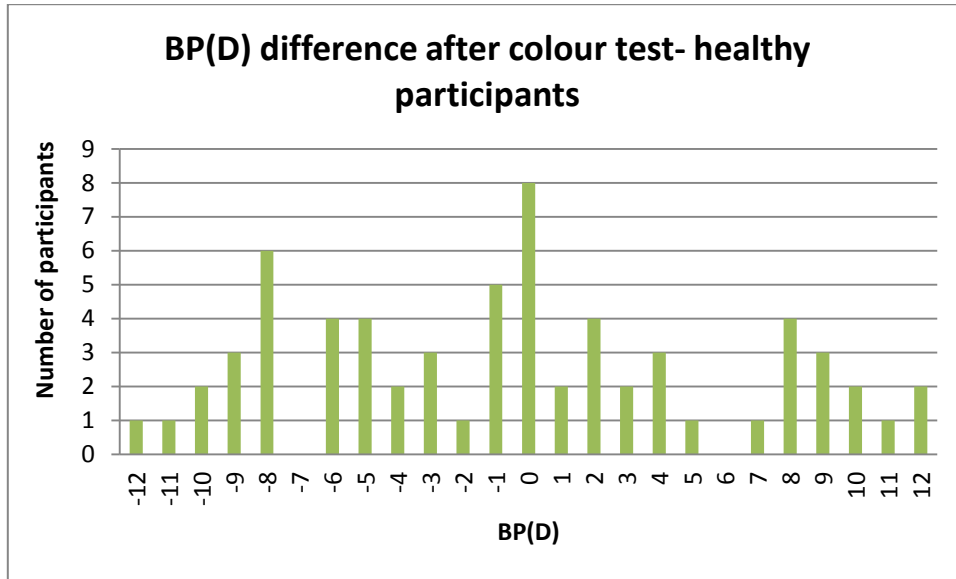


Figure 5-24 Diastolic blood pressure difference after colour test among healthy participants

49% of healthy participants had a reduced diastolic blood pressure after the colour test

Relaxation effect of colour test

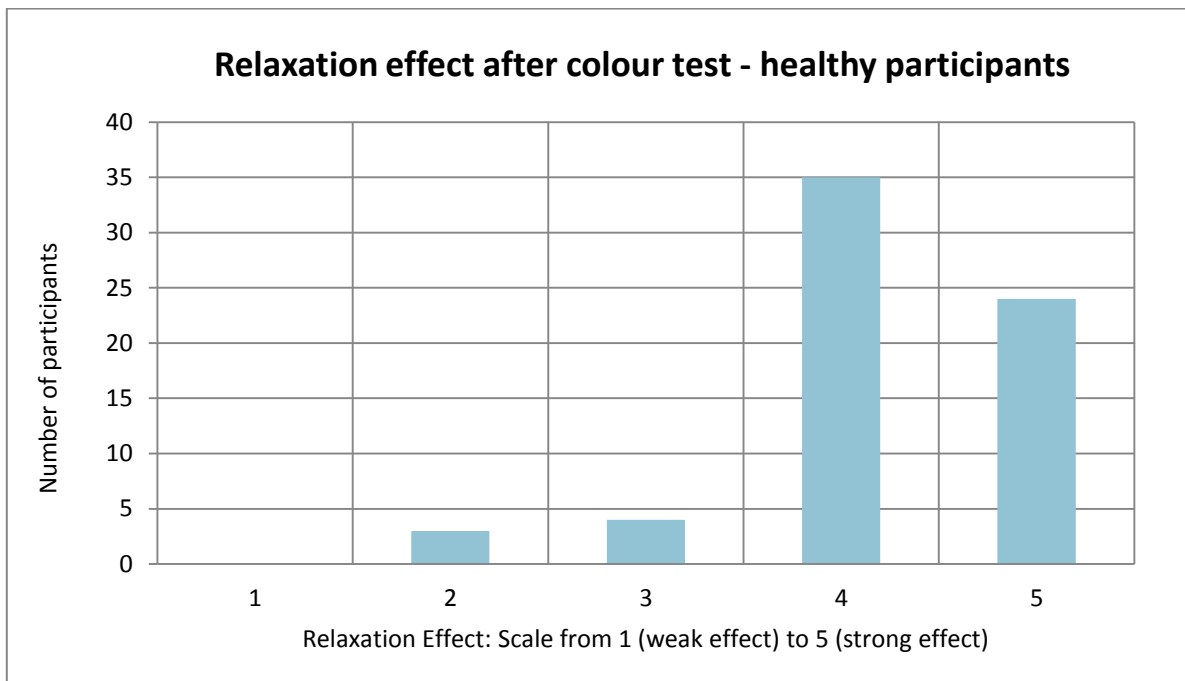


Figure 5-25 Relaxation effect after colour test among healthy participants

85% of healthy participants scored the relaxation effect as a 4 or 5 after the colour test (fairly strong and strong).

## Descriptive words

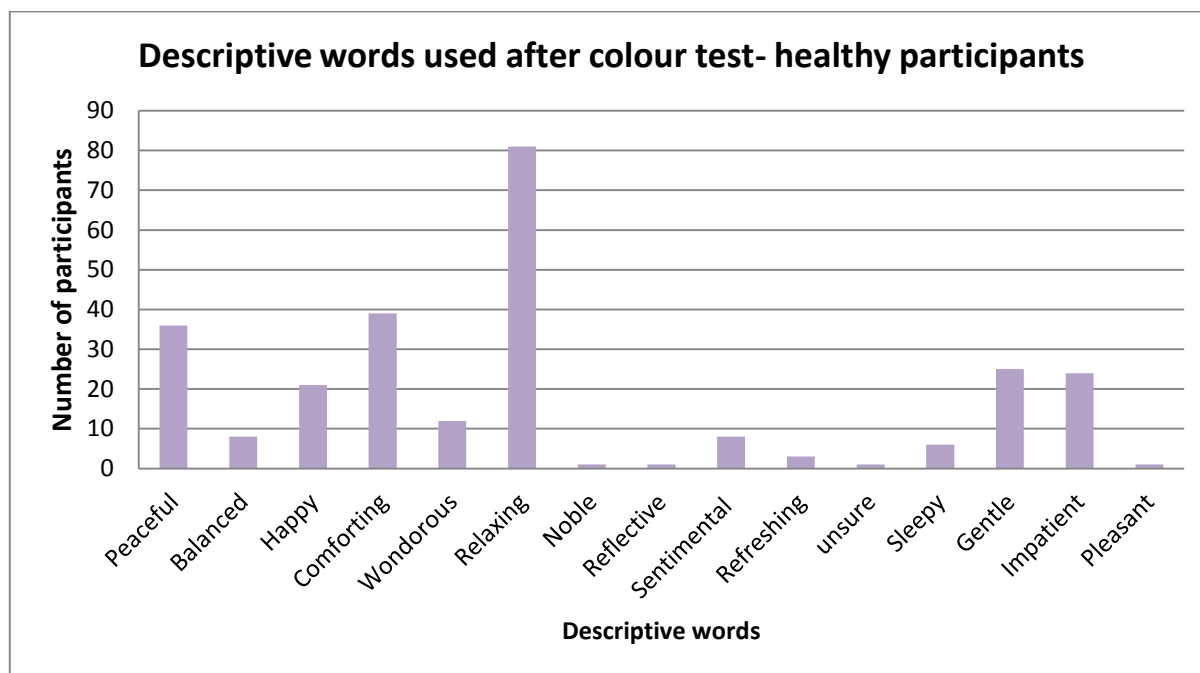


Figure 5-26 Chosen descriptive words by healthy participants after colour test

Of the descriptive words chosen by healthy participants after coloured light test, 'relaxing' was the most popular, followed by 'comforting' and 'peaceful'. The main negative word chosen was 'impatient'.

### Summary of results for coloured light test on the healthy group

Participants chose green as the most relaxing coloured light. Purple and blue were the second and third most relaxing colours. Red was considered the least relaxing by half the participants. 52% of all the healthy participants had a reduced pulse rate after the coloured light test. 56% of them had reduced BP(S) and 49% had reduced BP(D).

84% of all the healthy participants rated the relaxation effect of the lights as fairly strong or strong. Over half of the descriptive words reported were clearly related to relaxation. 10% of the words were counter to relaxation and the others, whilst not obviously related to relaxation, were positive.

#### 5.2.6.2 Coloured light study on patient participants



Most and least relaxing

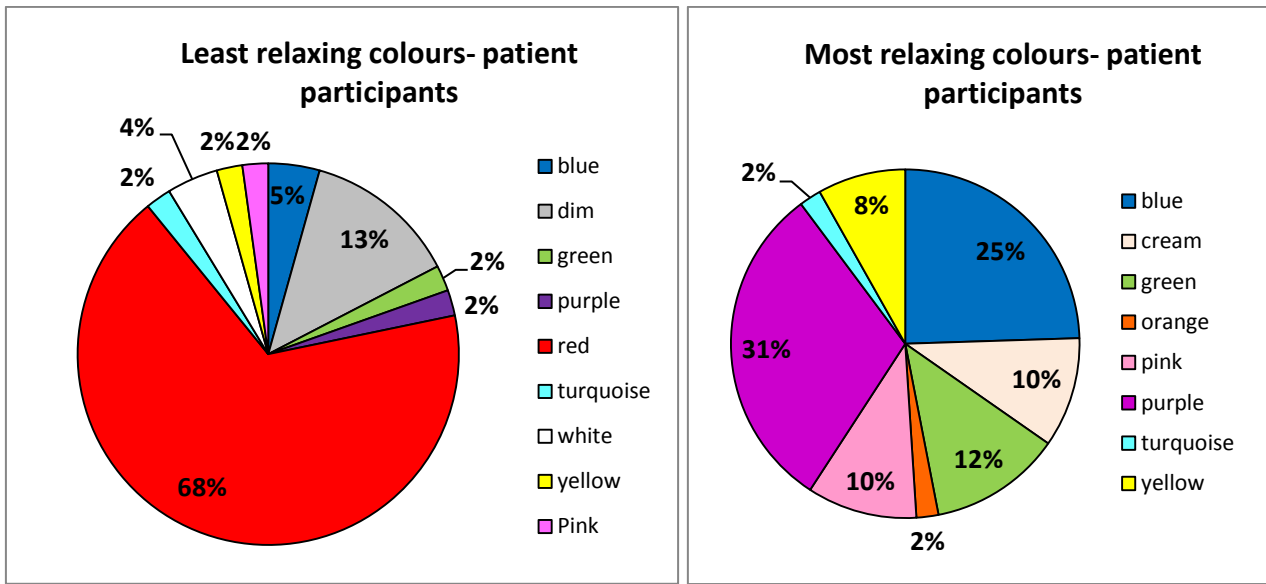


Figure 5-27 Pie charts representing least and most relaxing colours among patient participants

The main relaxing colours chosen here were purple at 31% and blue at 25%. The least relaxing colour was red. Again the word ‘dim’ appears, and as before it could not be adequately translated, but roughly means ‘pastel shade’.

Total number of responses: 46

Red	31	Purple	1
Dim	6	Turquoise	1
Blue	2	Yellow	1
White	2	Pink	1
Green	1		

Total number of responses: 49

Purple	15	Orange	1
Blue	12	Turquoise	1
Cream	5	Yellow	4
Green	6		
Pink	5		

Least relaxing colours: patient participants

Most relaxing colours: patient participants

Pulse rate difference among patient participants

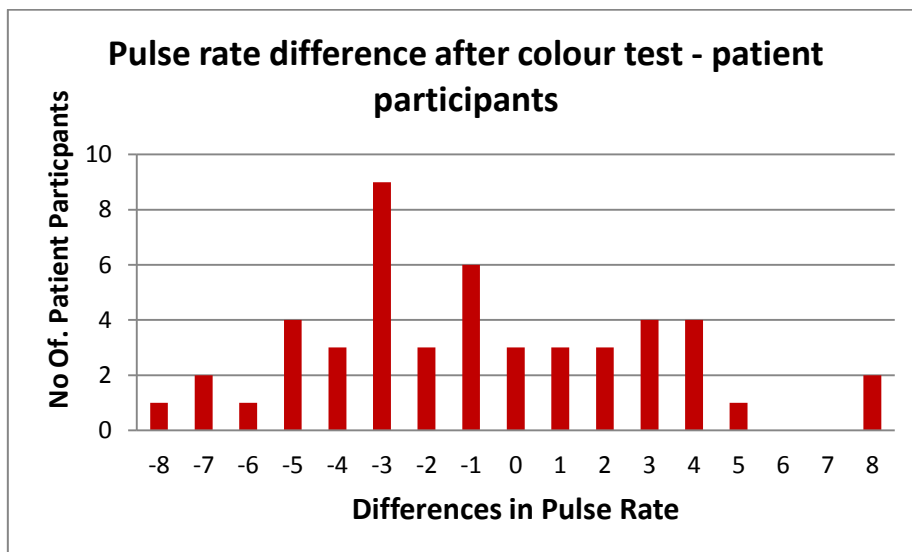


Figure 5-28 Pulse rate difference after colour test among patient participants

59% of patient participants had a reduced pulse rate after the colour test

Systolic blood pressure

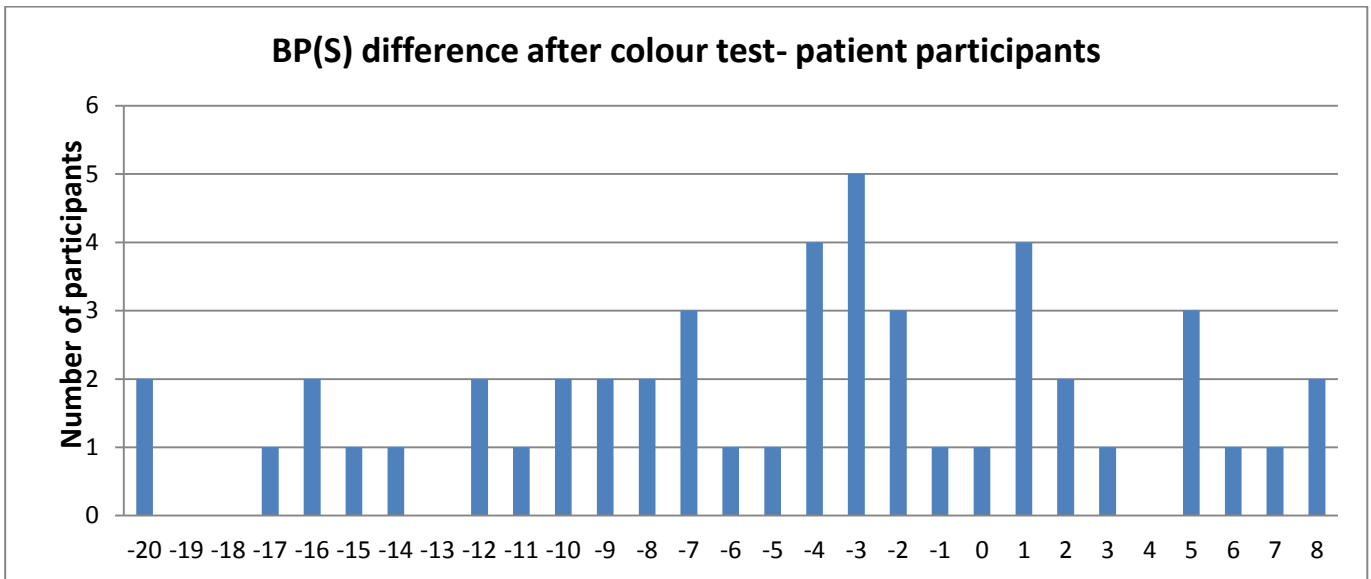


Figure 5-29 Systolic blood pressure difference after colour test among patient participants

69% of patient participants had a reduced systolic blood pressure after the colour test

Diastolic blood pressure

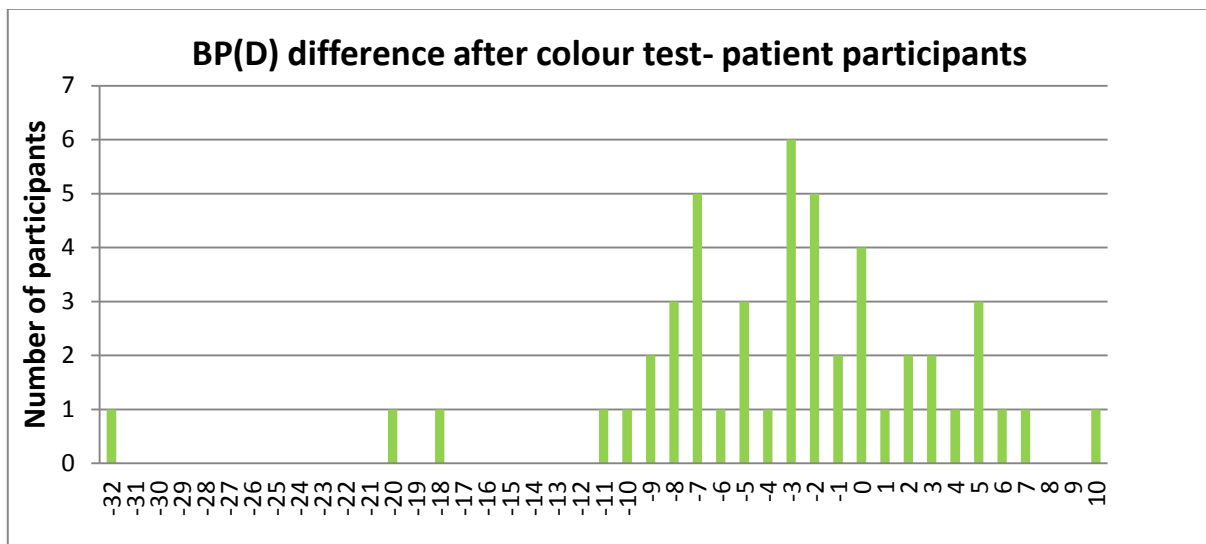


Figure 5-30 Diastolic blood pressure difference after colour test among patient participants

67% of patient participants had a reduced diastolic blood pressure after the colour test.

Relaxation effect Relaxation effect

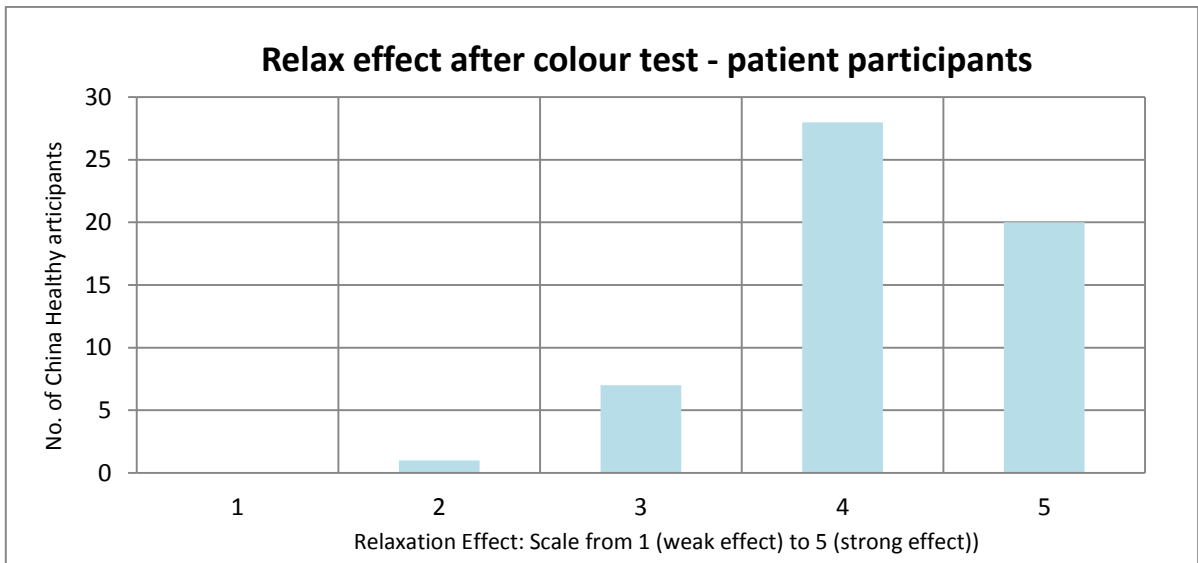


Figure 5-31 Relaxation effect after colour test among patient participants

79% of patient participants ranked the relaxation effect as 4 or 5 after the colour test (fairly strong or strong)

Descriptive words

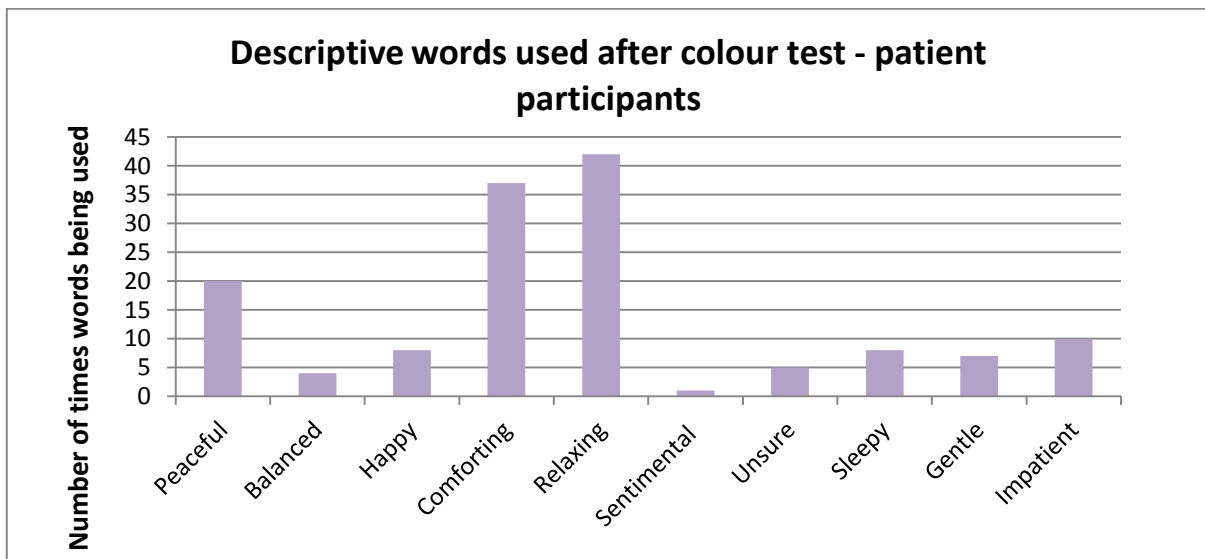


Figure 5-32 Chosen descriptive words by patient participants after colour test

Of the descriptive chosen by patients after the coloured light test, the words 'comforting' and 'relaxing' were the most popular. The most negative word, used by some, was 'impatient'.

## Summary of effect of coloured lights for the patient group

The most relaxing colour chosen was purple (31%), followed by blue (25%). The least relaxing colour selected was red. Pulse rate was reduced by 59%, and both BP(S) and BP(D) by 69%. 80% of patient participants reported a fairly strong or strong relaxation effect after the coloured light session. Over 75% of the descriptive words written were related to relaxation and around 15% were associated with a positive or beneficial effect. Around 10% of the words could be classed as unlikely to encourage relaxation.

### 5.2.6.3 Coloured light study on relatives of patient participants

#### Most and least relaxing colours

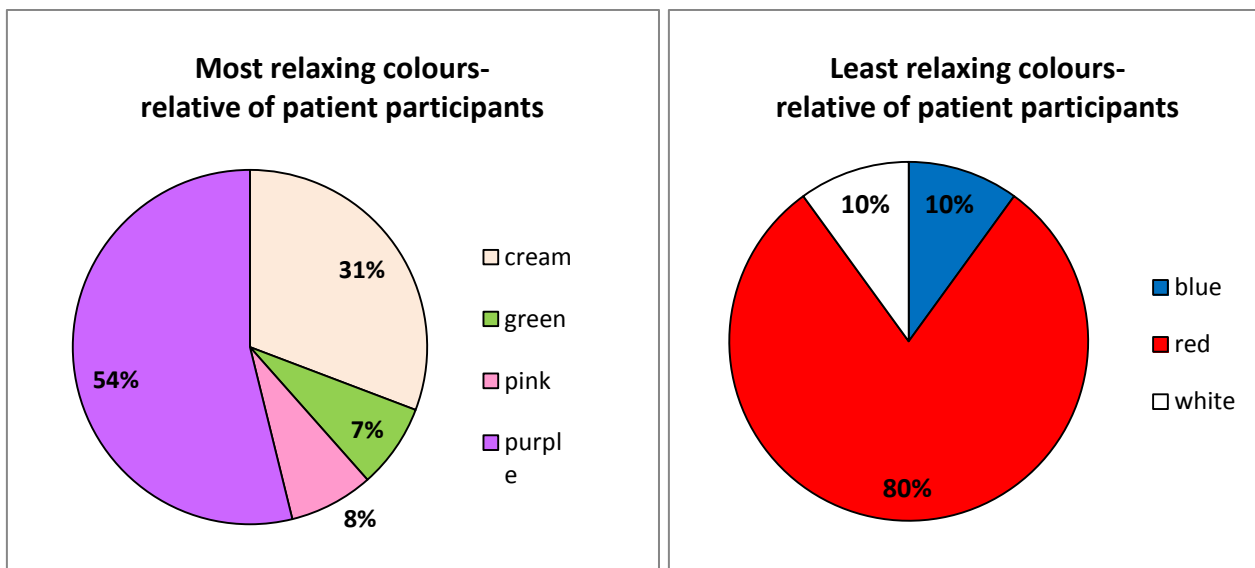


Figure 5-33 Pie charts representing least and most relaxing colours among relatives of patient participants

14 relatives of patient participants took part in the coloured light study. Results from the choice of lights by relatives of patients suggested that they chose the purple and cream coloured lights as the most likely to be relaxing. The red light was the least popular choice for relaxation.

Pulse rate differences among relatives of patient participants

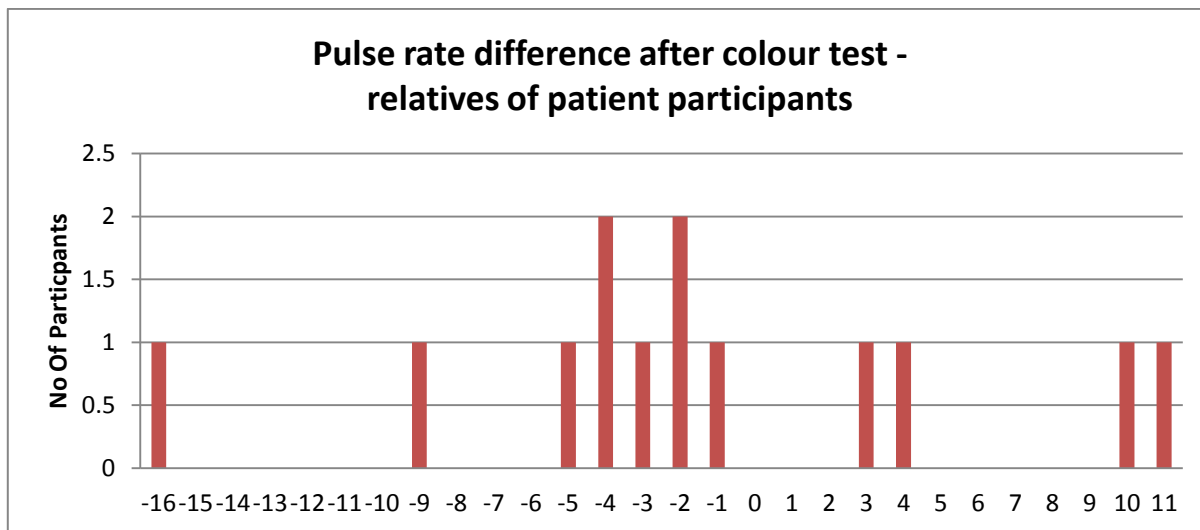


Figure 5-34 Pulse rate difference after colour test among relatives of patient participants

69% of relative participants had a reduced pulse rate after the colour test

Systolic and diastolic blood pressure among Relative of patient participants

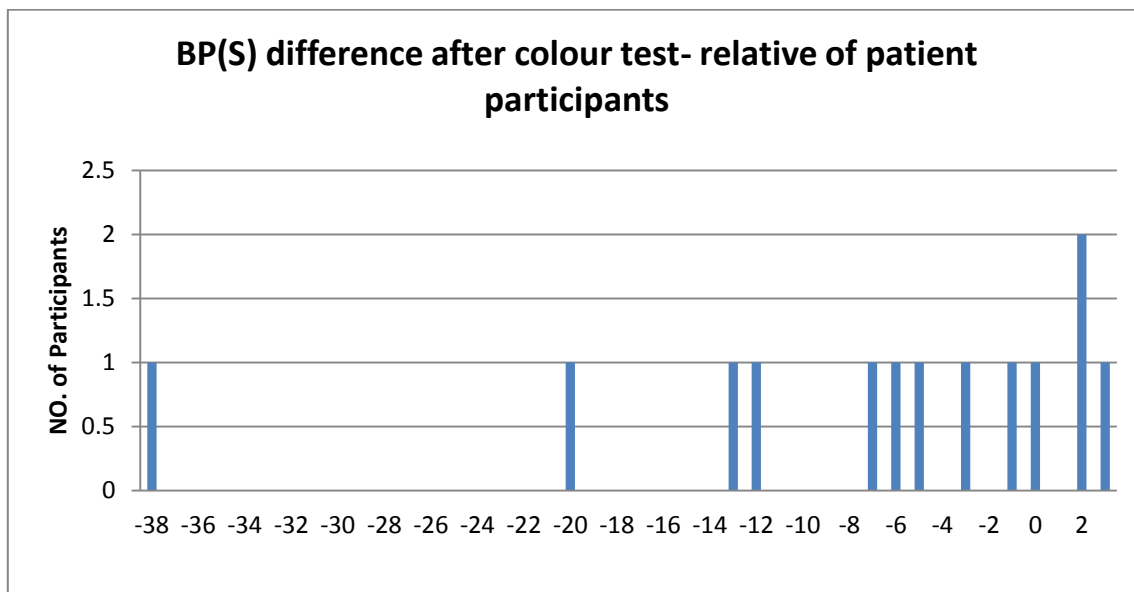


Figure 5-35 Systolic blood pressure difference after colour test among relatives of patient participants

69% of relative participants had a reduced systolic blood pressure after the colour test, and the decreases were larger than the increases.

Diastolic blood pressure

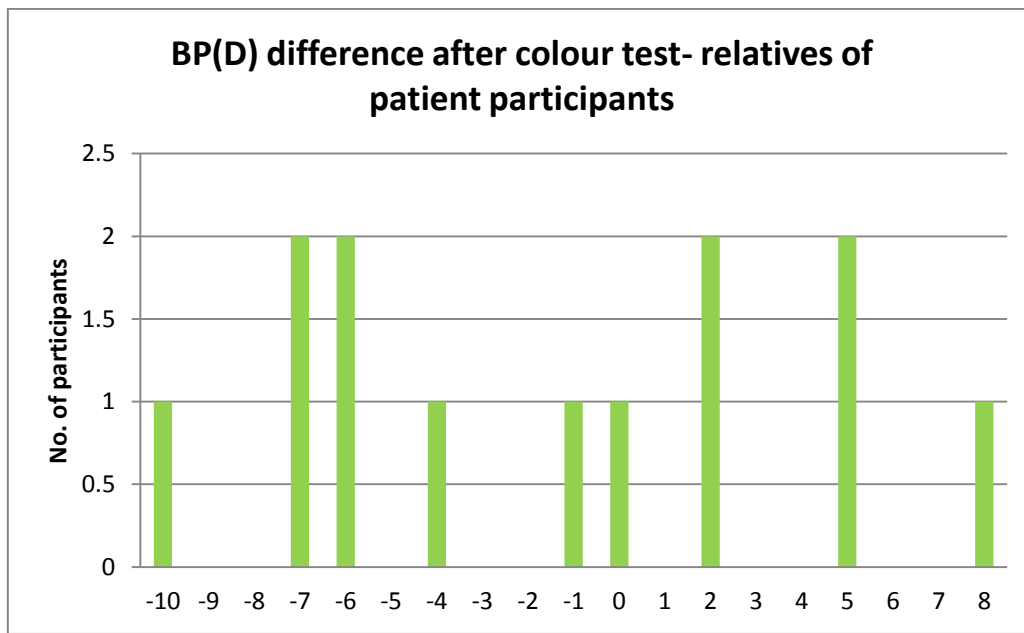


Figure 5-36 Systolic blood pressure difference after colour test among relatives of patient participants

54% of relative participants had a reduced diastolic blood pressure after the colour test

Relaxation effect

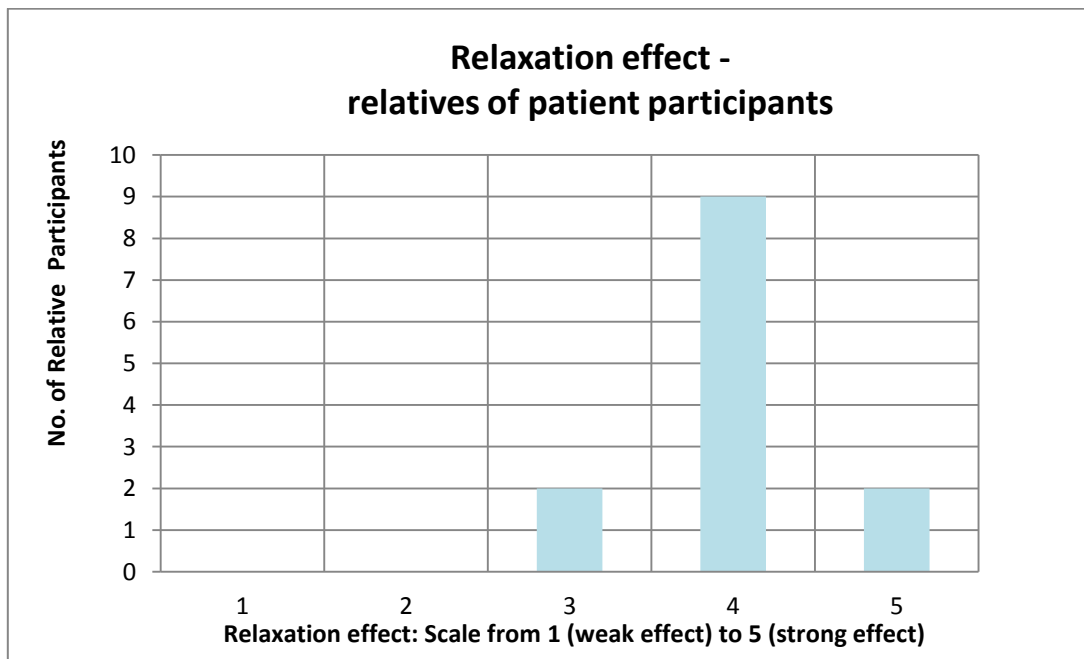


Figure 5-37 Relaxation effect after colour test among relatives of patient participants

85% of relatives of patient participants scored the relaxation effect at 4 or 5 after the colour test (fairly strong or strong)

## Descriptive words

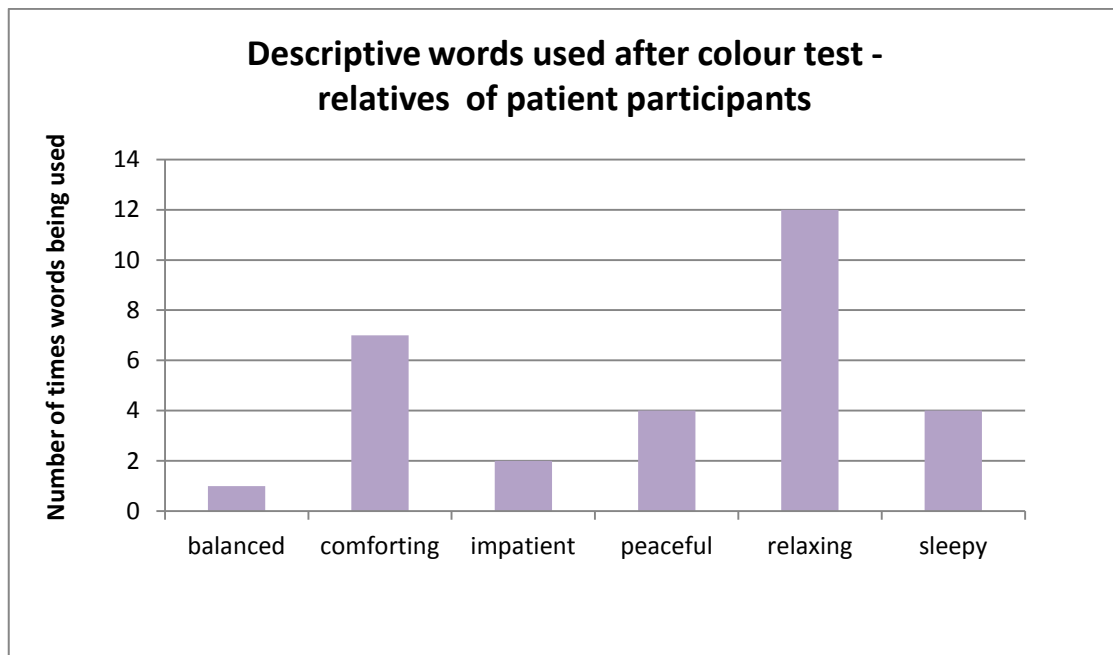


Figure 5-38 Chosen descriptive words by patient relatives of participants after colour test

Of the descriptive words chosen by relatives of patient participants after the coloured light test, 'relaxing' and 'comforting' were the most popular.

### Summary of effects of coloured lights on relatives of patients group

Here the colour most chosen for relaxation was purple (54%) and the least likely to be chosen was red. 69% of participants had a reduced pulse rate, 69% a reduced BP(S) and 53% a reduced BP(D) after experiencing the coloured lights. 84% of participants reported a strong or fairly strong relaxation effect. 60% of the descriptive words chosen related to relaxation, 5% of the words reflected feelings unlikely to encourage relaxation, and the rest were positive.

#### 5.2.6.4 Comparison of coloured light study between healthy participants, patients and relatives of patients

Most and least relaxing colours

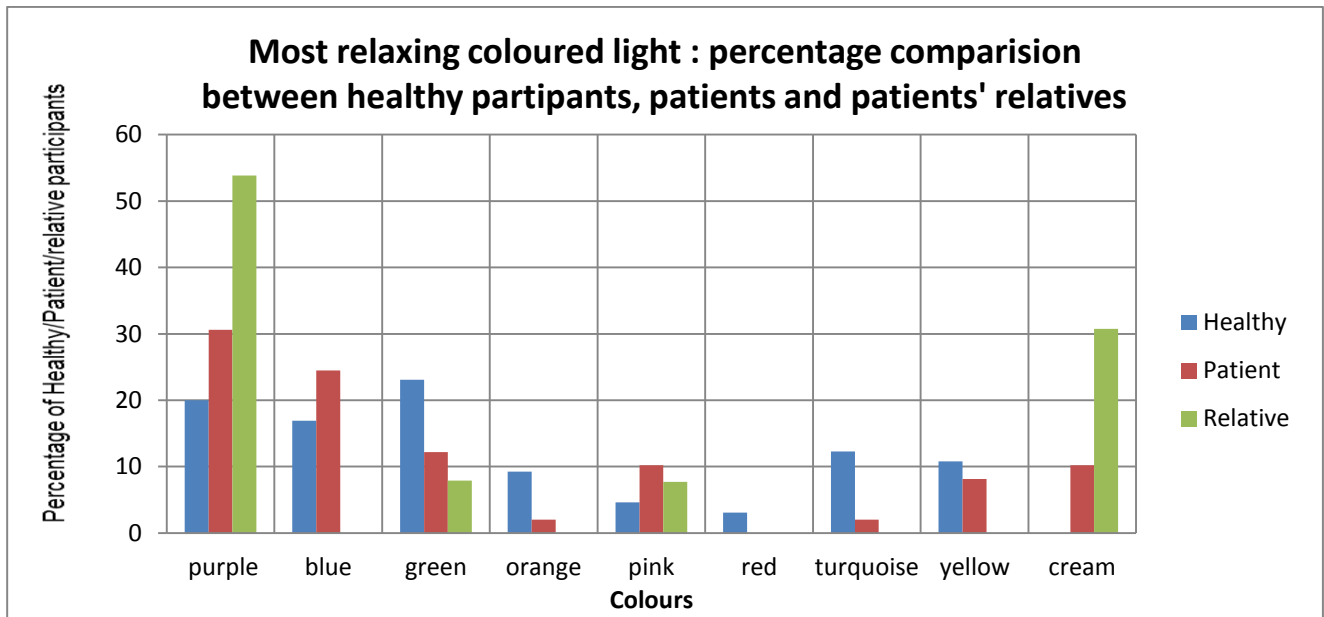


Figure 5-39 Percentage comparison of most relaxing colour among healthy, patient and relatives of patient participants

There were far fewer participants in this group than in the other two groups, which means that one person’s choice would have more effect on percentages for the whole group. The graph shows that the cooler colours of purple and cream were most popular with the relatives, and that the theme of cool colours continued with the other two groups, where purple, blue and green were a more popular choice for relaxation. Red was the least popular choice here for all groups.

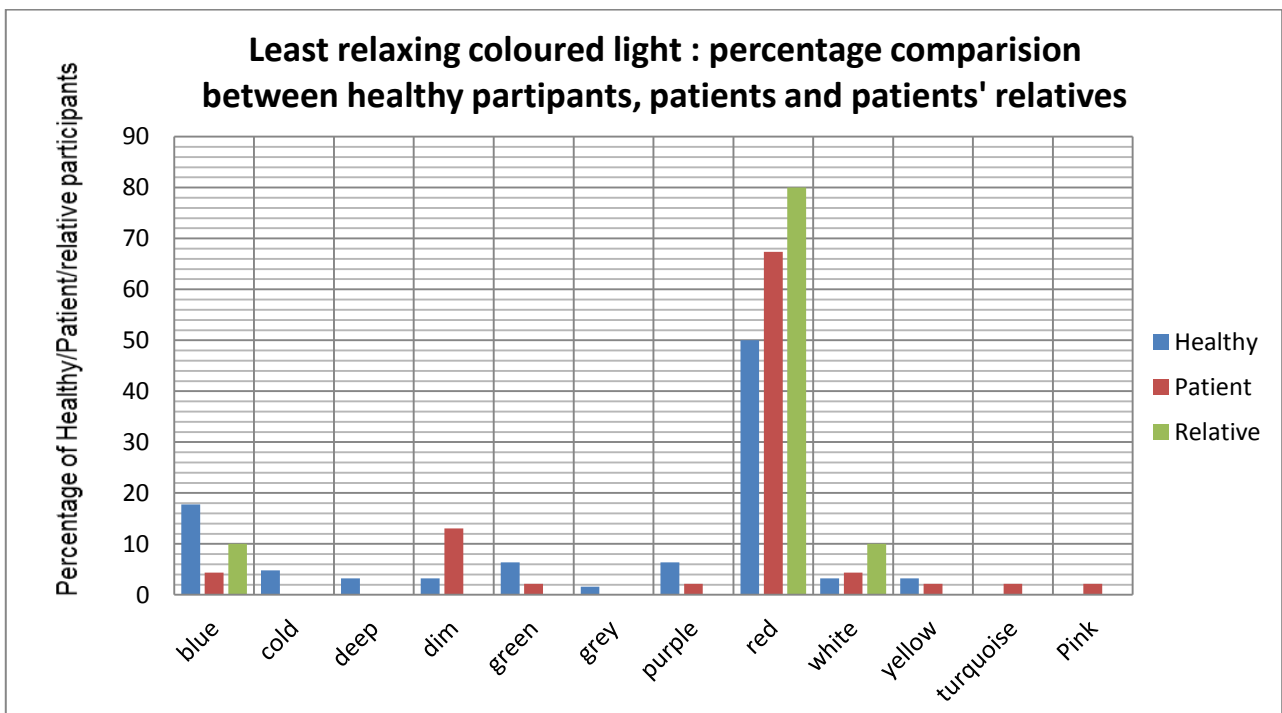


Figure 5-40 Percentage comparison of least relaxing colour among healthy, patient and relatives of patient participants



For all groups, the colour least likely to be chosen for the coloured light test, by all groups, was red.

Pulse rate difference, systolic and diastolic blood pressure

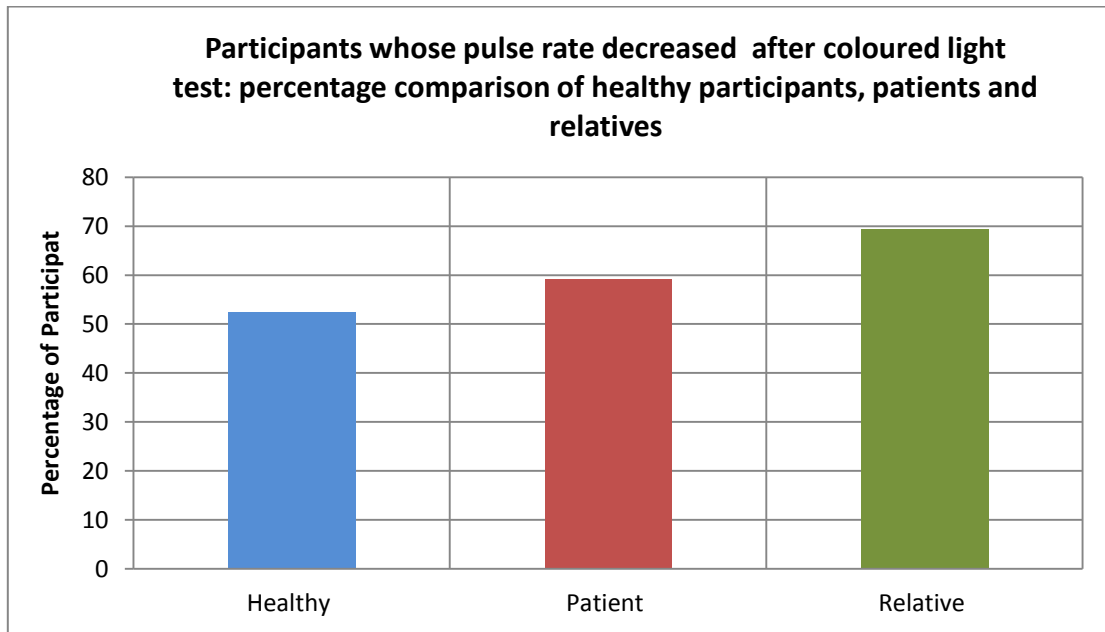


Figure 5-41 Percentage comparison of decreased pulse rate after colour test among healthy, patient and relatives of patient participants

All three groups showed a reduction in pulse rate after the test, the greatest of these being for relatives. Reductions were recorded for 52% of healthy participant, 59% of patients and 69% of relatives.

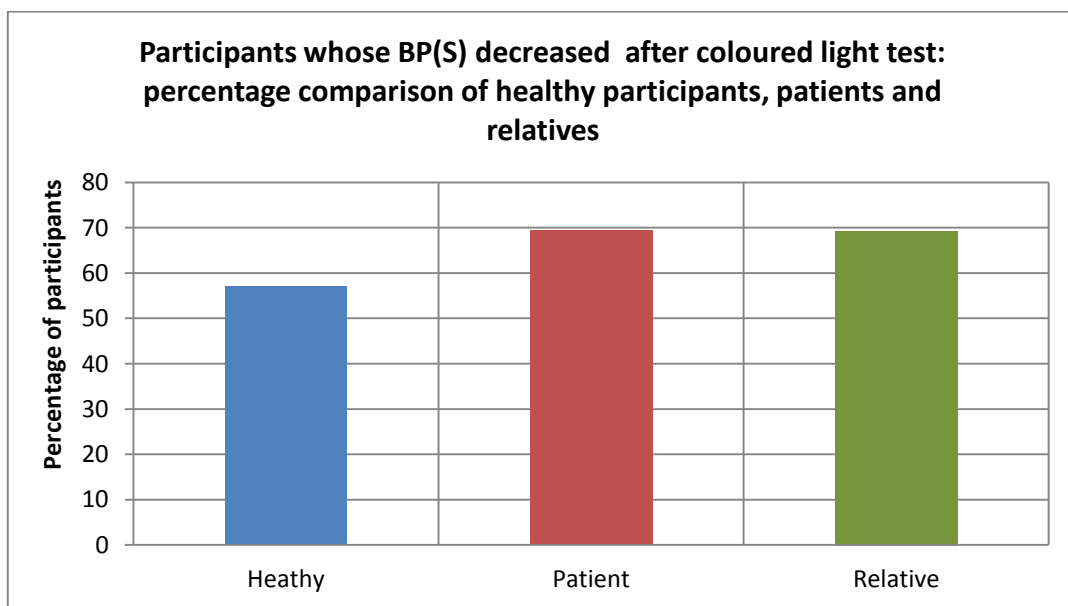


Figure 5-42 Percentage comparison of decreased systolic blood pressure after colour test among healthy, patient and relatives of patient participants

Reduced systolic blood pressures were recorded for all three groups after the coloured light test with patients and their relatives showing the greatest reductions. Reductions were recorded as 57% for healthy participants, and 69% for both patients and relatives.

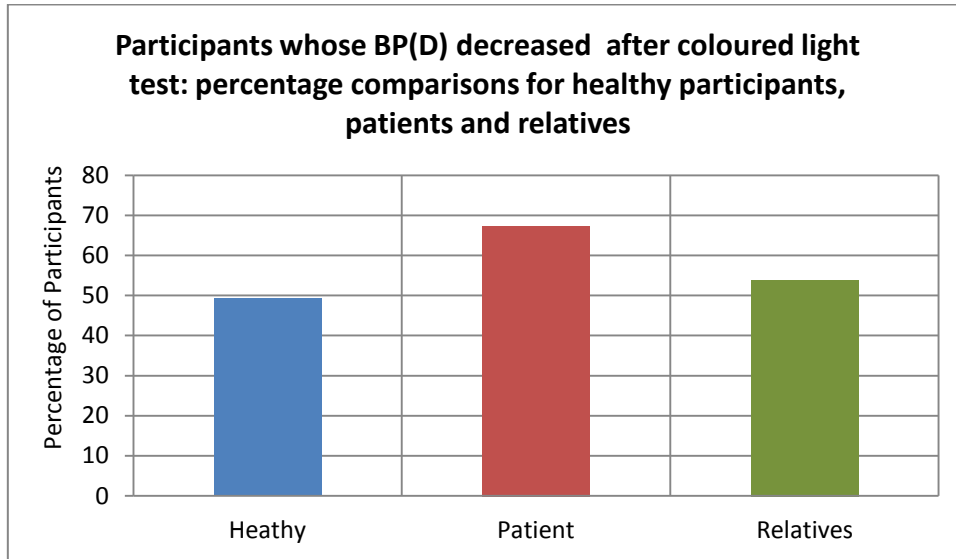


Figure 5-43 Percentage comparison of decreased diastolic blood pressure after colour test among healthy, patient and relatives of patient participants

Reduced diastolic blood pressures were recorded for all three groups after the coloured light test with patients showing the greatest reductions. Reductions were recorded as 49% for healthy participants, 67% for patients and 54% for relatives.

Relaxation effect

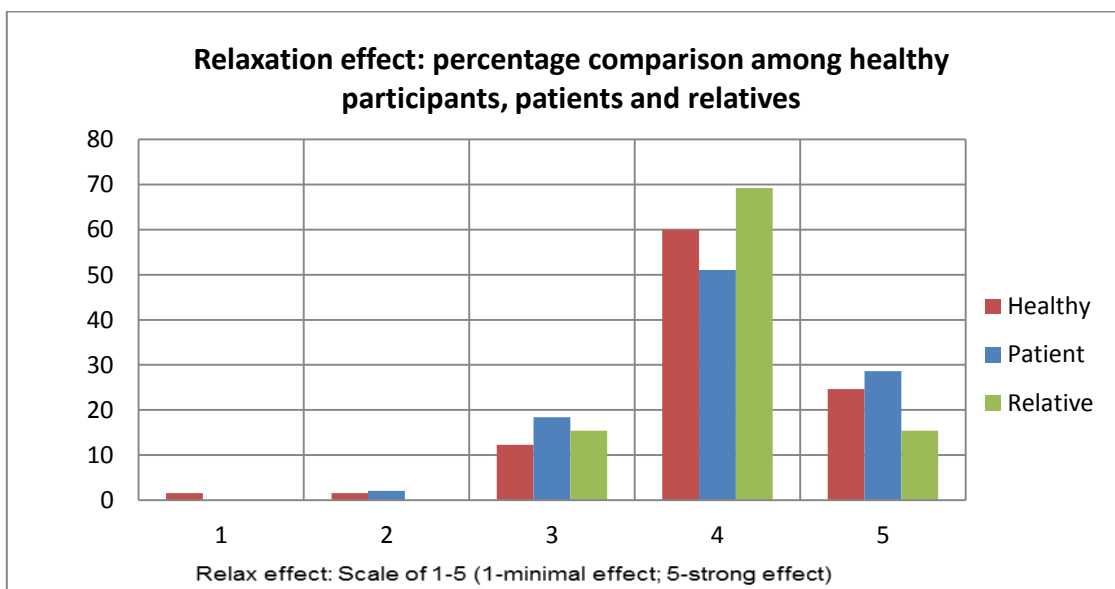


Figure 5-44 Percentage comparison of relaxation effect after colour test among healthy, patient and relatives of patient participants

The majority of members of all three groups scored the relaxation effect as 4 (fairly strong). Very few scored it negatively (numbers 1 and 2). Whilst patients scored slightly lower than the other two groups on ‘fairly strong’, they were more slightly likely than the others to rate the effect as ‘strong’.

Descriptive words

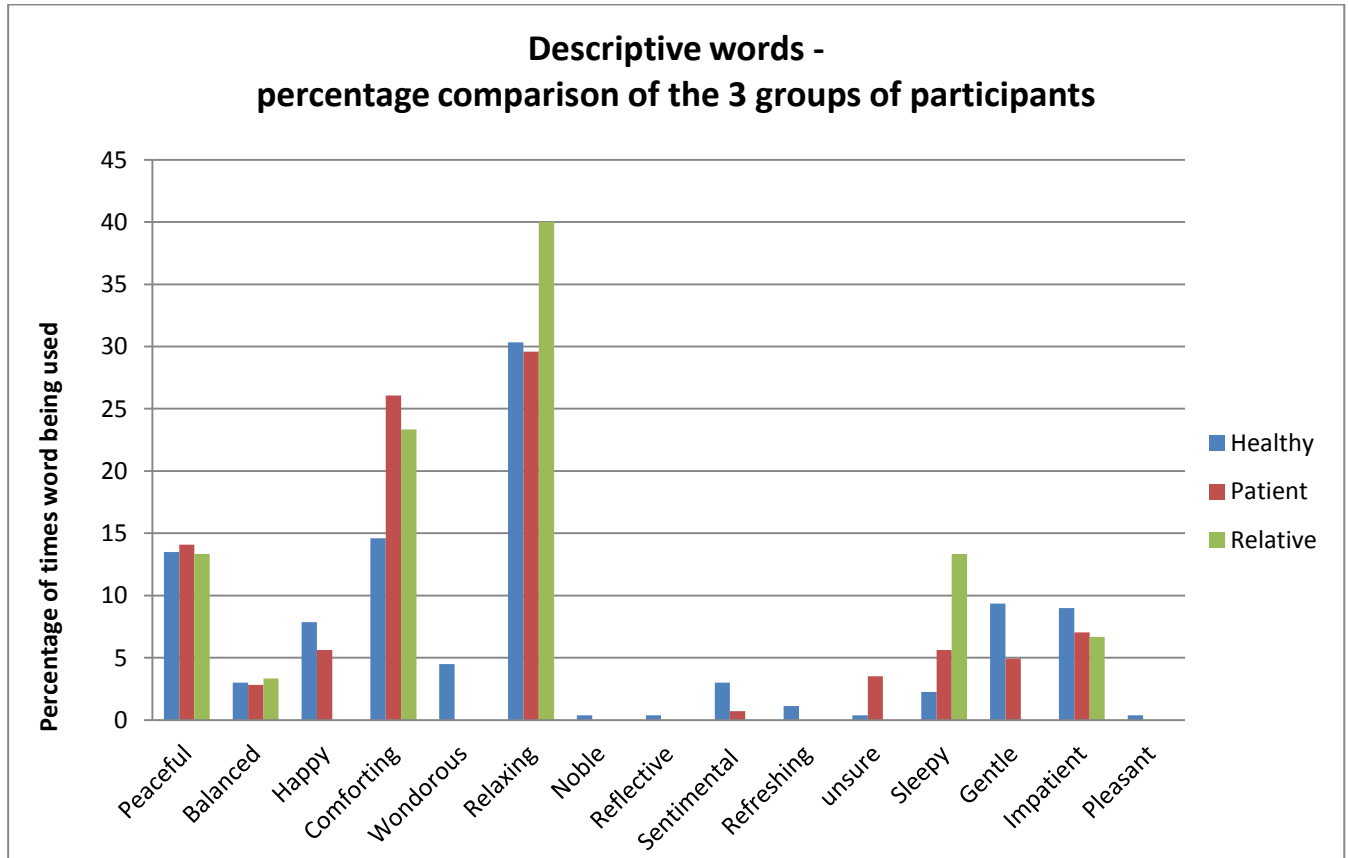


Figure 5-45 Percentage comparison of chosen descriptive words after colour test among healthy, patient and relatives of patient participants

All three groups were most likely to find the coloured lights ‘relaxing’ when considering their effects. The next most popular word was ‘comforting’. A small number of people from all groups said that the lights made them feel ‘impatient’, which is considered here to be a negative effect.

5.2.6.5 Quantitative Coloured Light Data Summary

Comparison among the 3 Groups (Healthy, Patient and Relative of patient participants)

All groups found purple to be the most relaxing colour and red to be the least. Relatives of the patient group had the highest pulse rate reduction of 69%, the patient group had 59% and the healthy group had 52%.

Blood pressure was also reduced in all groups. The reduction of BP(S) for patients and relatives of patients was 69% and for the healthy group it was 58%. The reduction of BP(D) was recorded as 67% patients, 53% for relatives of patients, and 49% for the healthy group.

All groups reported similar strong or fairly strong relaxation effects after participating in coloured light studies. The majority of all participants scored the relaxation effect at level 4 (fairly strong) on the self-report scale. At this level 4, the relatives scored highest, the healthy group was second and the patient group was the lowest. However, patients scored higher at level 5 (strong effect).

All three groups used descriptive words related to 'relaxing' and 'comforting' most. About 10% of all participants reported impatience in the coloured light studies, with the highest scorer here being from members of the healthy group.

### 5.2.7 Comparison of the impact of film and coloured light studies

Figures below show the differences of the impact of film and coloured light studies. They are compared as before on pulse rate difference, blood pressure difference, self-reported relaxation effect and descriptive words.

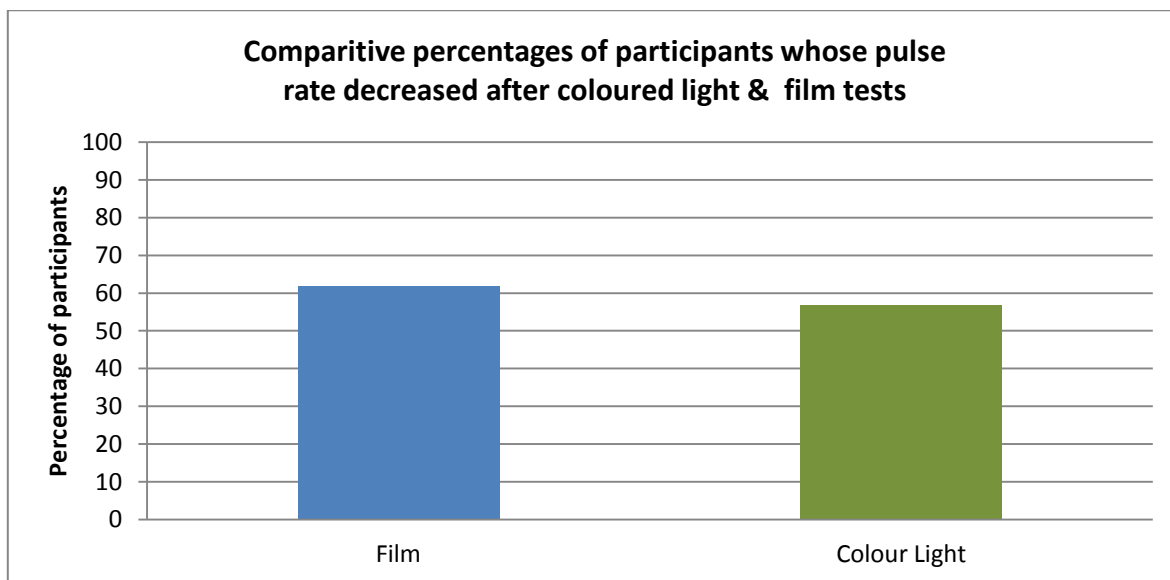


Figure 5-46 Percent comparison on decreased pulse rate between film and colour test

Film (62%) was slightly more likely to reduce pulse rate than coloured lights (57%). However, both interventions resulted in lowered rates.

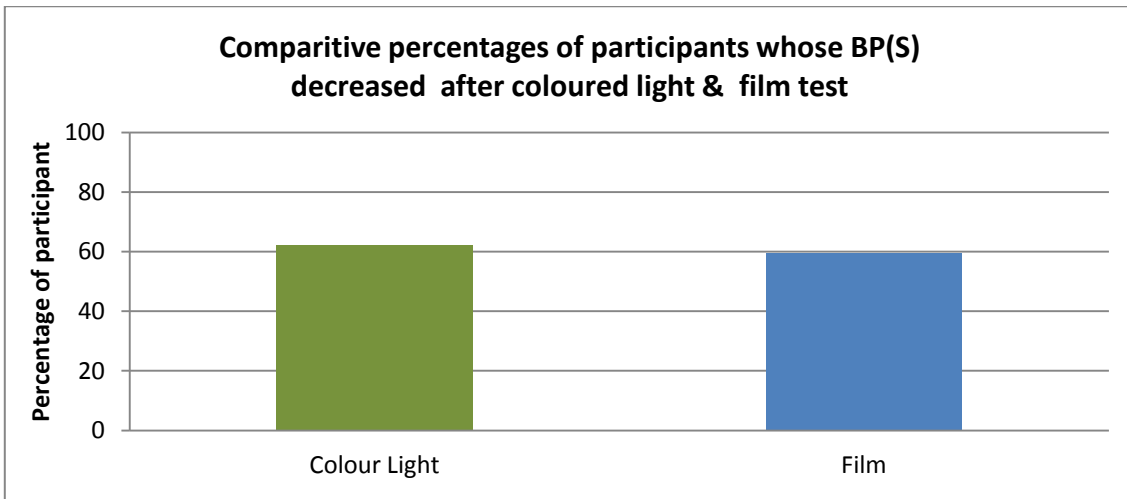


Figure 5-47 Percent comparison on decreased systolic blood pressure between film and colour test

Both groups experienced a reduction in recorded systolic blood pressure. The reduction for coloured light here (62%) was slightly higher than for film 59%

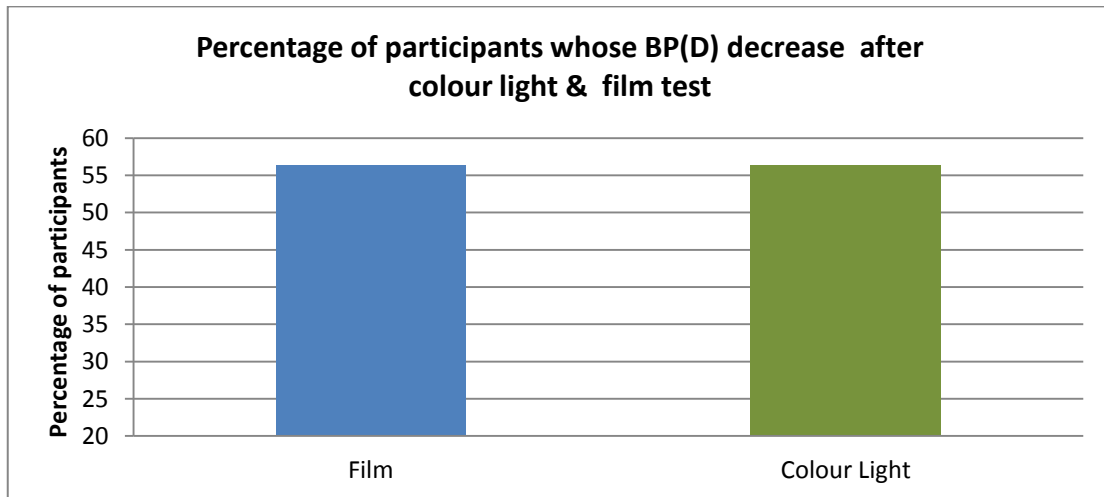


Figure 5-48 Percent comparison on decreased diastolic blood pressure between film and colour test

Both groups experienced a reduction in recorded systolic blood pressure. The reductions here were the same – 56%.

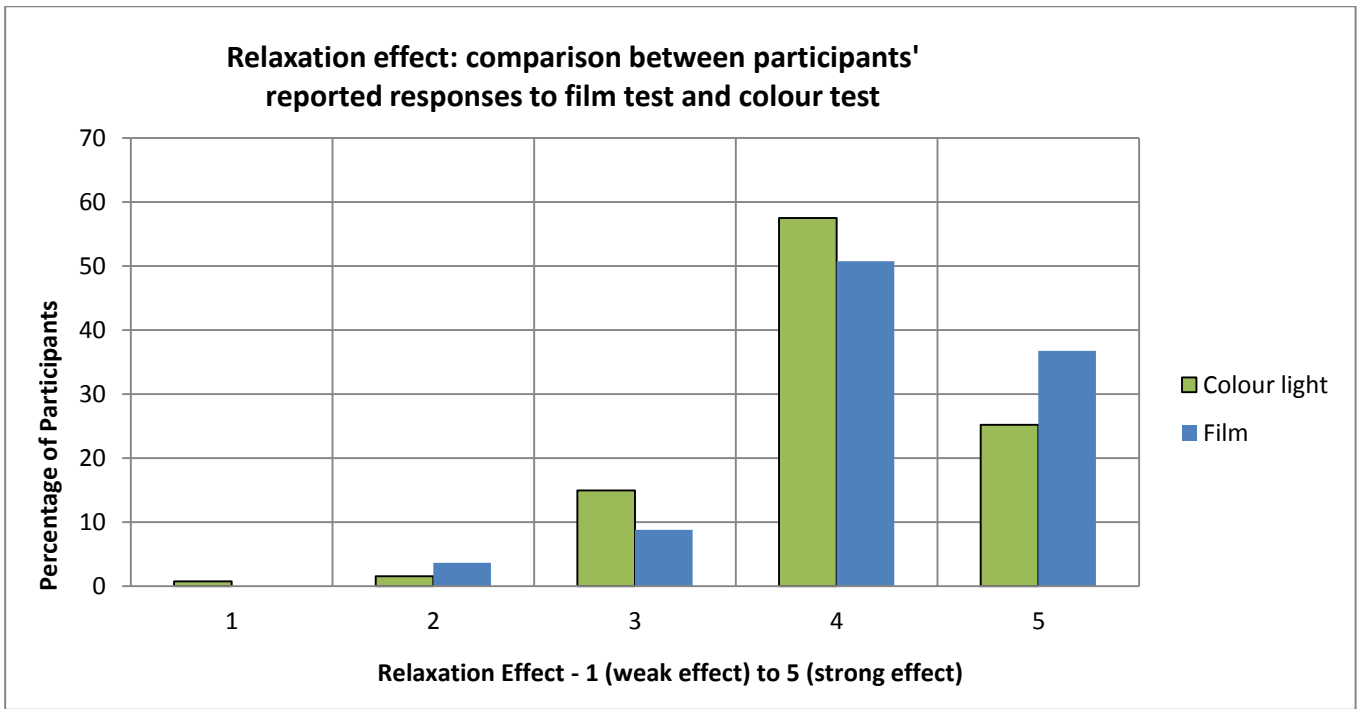


Figure 5-49 Percent comparison on relaxation effect between film and colour test

Participant rating of the relaxation effects show that the highest scores for both tests were given as a 4 (fairly strong). However, the next highest score was at level 5 – strong – with film being most likely to promote this. Overall, both tests here were rated as mainly positive.

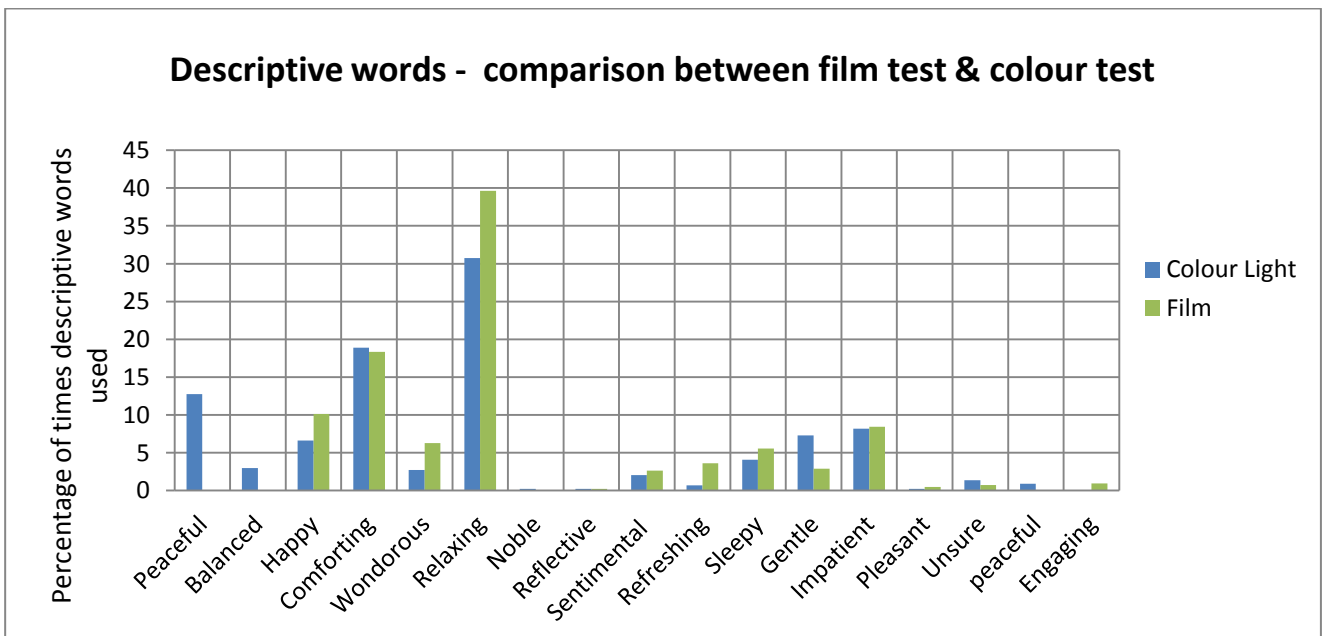


Figure 5-50 Percent comparison on chosen descriptive words between film and colour test

Whilst descriptive words related to ‘relaxing’ were chosen most often for both tests, film was also seen as ‘comforting’, and coloured light as both comforting and peaceful. The words given for both tests were seen to be largely positive, if not necessarily clearly related to relaxation. The most used negative word, for both tests, was ‘impatient’, although this scored fairly low.

### 5.2.7.1 Summary of comparison of relaxation effect between the film and coloured light studies

Pulse rates were taken after both the coloured light part of the sessions and after the subsequent film session. Whilst there were changes in pulse rates, increased for some, decreased for others, the increases were fewer and smaller than the decreases. Thus in summary, pulse rates were found to be slightly more likely to fall. The analysis suggested that the film session had slightly more of a decreasing effect on pulse rate than coloured lights, although the results, presented as they were in percentages, showed that the difference here was small. BP(S) and BP(D) were both reduced in about equal amounts.

Most people in both studies scored the relaxation effect as 'fairly strong' or 'strong', with the greatest number opting for 'fairly strong'. Coloured lights were more likely to produce a score of 'fairly strong' whilst the effect of film was more likely to be 'strong'. Negative responses to the film study were reported by 5 out of 136 participants and to the coloured lights study by 3 out of 127 participants.

The highest number of words which participants chose to describe their reactions to both tests were related to 'relaxing', followed by 'comforting'. Other words were seen as positive and included 'happy' 'refreshing', 'wondrous', 'sentimental' and 'sleepy'. In contrast, about 10% of words, for both tests, were clustered as indicating reactions of 'impatient' or 'unsure'. These were classed as negative, since such reactions were felt to be unlikely to promote relaxation.

# Chapter 6

## Summary and Discussion

### 6.1 What images, elements are more relaxing?

The aim of this study was to investigate which visual images of nature have a potential to relax people. I began the work by reading literature on Eastern and Western research and theories on nature, art, meditation, stress or illness, and relaxation. As a practising Buddhist, I understood the benefits of meditating as a means of slowing down the mind and the emotions. The literature demonstrated the relationship between mind and body, and showed how slowing the mind can have a beneficial effect on the body, because of the relaxation effect it produces. Whilst my own experience suggested it would be beneficial if everyone learned to meditate, I was aware that for a variety of reasons, many people would never learn to do this. Because I believed however that people could be helped if they achieved some of the benefits of meditation, I developed this particular approach. I hypothesised that if I could attract a subject's attention and keep it for long enough, and at the same time give them a calming experience, their mind and body would slow down. Whilst this would be not as effective as meditating (research shows how much slower and calmer an experienced meditator can be than a non-meditator) it may produce at least some of the calming benefits on their mind and thus on their body. This would in particular help people who were ill.

To pursue this hypothesis, I created a body of visual material, films and photographs, which centred on nature images. Nature images were used, partly because they are central to health in Chinese art, and partly because there has been a movement in the West to bring nature to ill or troubled people, through hospital art and through other means of connecting people with nature. As well as the images, I designed a 'coloured light tent' so that subjects could also experience immersion in the particular colour they felt would relax them. I developed the materials and questionnaires to gather information about the impact of the materials in the UK, and took the finalised version to China. Here I tried the films and coloured lights on three groups of people, hospital patients, their relatives



and healthy participants. I gathered both quantitative data (blood pressure, pulse rates, and subjective ratings of relaxation effects) and qualitative data (descriptions of the impact in their own words, and identification of ‘most relaxing scenes’). I did not take the still photographs to China, as I knew there would be no room to display them, and hence my study focuses on coloured light and moving images.

## 6.2 Impact of nature images

Although the findings in this thesis relate to China, in this section I will refer also to information from the development study in the UK, as some of the UK comments are relevant here.

Many reports expressed the calming effect of the nature images. I found that nature images that are neutral and familiar to the viewers have a greater tendency to achieve an eased state of mind, which is likely to increase the relaxation effect. Foreign or unfamiliar nature images can attract viewers’ interest and increase positive emotion that is one of the qualities which contributes to the formation of relaxation. For example a beautiful Chinese landscape image attracted positive feelings for the majority of subjects in China, but during the development stages I found that for a few UK participants their unfamiliarity with the environment triggered insecure or unstable feelings. A specific example was uncertainty over the depth of some crystal clear water. I decided that for some cases foreign and unfamiliar nature images could raise curiosity and excitement that would not achieve the desired relaxation effect.

A natural setting combined with manmade features or objects could enhance relaxation. When the viewer could associate a man-made object with presence, comfort and positive feeling then the relaxation effect could occur. A good example from the UK was the sunset over the sea with the harbour and various slow activities of small figures, birds and boats from a far distant view. My results there showed that only a minority of participants were disturbed by certain man-made features such as rooftops or a road in still photographs despite their locations in the remote countryside.

The suggestions of slow movements in nature scenes of a film in particular seemed to have a mirror effect on people, in that the movements on the screen seemed to be reflected in changes in the person. For example, the gentle movements of leaves, ripples of a lake or drifting clouds appeared to effectively generate a slower pace in people’s mind.

The expression of the peaceful and relaxing movements of certain friendly animals such as birds, ducks or small insects located in their natural habitat also had a potential to increase the mirror effect of relaxation. However, images of people may set up too many challenges to the viewer to encourage relaxation, unless the figures are so small that visual informative input is reduced to the minimum

The aspect of colours and lights in the films play an important role in the effect of relaxation. The result shows any strong or bright colour or light may cause uneasy feelings. Golden sunlight was found to sooth the mind for some but was said to be glaring to others. It depended partly on the intensity of the brightness in the image and partly on the viewer themselves.

When the images showed a natural cycle, such as a sunrise or a flower opening, this seemed to add to the qualities needed to aid relaxation. Images that indicated positive aspects of healthy, peaceful and beautiful plant life or vegetation were more likely to create the desired effect than images which included old or damaged plants.

In general, distant views of a nature scene achieved most positive responses from participants because they connected with the openness of the space. A close up view of plant life or a water bird increased viewers' concentration but a minority of participants reported uneasy feelings due to their extreme closeness.

The effects created by camera and computer have a great capacity to fine-tune images using current high-tech0 developments. However, I found that these can also be a hindrance when the natural elements or features that have been converted are too far removed from the natural phenomena. For example, the object on the screen could be slowed down too much, and become unrealistic and dull. This could counteract the 'mirror effect' and lead to negative reactions rather than the slowing down that is intended.

The media that plays the images could also contribute to the overall effect of the images. For example, a poor quality screen, mechanical noises or lights on equipment can be distracting.

Analysis of the data from China showed over that after watching nature films the reduction of pulse rate occurred in one third of participants, and for one third there was no difference. The number of participants who had a pulse reduction was slightly more than the number who had an increase. Furthermore, the result showed that decreases in rates were greater. Thus pulse rates

decreased more often and further than they increased. This suggests that the relaxation response was elicited in many cases (Benson, 1998).

Self-reports of relaxation show that the majority of China participants felt the relaxation effect to be fairly strong, and a smaller number felt it was strong. This meant that most of the participants rated the relaxation effect on the two highest options of five possible levels

After the tests, people reported that they felt calmer even when this was not demonstrated by reduced pulse rates and blood pressure. It was not clear from the data why this should be the case and this discrepancy could bear further research. The research found that personal subjective feelings and preferences illustrate a distinctively greater effect in relaxation than the results from the physical measurements, although all results show the relaxation effect was positive.

### 6.3 Locations for viewing images

My findings show that the majority of participants could connect with the positive effect of the nature images when the timing was appropriate and the location suitable. When the viewer was able to give sufficient time for the study, it allowed the interaction of the images to work naturally, which often resulted in a positive effect. When viewers were in a hurry, the feedback was less desirable.

### 6.4 Coloured light immersion

A project which interested me at the beginning of my research was the animated coloured lights and numbers which was installed in a room of a hospice in Japan (Tatsuo Miyajima, 1999). Without having this ideal facility, I adapted my own work by creating a movable tent structure.

The reports reflect that the tent structure used in this study was a favourable environment for the relaxation effect. The tent was in fact necessary for my fieldwork in hospital rooms in China because those rooms often stored objects that could be disturbing. The tent provided a quiet sheltered space, which allowed for immersion in light without other visual distraction. When looking at the colour choices made by participants for relaxation, in general the cooler colours were preferred – blues, greens and purples, with relatives showing some preference for cream. Red was the colour most often identified by everyone as the least relaxing for the light tent.

## 6.5 Differences between Films and Coloured Lights

Although this was not a systematic comparison, it was possible to note some general differences between the responses to experience of coloured lights and viewing the films. Both film and coloured lights had the effect of reducing pulse rates and blood pressure on a majority of participants and there was very little difference between the effects of one or the other. When asked to rate the relaxation effect, most participants rated both lights and film as having a fairly strong or strong effect – again there was little difference between the two although coloured lights were more likely to be rated as ‘fairly strong’ whilst the effect of film was more likely to be ‘strong’. Overall both coloured light and film viewings had a positive effect on the participants’ state of particularly relaxation.

When comparing the descriptive words given, participants were more likely to experience the coloured lights as ‘peaceful’ and the film as ‘relaxing’.

## 6.6 Differences between patients, patients’ relatives and healthy participants

My original intention had been to compare only patients and healthy participants in China. However, on discovering that the relatives of patients were also interested in participating, I decided to create a third group of ‘patients’ relatives’. Since these people had to stay with their relatives in the hospital, often sleeping on the floor nearby for weeks or months on end, I surmised that they were fairly stressed, and thus different from the healthy participants, who had no such preoccupations and who were largely university staff and students and hospital staff. Thus I ended up with three groups of participants, although the ‘relatives’ groups was smaller than the others, and so the results from it were more easily influenced by the responses of individual participants (Slavin and Smith, 2008).

I found that whilst pulse rate decreased more for relatives of patients, the pulse rates, and blood pressure reading for all three groups were fairly similar, and showed a decrease at the end of the test. All three groups were most likely to score the relaxation effect as fairly strong or strong, although the healthy and patient groups were more likely to rate the effect as fairly strong. All three groups came up with words related to ‘relaxing’ more than any other, although it was the healthy and patient

groups who used this most. The relatives group was more likely than the others to find they felt sleepy, and on the negative side, was more likely than the others to feel impatient.

## 6.7 Contribution to the research field

During the course of this research, I have developed a body of visual material which, through a process of selection and refinement, I can feel confident will produce a relaxation response in people who are sick or healthy. I have concentrated particularly on moving images and on images of nature. I have shown what the effect of showing the films has been, and identified which kinds of images people find most relaxing. I have suggested that moving pictures have the capacity to capture the attention of viewers and then to provide a slowing down effect, as the viewer's mind begins to mirror the movements on screen. I have also shown that the experience of spending quiet time immersed in one's own choice of coloured light has relaxing effects.

It was important to me that participants should suffer no ill effects from these interventions. Thus I was vigilant in choosing images and offering experiences which would help rather than disturb people. This approach of positive development meant that I was able to be fairly confident that my research would produce a positive outcome. It also meant that I would not be transgressing my training in TCM and alternative health interventions. It meant that I could focus on providing benefits, especially the benefits associated with meditation, such as slowing down and relaxing. The early development work identified which kind of image would be better left out of the material, and the final set of visual images was a result of selecting those which I had learned were likely to be accepted. The methods I used then were, I hoped, likely to produce this beneficial effect, rather than disturbance, and this has proved to be the case. Thus the contribution is a methodology which gradually identifies the more acceptable images, and a body of visual material based on this learning.

I employed a 'follow the situation' research method to carry out the development work, and to do the studies in China. It was impossible to confirm any specific research method at the beginning because I was not able to be clear about who would comprise the sample groups of participants in this study. However, after studying a number of possible research methods, I had confidence that the development of this 'unknown' journey would bring me light at some stage. Although I had to make constant adaptations of my research method, adjustments of the artefacts and different locations of my fieldworks, as a result, this development became a kind of 'follow the situation' method in a series

of small studies which overall became a type of sequential mixed method approach (Tashakkori and Teddlie, 2003; Andrew, 2009).

### 6.7.1 The five key elements diagram

A methodology diagram can be a positive contribution to the visual art field. It can aid analysis of the results and allow the reader to recognise and understand how the participant responds to all the basic features and various aspects of a visual image or a film. Through this study, I developed and created an analytical diagram and named it, 'the five elements diagram' in order to analyse my qualitative data in a unique visual way. These five key elements are interlinked in a strong relationship which is symbolized by the central overlapping circles to demonstrate the difficulties of examining them separately. For example, one participant reported feeling relaxed by watching the small yellow flowers swaying in the gentle breeze in a large green grass field. All aspects or key elements of this moving image including subject matter, colour, movement, point of view and visual context are closely interconnected. It would be impossible for a researcher to know exactly which of these elements produces the participant's response. However, they can be separated analytically, and visually on the five elements diagram, and at the same time held together as a group by the overlapping circles. In this way the diagram both aids the viewer to see how the information has been examined, and allows the analyst a means of thinking about the data so that further conclusions (in this case the results category) can be achieved.

This analytical diagram can be applied in a similar way to the function of an equation. The 5 elements of an image or a film produce a result. In this study, the result is Feeling and Association. The number and title of the key elements can be changed for other research projects, depending on how the researcher categorizes the various aspects of the image they are analysing. This methodological diagram can be adopted for other research, particularly in a situation where a visual presentation is required for the analysis of an object, an artefact or a situation.

The mapping of results at the central bottom of the diagram page is made clear and allows all key elements, or all aspects to be compared and evaluated in one diagram. The diagram provides a simple informative graphic image, and also achieves the function of illustrating complex qualitative data at one glance.

### 6.7.2 The method of natural pairing system

The most significant part of the method in this study was the procedure that I adopted right at the start, when putting the visual material together, of finding matching paired artefacts of similar images. I wanted to provide slight differences and to compare the results, so as to identify more closely what it was about the images that people found relaxing. My method can be thought of as similar to the situation of trying to identify what is the most preferred colour for a person. Firstly, a wide range of different colours is examined, and a preferred colour, or colours, chosen. Next, different shades of the preferred colour or fewer colours are examined. This process is repeated, and enables one to narrow down the choices each time, eventually arriving at a stage where there is a precise understanding of the most preferred shade of the most preferred colour.

This comparison method of a pairing system can be applied to the two images, objects, places, groups of people, events and so on. It is rather different from the strict experimental comparison of randomized controlled research (Bergman, 2008; Teddlie and Tashakkori, 2009) and it is likely to require a series of tests or studies in order to achieve the final outcome. It fits well with the developmental aspect of the sequential method research.

## 6.8 Drawbacks

- Shortage of equal number of participants for comparison

One of the main drawbacks of this research is the comparison of unequal numbers of participants in a few categories, for instance, the comparison between patients and relatives or the comparison between those who watched one pair of films and those who watched another. Although percentages are used to make the groups comparable, this tends to obscure the problem as well as help it. When a group is very small, the results from one person can result in a greater effect than if the group is large.

- Lack of collaborators and funding

The amount of work in various aspects of this study was very large for one researcher to manage. The most challenging area for me as a researcher was how to plan, conduct, investigate and create the library of images. As well, because of the lack of funding and the lack of appropriate collaborators within healthcare organizations, I had to conduct most of the fieldwork myself. The extra work of language translations, the amount of effort and the cost all exceeded my expectations. The

continuous changing venues of fieldwork required massive time and effort in communications, moving all necessary tools, equipment and adapting to the new groups of participants in a new environment. Under such circumstances, extra cost and effort were unavoidable.

- Tools for the fieldwork

I had to supply the appropriate tools for measuring pulse rates and blood pressure and for supplying coloured light. These challenges were at times very great, and the research required to search them out, particularly in China, took more effort than I had expected at the start.

## 6.9 The two paradigms: mindfulness in east and west

In carrying out this research, I have explored the history, philosophy and practice of mindfulness in Chinese culture and the contemporary development of mindfulness training in the west. In consequence, the relationship between the two paradigms, including their differences and similarities, has been illustrated and used in this work. To do this, I explained theories about quietening the mind based on TCM, Buddhism, Daoism and certain traditional Chinese ways of living in this study, and showed how these have influenced concepts of ‘mindfulness’ in the West. My experience and knowledge of traditional Chinese concepts of mindfulness enabled me to apply theories about the importance of nature images to the development of the film archive. I then used my practical experience and knowledge of the more recent systems of mindfulness training in the West so that I could apply western understanding to the development of this study and to the conduct of my fieldwork in China.

In bringing together the two paradigms of mindfulness, from the West and from the East, I have been able to develop a means of offering the benefits of Western approaches to mindfulness back to Chinese culture. This is a culture which has partly lost the day-to-day knowledge and practice of mindfulness to calm and quieten the mind and body and has become ‘busy’, like its western counterpart. However, it is still partly steeped in the influences of tradition, and the study has shown how people who live inside this Chinese culture react to nature images.

The study has thus shown that Chinese people can need a means of quietening the mind, and that they can experience this quietening through the use of nature films. The explanation for their



reaction to these nature images has importantly referenced the prominence of nature in traditional Chinese culture.

This understanding of mutual influences from the East and West will be beneficial for professionals and practitioners of mindfulness. It will also help to promote development of further techniques to help spread the learning and application of mindfulness practice for various groups of people with different health conditions and cultures so that they would be able to gain optimum benefits for their body and mind.

## 6.10 The film archive

The films and photographs studied in this work, and attached to the thesis on a memory stick, are presented to make a contribution to different audiences in the following ways:

For practitioners:

The findings from the relaxing and calming effects of my films, arranged in the five elements I developed - movement, subject, visual context, colour and light, and the camera and editing techniques - can be used as examples by interested film makers to create films for clients, and by practitioners to select films for patients.

There has been little research in this area but hospitals and healthcare settings in the West have increasingly equipped themselves with digital images of nature and nature films for the benefit of their patients (Ulrich, 1981). It seems likely that with advancing technologies and virtual digital image development, nature images will be used to produce a stronger impact on people, and that this will include the effects of greater calm and relaxation in the face of mental and physical illness. The archive here will serve to provide a means of accessing suitable images for further development for this purpose.

For patients and the public:

The collection of films could also provide an alternative means for the general public who may wish to try the relaxation effect online in their own environment. It is intended that a website will be created to facilitate this, although that is not part of the PhD study.

For researchers:

This is one of the earliest studies on the relaxing and calming effects of moving nature films on people. This film archive requires further development, study and experiment. However, the collection of the films made during the study, together with the feedback and analysis of the tests, can serve as a helpful source for reference. The study thus provides guidelines for those interested in related research into further studies of moving or still nature images for enhancing relaxing, calming and therapeutic effects.

## 6.11 Contribution to future research

I did not pay participants to take part in the study so presumably the participants in this study already had a subjective interest in taking part. A previous study in which participants were paid for taking part (Vincent, 2009) did not show any greater effect in reducing pain, which suggests that payment to participants may make little difference to the effects on them. However, when participants are paid, it is likely to attract a wider range of participants, including those who may not have an intrinsic interest in the first place. Therefore, further research on nature films and coloured light might be done using these means.

What kind of visual images in nature would be more beneficial to what kind of illnesses? I did not investigate this but the pulse rate shows greater reduction in the general patient group than in the stressed and healthy groups in China. Other than that, there was no difference. The coloured light study seems to achieve positive effect with less effort and cost in both physical and self-report measures.

The applications of nature images to aid therapeutic practice have been spreading rapidly in healthcare settings in many Western countries but the relevant academic research seems to be lagging far behind. Probably the cost is an important factor in this. Hospitals may be more likely to invest in the installation of media or facilities for nature images if there is more evidence that it promotes well-being.

Certainly, further research in this field would result in better understanding of which nature images would be more relaxing and positive on people. However, subjective preference and variation of individual feelings and associations may evoke totally opposite sensations in different people even though the image is exactly the same. For instance, a Chinese doctor told me that the wild nature scene might remind some of his patients about their poverty in their rural home villages. For this

reason, such an intervention such as the one described here would always have an element of experimentation.

Appreciation of nature can be educated. 'Visual medicine' does not stand alone. It requires the viewer's positive connection with the visual image. The combination of personal concepts and appropriate images is necessary for this therapeutic effect to function. Perhaps a brief instruction to the viewers on how to watch the images may reduce the negative effect, thus increasing the benefits especially to those who are sick and stressed. If the viewers like to learn how to ingest the nature images for their own well-being, and the image providers learn what and how to present the images to their viewers, the potential for achieving benefit may be greater.

Through the skills of observing and monitoring, we should be able to select individual images that have a greater potential to improve health and well-being. However, the amount of audio-visual images related to nature scenes for calming, meditation and relaxation is enormous on the internet nowadays compared to seven years ago when I started this study. Perhaps then researching viewers' *ways* of selecting and viewing nature images would be as important as finding out which nature images would achieve the most therapeutic effect in people. A few sayings in the book of Mountain Record of Zen Talks remind us to 'Be aware of how you feel – not what you think about the image' (Loori, 2008:176) and 'See the image as a whole, all at once' (Loori, 2008:177). When we become more accepting of what we watch, we progress to a level of 'Receive the image without judging' (Loori, 2008:180).

# Chapter 7

## Conclusion

My outputs are threefold. Firstly I have the written findings of the impact of the films and lights on participants. Secondly I have a body of visual material which has been developed and refined over the course of the research. Thirdly I have developed a means of analysing the impact of visual images on viewers, and a means of displaying this in diagrammatic form.

The results of the data collected in China show potential for both nature films and coloured lights to have a relaxing effect on people. The quantitative results indicate an overall positive responses in terms of relaxation. The qualitative data given by the participants provide helpful information for health care workers, researchers and visual artists to identify what nature images are more relaxing in moving images. The results of the coloured light study also indicates a range of coloured lights that can be more relaxing or less relaxing to people in the East. The research found that both objective measures and subjective assessments pointed to a relaxation effect from watching nature films and experiencing coloured lights

Further research in planning an intervention which involves the gradual development of attentive relaxation, and then progressing to a quieter and calmer mind through nature images would extend further the positive effect to the participants and also widen the diversity of the design methods in this research field.

Although the results of this study are positive, and I have found that calm and relaxation can be increased through these visual means, my own hope is that the experience of a quieter mind might develop a tendency to seek for other subtle ways for calmness within oneself, such as contemplation or meditation practice without depending too much on external colours and forms. This hope springs from my own experience of meditation, which is where this whole study began.

I would like to end this thesis by sharing a poem from Tao (Dumoulin, 2007:30) with you:

*'The teeming things*

*All return to their roots.*

*Returning to one's root is called stillness.*

*This is what is meant by returning to one's destiny*

*Returning to one's destiny belongs with the eternal.*

*To know the eternal is enlightenment.'*

*How to enter stillness?*

*Eckhart Tolle's book (Tolle, 2006:28) says, 'Seek out a tree, and let it teach you stillness.'*



Figure 7-1 Stillness tree

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# *A Sense of Calm*

**An exhibition by Eunice Chan**

PhD researcher Eunice Chan is exploring the potential of using visual stimuli to have a positive impact on the viewer's mood and sense of well-being. This exhibition is part of Eunice's research and presents a series of her own photographs and film clips, along with a tent-like structure in which coloured lights are used to create a restful space.

**Visual Resources Centre  
Manchester Metropolitan University  
Cavendish South Building  
Cavendish Street  
Manchester**

Monday 16 February - Friday 6 March 2009  
9.30 am - 4.30 pm

Tel: 0161 247 1929/1930



You are cordially invited to preview

# *A Sense of Calm*

An exhibition by Eunice Chan



Visual Resources Centre  
Manchester Metropolitan University  
Cavendish South Building  
Cavendish Street  
Manchester

2.00 pm – 4.30 pm, Monday 16 February 2009

Some of the visual imagery that we are exposed to within contemporary culture can affect us in a negative way. Many of the images that we see through the news media are unsettling and may add to the stress that we experience in our day-to-day lives.

In response, MIRIAD PhD researcher Eunice Chan is exploring the potential of using visual stimuli to have a positive impact on the viewer's mood and sense of well-being.

This exhibition is part of Eunice's research and presents a series of her own photographs and film clips, along with a tent-like structure in which coloured lights are used to create a restful space.

The aim is to draw attention to the potential of visual imagery to counteract anxiety and promote relaxation. The exhibition will also help to further Eunice's research. A short questionnaire will be available for you to record your responses, and you can volunteer to participate in an experiment during which your heart rate will be monitored as you experience a range of visual stimuli.

The Visual Resources Centre is hosting the exhibition by as part of its role to provide photographic and video support for academic research projects.

For further information please contact Eunice Chan (klechan2008@gmail.com) or John Davis (j.davis@mmu.ac.uk).  
Telephone: 0161 247 1929/1930.

The exhibition continues until 6 March 2009.



## *Like to try 'Colour/Visual Relaxation'?*

### Volunteers required for a study of 'Coloured Light & Image' relaxation techniques.

Eunice Chan, a PhD student is conducting a study to investigate the potential calming/relaxing effects of visual stimuli including coloured light, still and moving images.

- You will be required to attend a session of 45 minutes
- Heart Rate will be monitored throughout each session
- Volunteers must be in general good health
- Booking in advance is required

Sessions are being scheduled to take place at two locations:

**Visual Resource Centre, Ground Floor Cavendish Building (South):** 17 February – 6 March 2009 (9.30am – 4.30pm)

**Social Developmental Lab E16, Ground Floor, Elizabeth Gaskell Campus:** 10 - 20 March 2009 (9.30am -8.30pm)

To arrange to take part in this study or for more information please contact Eunice

e-mail: [klechan2008@gmail.com](mailto:klechan2008@gmail.com)

phone: 0772 5176288 (mobile)



Code no:

# CONSENT FORM

## FOR AN ADULT SUBJECT

Subject Surname:..... Other names:.....

Date of Birth:...../...../..... Sex (please tick): Male / Female

Ethnic Background:.....

1. Please read this form carefully.
  2. Please check the information on the Instruction form.
  3. If you have any queries, please ask the researcher.
- I fully understand the aims of this study.
  - I understand that I will take part in a session when I will watch a video and or experience coloured lights.
  - I understand that my heart rate will be measured before and after the session.
  - I understand that I can withdraw from the research at any time
  - I understand that all information will be confidential.
  - I therefore agree that I will take part in this study.

Signature:.....

Date:...../...../.....

Researchers name:.....

Signature:.....

Date:...../...../.....



# PARTICIPANT INFORMATION SHEET

## **Coloured Light**

1. Sit in the chair and make yourself comfortable.
2. You will view the range of colours three times.
3. Please select the colour you find most calming and inform the researcher.
4. You will then experience this single coloured light for ten minutes.
5. When the session is over, please fill in the appropriate questionnaire.
6. Your heart rate will be measured before and after this process

## **Video**

1. Sit in the chair and make yourself comfortable.
2. You will view 2 short film clips (12-3 minutes per clip).
3. When the video has finished, please fill in the appropriate questionnaire.
4. Your heart rate will be measured during before and after this process.



Code No:

## Questionnaire

### Exhibition: Sense of Calm (16 Feb – 6 Mar 2009 at VRC, MMU)

#### Coloured Light


1. Which colour/s is/are most relaxing/ calming to you? Ans: \_\_\_\_\_
2. Please rate (by circle) the following on how relaxing you found them. (5=very relaxing, 1=not relaxing)  
(Not relaxing) 1\_\_\_\_2\_\_\_\_3\_\_\_\_4\_\_\_\_5\_\_\_\_ (Very relaxing)
3. Which colour/s is/ are less relaxing/ calming to you? Ans: \_\_\_\_\_
4. Which 5 words best describe the impact of the colour/s on you?  
Ans: \_\_\_\_\_

#### Video (Clip 1: \_\_\_\_\_) (Clip 2: \_\_\_\_\_)


1. Please rate one of the two film clips that you found more relaxing/ calming?  
Ans: Clip 1 or Clip 2 (Please circle)  
(Not relaxing) 1\_\_\_\_2\_\_\_\_3\_\_\_\_4\_\_\_\_5\_\_\_\_ (Very relaxing)
2. Why?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Which particular aspects of the film were relaxing to you?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Which 5 words best describe the impact of the film on you?  
\_\_\_\_\_

Age..... Sex: Male/Female Ethnic Background.....  
Date.....  
Heart Rate before & after a session of coloured light...../.....  
Heart Rate before & after a session of video...../.....


**A Sense of Calm** Exhibition Questionnaire (16 Feb – 6 March 2009)

1a  [ ] Which of these two pictures do you find the most calming?  
(please tick a box)  
Why?


1b  [ ]

2a  [ ] Which of these two pictures do you find the most calming?  
(please tick a box)  
Why?


2b  [ ]

3a  [ ] Which of these two pictures do you find the most calming?  
(please tick a box)  
Why?

3b  [ ]

4a  [ ] Which of these two pictures do you find the most calming?  
(please tick a box)  
Why?

4b  [ ]

5a  [ ] Which of these two pictures do you find the most calming?  
(please tick a box)  
Why?

5b  [ ]

6a



[ ]

Which of these two pictures do you find the most calming?  
(please tick a box)

Why?

6b



[ ]

7a



[ ]

Which of these two pictures do you find the most calming?  
(please tick a box)

Why?

7b



[ ]

8a



[ ]

Which of these two pictures do you find the most calming?  
(please tick a box)

Why?

8b



[ ]

9a



[ ]

Which of these two pictures do you find the most calming?  
(please tick a box)

Why?

9b



[ ]

10a



[ ]

Which of these two pictures do you find the most calming?  
(please tick a box)

Why?

10b



[ ]

Age: ..... Gender: Male / Female Ethnic background: .....

# *Free Try Colour/ visual Relaxation*



Volunteers required by a PhD student: 45 minutes per session (watch your favorite colour lighting and films inside a tent) and advance booking are required.

Date: 10-20 March 2009 (10am-8.30pm)

Place: E16, G/F, Elizabeth Gaskell Campus

Contact: Eunice: [klechan@gmail.com](mailto:klechan@gmail.com)

Mobile: 07725176288

# *Free Try Colour/ Visual Relaxation*



Volunteers required by a PhD student: 45 minutes per session (watch your favorite colour lighting and films inside a tent) and advance booking are required.

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Mobile: 07725176288



# Visual Image Relaxation 艺术与健康

陈观莲(Eunice chan)

现于英国曼彻斯特城市大学进行视觉疗法研究。专业特长：图面设计-广告宣传设计、中医与静心安神法、艺术与健康管理视觉疗法-影像与色光对病人的影响。早年创办个人设计公司，1997-2002 获得马来西亚中医学院及广州中医药大学合办的中医学士学位。2006-至今 艺术与健康管理博士研究(Manchester Metropolitan University, UK) 学术成就：1983获英国大英博物馆的图面设计奖第二名；1983英国伦敦共和中文学校赞助举办个人艺术与设计展（英国伦敦共和中文学校）；1985首创马来西亚中央美术学院Graphic Design图面设计新课程；1988 香港设计师会的杂志封面及产品包装设计奖优秀奖；1992香港土地发展局赞助举行个人贺卡设计及珍藏贺卡vz展（香港上环西港城展览厅）；1993香港朗文出版社委任办全港儿童画比赛评判；1983? 2000 曾被各杂志报刊及香港电视台（香港无线电视台及亚洲电视台）专访共约18次。

主讲人  
EUNICE CHAN  
陈观莲(英国) (UK)

主办单位：厦门大学艺术学院



- (一) 6月25日(周四) 15:00--17:00 艺术学院阶梯教室  
(二) 7月2日(周四) 15:00--17:00 艺术学院阶梯教室  
(三) 7月9日(周四) 15:00--17:00 厦大医院门诊部六楼602室

## 您想尝试视频放松疗法吗？



来自英国曼切斯特城市大学的陈观莲博士利用在厦门大学艺术学院讲学的机会，愿意免费为大家提供视频和色光放松疗法体验。该活动通过短片和图像的视觉感受来减轻学习和生活压力，您想尝试吗？

**地点：**厦大医院六楼 603 室

**体验时间：**每位 45 分钟

**活动时间：**2009 年 7 月 8—15 日

**联系电话：**15960202309 刘小姐

**主办单位：**厦大艺术学院、厦大医学院中医系

2009 年 7 月 7 日

**厦门大学 2009 年度短期引智申报表**

姓名	陈观莲(Eunice chan)	性别	女
国籍/地区	英国/香港	职称	博士
工作单位和职务	英国曼彻斯特城市大学 艺术与健康学科 博士研究生		
专业专长和学术成就	<p><b>专业特长:</b> 艺术与图面设计-广告宣传设计、中医与静心安神法、艺术与健康: 研究视觉疗法—影像与色光对病人的影响。</p> <p><b>学术成就:</b></p> <p>1983 获英国大英博物馆的图面设计奖第二名;</p> <p>1983 英国伦敦共和中文学校赞助举办个人艺术与设计展(英国伦敦共和中文学校);</p> <p>1985 首创马来西亚中央美术学院 <b>Graphic Design</b> 图面设计新课程;</p> <p>1988 香港设计师会的杂志封面及产品包装设计奖优良奖;</p> <p>1992 香港土地发展局赞助举行个人贺卡设计及珍藏贺卡展(香港上环西港城展览厅);</p> <p>1993 香港朗文出版社委任办全港儿童画比赛评判;</p> <p>1983~2000 曾被各杂志, 报刊及香港电视台(香港无线电视台及亚洲电视台)专访共约 18 次。</p>		
简历	个人学习简历及个人履历: 见附表		
来华工作内容	<p>1. 与厦门第一人民医院合作设立“影片和色光疗法”实验;</p> <p>2. 在厦门大学艺术系讲学, 内容为:</p> <p>A. 艺术与图面设计—理论与实践</p> <p>B. 当今艺术与音乐对健康的发展</p> <p>C. 艺术与多媒体的宣传发展</p>		
来华时间和期限	60 天		
申请经费		邀请单位 领导签名 单位盖章	年 月 日
邀请人			
联系电话	13267189623		

注:本表请集中在一页打印。



## 附表:

### 一、个人学习简历

- 1968—1974 香港格致英文中学毕业
- 1974—1977 英国高中课目学习 (Aberdeen Collage of Commerce, UK)
- 1977—1979 艺术与设计专业学习 (Aberdeen Collage of Commerce, UK)
- 1981—1982 **Graphic Design** 图面设计学士学位
- 1977-1979 获得艺术与设计专业文凭 (Aberdeen College of Commerce. Scotland)
- 1982 获得图片设计学荣誉学士文凭(Norwich School Of Art, UK)
- 1983 图面设计硕士进修一年(Royal College Of Art, London)
- 1997-2002 获得马来西亚中医学院及广州中医药大学合办的中医学士学位
- 2003-2004 获得教育专业文凭(University Of East Angela, UK)
- 2004-2005 获得动画与音响设计硕士(Norwich School Of Art & Design, UK)
- 2006-至今 艺术与健康博士研究(Manchester Metropolitan University, UK)

### 二、个人履历:

- 1972-1974 私人西医诊所助理护士
- 1984 中国广告公司设计员
- 1985 中央美术学院, 图面设计科创始人及主任
- 1988 广告设计指导
- 1989-1994 创办广告设计公司 and 贺卡出版公司
- 1996-1998 创作指导, 吉隆坡 **DWIPLUS** 有限公司, 英联邦国家共运会形象和宣传设计
- 1996-1997 林国荣创作学院讲师(吉隆坡 **LIMKOKWING** Institute for Art and Design Technology)
- 1996-2000 吉隆坡上海中医诊所助手
- 2002-2003 中医及自然疗法
- 2003-2005 英国辅助疗法诊所兼职行医
- 2005-2006 英国中医诊所兼职中医师 (英国北京药草诊所, **NORWICH, UK**)

## Faculty of Art and Design

School of Art and Design

MIRIAD

Manchester Institute for Research and Innovation in Art and Design

30 May 2007

Dr Yang Junxing  
Attending Orthopaedic Surgeon  
Deputy Director, Division of Hip Joint Centre  
Department of Orthopaedics  
First Affiliated Hospital  
Guangzhou University of Traditional Chinese Medicine  
No 16 Airport Road  
Guangzhou City  
PR China  
510405

Dear Dr Yang Junxing

**RE: Koon Lin Eunice CHAN, MPhil/Phd student at Manchester Metropolitan University**

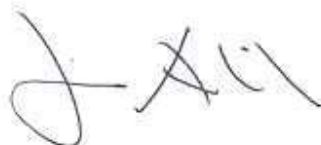
The above-named student has informed me that your Institution/Hospital would be willing to assist her in her investigation related to her PhD research project "Visual Therapy: The Effect of Visual Images on Patients". The work aims to research and measure the benefits of colour and light therapy, investigating what images may bring positive effects to the human mind.

I confirm that Koon Lin Eunice CHAN is a fully registered student on the MPhil/PhD Programme at Manchester Metropolitan University, where she is affiliated to Arts For Health (<http://www.mmu.ac.uk/artsforhealth/>). Her Registration began in October 2006 and she is due to complete her studies in June 2009. We are agreeable for her to conduct some of her research within Chinese Hospitals/Institutions.

I hope that you can assist her in this investigation and give her any access to pertinent areas of your work and resources in a way that is appropriate to your own situation. I trust that the ethical procedures of your own institution will apply to any help that you may be able to give and be applied to the work that you may permit her to engage upon.

Please confirm your agreement to provide assistance to the student and do not hesitate to contact me if you have any questions.

Yours sincerely



Dr James Aulich  
Research Student Co-Ordinator



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Professor John Hyatt



Manchester Metropolitan University

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From: Art College of Xiamen University

Xiamen University, Fujian

China

To: School of Art and Design Faculty

MIRIAD: Manchester Institute for Research and Innovation in Art and Design

Manchester Metropolitan University

Righton Building, Cavendish Street, Manchester M15 6BG

United Kingdom

Date: 30 July 2009

英國曼徹斯特都會大學：

貴校陳觀蓮女士於 2009 年 6 月 17 日至 7 月 30 日到廈門大學藝術學院進行學術交流。訪問期間為廈門大學學生開設三次色光、視頻療法講座，主題是“視覺療法：影像對人的放鬆效應”，帶領該學院研究生和中醫系本科生進行實踐教學，並到廈門大學醫學院做了 18 天的色光、視頻療法測試，共測試 100 多人次，取得良好的效果，特此證明。

廈門大學藝術學院

2009 年 7 月 30 日

We confirm Koon Lin Eunice Chan (HK BNO Passport no:790013690) a PhD candidate of MIRIAD, Faculty of Art & Design, Manchester Metropolitan University conducted her fieldwork on 'Visual Therapy' research under the Faculty of Art, Xiamen University from 17 June to 30 July 2009.

During this period mentioned above she completed the following programme:

1.0

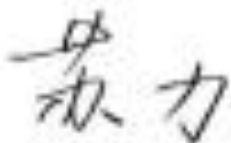
Delivered a series of 3 number Of lectures on Visual Art and Health to students and staff at the lecturer theatre of the Art College of Xiamen University: the history, development, recent research on the relaxation and therapeutic effect of art, nature images and coloured light on people and patients in the west.

2.0

During the time frame of 18 days the total number of person times on Colour Light and 'Visual Therapy' tests was over 100. The research experiments were held at the Out-patient ward of the Faculty of Traditional Chinese Medicine, Xiamen University for 10 days and the In-patient ward of the Affiliated Hospital of Xiamen University for 8 days. The collaboration between Xiamen University, Xiamen University Hospital and the researcher, Koon Lin Eunice Chan was harmonious and the overall results were positive.

Professor Su Li

Signature:

The image shows a handwritten signature in black ink. The characters are stylized and appear to be '苏力' (Su Li), which matches the name of the professor mentioned in the text above.

Principal of College of Art of Xiamen University

30 July 2009

29 July 2009

To,  
Manchester Metropolitan University,  
Manchester, United Kingdom.

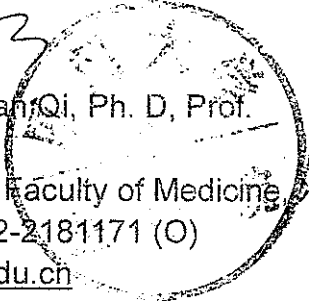
We confirm Koon Lin Eunice Chan (HK BNO passport no:790013690) a PHD candidate of MIRIAD, Faculty of Art & Design, Manchester Metropolitan University conducted Visual Therapy research and fieldwork under the auspices of Faculty of Medicine, Xiamen University from 17 June to 30 July 2009.

During this period from 17 June to 30 July 2009 she completed these as follows:-

- 1.0 Delivered a series of 3 nos. lectures on Visual Therapy on the subject of Visuals on Relaxation at the Faculty of Art, Xiamen University.
- 2.0 Visual Therapy research and fieldworks with Post-graduate Art students at the department of Art for Health and students of Traditional Chinese Medicine student at Xiamen University.
- 3.0 In the time frame of 18 days more than 100 nos. of person times on Visual therapy tests were completed with general positive results at Faculty of Traditional Chinese Medicine and the Affiliated Hospital of Xiamen University.

  
Dr. Zhongquan Qi, Ph. D, Prof.

Vice-dean of Faculty of Medicine, Xiamen University  
Tel. 0086-592-2181171 (O)  
[zqqi@xmu.edu.cn](mailto:zqqi@xmu.edu.cn)



# 视觉疗法体验

时间：2009年7月6日—17日

地点：厦门大学医院（厦门大学路172号）六楼603室

## 提示一：色光

- 1 请坐在椅子上，使自己处于舒适状态。
- 2 请观察色光，将演示三遍。
- 3 请选一种你认为很舒服的色光。
- 4 下面你将沉浸在你所选的色光中10分钟。
- 5 演示结束后请填写一张问卷。
- 6 测试前、后，将测量你的血压和脉搏。

## 提示二：视频

- 1 请坐在椅子上，使自己处于最佳状态。
- 2 请观看两部短片（每部12—13分钟）。
- 3 看后请填写一张问卷。
- 4 观看前、后，将测量你的血压和脉搏。

# 同意书

编号： / / /

给成年人

姓：..... 名：..... ( 英文名 ) : .....

出生年月日：...../...../..... 性别 (请打勾): 男 / 女

民族：.....职业：.....专业：.....

健康状况：.....

**请仔细阅读以下内容：**

- 1 我知道我将参与一个测试活动，在这个活动中我将观察一个色光或体验一个视频。
- 2 在这个活动中将测量我的血压和脉搏。
- 3 我知道我有权利随时向负责人提出停止这个活动。
- 4 我知道我的所有资料将是以匿名的形式出现。
- 5 我完全了解这个测试的目的。
- 6 有任何问题请直接询问负责人。
- 7 我同意参加这项活动。

签名：..... 日期：...../...../.....

负责人签名：..... 日期：...../...../.....

助理签名：.....

视觉疗法测试

时间：2009年7月6——15日

地点：厦门大学医院(厦门大学路172号)六楼603室

一、色光

1、你认为哪种色光最舒服？ 请回答：\_\_\_\_\_

2、请选择以下等级把你的感受用打勾的方式表达出来(1=最不放松，5=最放松)  
(最不放松) 1\_\_\_2\_\_\_3\_\_\_4\_\_\_5\_\_\_ (最放松)

3、哪种色光你感觉最不舒服/ 最静不下心来？ 请回答：\_\_\_\_\_

4、请用五个最恰当的词汇来描述你对色光的感受。如：舒服、松弛、安宁、烦躁、沉闷。

请回答：\_\_\_\_\_

二、视频 A\_\_\_\_\_ B\_\_\_\_\_

1、你认为哪部视频使你更放松/更安宁？(请打勾) 视频 A 视频 B  
(最不放松) 1\_\_\_2\_\_\_3\_\_\_4\_\_\_5\_\_\_ (最放松)

2、为什么？

\_\_\_\_\_  
\_\_\_\_\_

3、你所选的视频中哪个情景/片段 让你最放松？

\_\_\_\_\_  
\_\_\_\_\_

4、请用五个最恰当的词汇来描述你对所选视频的感受。如：舒服、松弛、安宁、烦躁、沉闷。

三、自觉抗压感受 前：(低) 1 2 3 4 5 (高) 后：(低) 1 2 3 4 5  
(高)

年龄：.....性别：男/女民族：.....

日期：.....

色光活动前后的脉搏...../.....，血压...../.....

观看视频前后的脉搏...../.....，血压...../.....