

**COLOUR AND THE PSYCHOLOGY OF USER;  
AN EXAMINATION OF COLOUR EXPRESSIONS AND ITS  
IMPACT ON USER, IN THE CONTEMPORARY SRI LANKAN  
OFFICE BUILDINGS.**

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**Dissertation**

Submitted to the Department of Architecture of the  
University of Moratuwa in partial fulfillment of the  
Requirements for the degree of  
Master of Science  
In  
Architecture

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University of Moratuwa



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## Declaration

I declare that this dissertation represents my own work, except where due acknowledgement is made, and that it has not been previously included in a theses, ?, dissertation or report submitted to this university or to any other institution for a Degree, Diploma or other qualification.

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Colour and the Psychology of User; An Examination of Colour Expressions and its Impact on User, in the Contemporary Sri Lankan Office Buildings.

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## **INTRODUCTION**

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## **INTRODUCTION**

### **1) Background to Study**

"An architectural space is like any other work of art – it has cohesiveness that embraces everything from its boundaries to its smallest details. In either a painting or a room, the atmosphere binds all other elements in either case, the approach to Colour is the same: leave out nothing that nature includes." Kaufman D,(1992)

Like all other arts, architecture can affect the user's mood very deeply. Colour is one of the 'elements' that create Architecture. Although it is one small element, it has an effect to change the quality of the architectural spaces. Colour can change height, depth, scale, and proportions. For example, light colours make a place enormous, while grey colours make a place diminutive.

Some of the effects of colours are well known and accepted by most people. In fact, those effects have been the subject of serious research and experiments and proven scientifically.

Since the balance or imbalance of hormones in the body, directly affects feelings and emotions of the humans and colours affect the balance or imbalance of hormones in the body, they have a marked influence on human's moods and feelings. Certain colours can calm one's minds, while others stimulate mental activity. Metabolic and emotional equilibrium is restored by restoring a balance in 'Colour Energy' flowing to the pituitary. This can alleviate stress, tension, anxiety, and depression. Thus, certain colours can help us deal with feelings of loneliness, frustration, and grief.

Colour is commonly used in Architecture as a decorative item, a piece of detailing. The trend is slightly changing and colour has begun to be used in architecture with a conceptual understanding, relating to architectural form and space.

Use of colour in Architecture, can be described in several ways. Interior and exterior is one of them. In exterior, it affects the surrounding context. When using colours for an exterior it should not be contradictory to the specific

context. In interior, it helps to increase the quality of the place, to make a pleasant environment without much effect on the context.

## **2) Observation**

Architecture comes as a product of human habitation. Therefore, architecture is a pattern in social - spatial relationship. Colour could be identified as a component, which reflects spatial quality.

Colour can be used in architecture as well as painting or design. In architecture, colour can have an effect on the user of the building, as it can change the frame of mind of user.

Architecture is mainly for the user. However it has not been successful in using colours to suit its purpose, qualitative needs etc. Since colour has significant psychological effect, due to its misuse, psychological effects such as inefficiency, indolence etc. are created.

The bright colour washing on buildings has become a trend, in today's Architecture. As a result, meaningless colour use has risen which is incompatible with the user or function. It will create adverse impacts on the contexts as well as adverse situations within the building. Colour affects not only the building but also the context of the area. Colour can deform the whole character of the building as well as enhance the qualitative aspects and it may make an impression the quality of building.

Using appropriate research and analysis, in attendance it can be shown the meaning of colour- using are, take place getting optimum usage of the building. It can be a proper answer for increasing efficiency and may contribute to positive trend to the economy.

## **3) Criticality**

Any colour has psychological meaning. It may not differ according to painting, design or design of architectural space. Psychological expressions of colour in developing 'Architectural Concepts' seem to be neglected by architects. By the negligence of it, the user's mood is affected directly and indirectly. The users function the building, so, it is important to examine, the ways of using colour psychology to suit the mood relevant to the function of the user. The use of

colour to achieve a certain concept, and the colour expression in architecture, which is related to a certain mood are the main two issues taken for consideration.

#### 4) Intention of the Study

In Sri Lanka, the coming up trend regard to colours, seems to be more of experimental than before. However, applying colours are not improved. What architects create are not related to the 'need' of the users. As colour is a marvelous detailing tool to increase special qualities, expressions and proportions, it is also a marvelous tool to affect the mood of user.

Although architects or building owners struggle to create stunning combination of colours, it does not make the user comfortable. Moreover, it directly disturbs emotions, expressions and efficiency of the user. So colours must be used to create comfortable environments to suite to need that is asked by a certain place.

#### 5) Aims and Objective of the Study

- 1) Examine the relationship between colour and psychology.
- 2) To Study how colour affect the psychology of user in three-dimensional space.
- 3) Identify the suitable colour used to change "Mood" of user.

In addition, this study facilitates to identify the required degree of using colours in Architectural space and the way it seriously affects the emotion of the user regard to the function and its efficiency. The findings & their analysis are presented in <sup>the</sup> dissertation in four chapters  
^

#### 6) Methodology

The background information was collected from different sources. A literature review on collected information was formulated.

The survey, which was an important part of the research, was done by collecting data on four different examples, concentrating on the purpose and the importance on this type of research. A questionnaire survey was carried out by interviewing people, who are using those coloured buildings and architects who creates different concepts with colours. The analysis is on responses & the acceptability of the adaptations for both architects and the users.

The case studies were selected to illustrate different types of office buildings. They have sought to determine the following:

1. Study the use of colour with regard to the concept of building.
2. Study the real state and analyze the how colour theory is applied on buildings.
3. Identify the impact of colour on the user by a questionnaire of survey.

## **7) Scope and Limitations**

Colour can be used to enhance several qualities like spatial progression, the quality of each space and form. Therefore, this is laterally as well as the vertically vast subject.

This dissertation is limited to a study of using colour and psychology of user's in different office buildings. Use of colour, affects the mood of the user mostly in the interior of the building. Therefore, in here interior colour usage was highlighted.

The case study is based on procedure. Therefore, examples are selected from different local Architects who have used colours to achieve different concepts.

In addition, this study is colour based. Therefore, it should be mentioned that the photographs and drawings might not be very successful as presumed hence architectural space is always three-dimensional space.





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## **CHAPTER ONE**

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### **ARCHITECTURE AND COLOUR**



## CHAPTER ONE - ARCHITECTURE AND COLOUR

### 1.1. Definition and Purpose of Architecture

Architecture is the articulation of space. So as to produce in the particular a definite space experience in relation to previous and anticipated space experience" Bacon, N.E. 1982

Architecture is spatial experience through the articulation of spaces. As well as, it is mainly for human being.

"Architecture is that great living creative spirit which from generation to generation, from age to age proceeds persists, creates, according to the nature of the man, and his circumstances as they change. That is really architecture" Frank Lloyd Wright.

According to the above statement, it is not just only a spatial experience but also it should create meaningful spaces as for fundamental architectural need, which is physical and psychological comfort of the people.



Fig1: Spatial Experience  
Source: By Author

Antoniadis C.A. 1980 further describe Architecture is many things in one. Something tangible, others intangible. Something visible, others invisible. Where all things tangible and intangible, visible and invisible are in balanced harmony themselves and with the rest of the world, constituting useful and mind-elevating whole, then this whole is architecture.

"A thought which reveals it self without word or sound, but solely by means of shapes which stands in a certain relationship to one another. These shapes are such that they are clearly revealed in light. The relationships between them have not necessarily any reference to what is practical or descriptive. There are mathematical creations of mind. They are the language of architecture. By the use of raw materials and starting from conditions more or less utilitarian, you have established certain relationship, which have established certain relationships, which have aroused my emotions. This is Architecture". Le Corbusier (conclusion of Form space and order)

"Architecture is very special functional Art. It confines space. Therefore, we can dwell in it. Create the frame work around and lives" Rasmussen S.E. 1985



## 1.2. Expression and Communication in Architecture

Expression is resultant of experience of over day-to-day today life. As Rao Hanumantha explains, cries of mammals, the colour change of salamander, the frolicking of a calf grimace of an ape are all expressions.

Term 'Expression' implies individual identity that needed to convey and Expression is not limited to living organism, but lifeless colours of sky, sound of the sea, rock stands with mountain are also convey certain feelings. In the same way, architecture expresses and communications qualitative attributes of architectural space.

"Architecture is never simply exists, it also communicate; it has content; it conveys messages" Abercrombie, S. 1984

When expression creates a dialogue between perceiver and product, it is communication.

Architecture is an art, because it is an effective medium of expression. It is an art because it communicates symbolically rather than directly. It is an art because symbolic communication adder it self to the super conscious levels of the mind and is therefore more effective. Sri Nammuni, V. 1985

All live ones in the world do communication. There are different forms of art such as poetry, painting, drama etc. In brief, communication is the mode of conveying messages to others. As an art form, architecture do communicate its meaning it self. How does architecture communicate?

'Architectural expression' is conveying spatial identity, but not only an outer identity but also identity or a meaning of the inner. Spaces should order in to a particular manner to give the architectural spatial

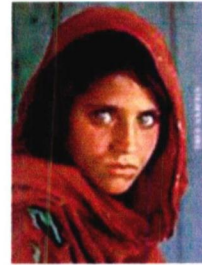


Fig 2: Facial Expression  
Source:  
[www.phaidon.com](http://www.phaidon.com)



Fig 3: Expressions and Communication  
Source:  
[www.weekendavisen.d](http://www.weekendavisen.d)



Fig 4: Ballet as Medium of Expression  
Source: [www.creteweb.gr](http://www.creteweb.gr)

experience. Expression could be done in tangible or non-tangible according to spatial orchestration of the building. These messages are conveyed through architecture, it becomes architectural Communication. Architectural Communication is the evoking sixth sense other than the sensations mentioned by, eye, ears, nose, tongue, and skin. In addition, it goes beyond the intellectual level to spiritual level.

### 1.3. Qualitative Attributes of Architecture

A feeling of relaxation can be achieved by placing familiar and likeable elements in familiar surrounding, expected order; simplicity the use of small scale; placing and soft sand a acceptable temperatures; soft flowing forms; lines and shapes; little contrast; soft (indirect) light; analogous colour (white-blue-green) easy movement and pleasant smells. Nammuni V.S. 1985

Anything in the world has their own qualitative attributes, it is same for the live or non live things like colour of sun the rise, coolness under of 'Boo' tree, waves of ocean etc. those qualities are change with some effects like time, area etc.

Architecture has qualitative attributes of its own. A building has an entrance and an exit. To be the live piece of architecture it has to include a lot of characteristics or Qualitative Attributes. These qualities should represent what does the building should be and what does the building should do. Then it communicates through the expressions to person who experience the building.

In achieving architectural Qualitative Attributes there are three factors which can be identified. They are form, spatial ordering and architectural details.

#### 1.3.1. Form

Generally, Form refers the character of volume and Form determined by a size and shape. Weber, R. (1995) asserts, "Form refers to the appearance of things, but not to their significance or meaning. The role, form plays in the experience & judgment of Architecture"

So far, architecture is perceptible as a profession, Architects have pondered the concept of form. In

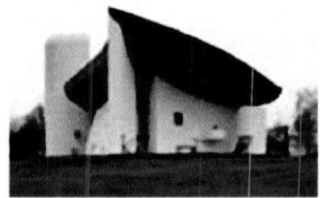


Fig 5: Form of space  
Source:

[www.demel.net/fs-ronchamp](http://www.demel.net/fs-ronchamp)

there clarifications, Architect like Le Corbusier gave considerable attention to compositional principles of beautiful and harmonious form. Yet is the form of a building the same as its shape? Does it include colour or texture?

Although Louis Sullivan, (1959) expresses "form follows function" by experiencing function one cannot get an idea of the form.

"Form follows function" has become spiritually insignificant: a stock phrase. Only when we say or write 'form and function are one' is the slogan significant. Frank Lloyd Wright (1953)

### 1.3.2. Spatial Ordering

"Architecture is an orchestration of spatial ordering"

Ching, F.D.K. (1979), spatial ordering describes his book, 'since we move in time through a sequence of spaces'.

The term of spatial ordering in architecture implies the orchestration of sequences of spaces in an orderly manner. This is not just for visual satisfaction but also for total emotional experience, which a person encounters when moving through those spaces, if this total experience is to be satisfactory it should convey a meaningful message.

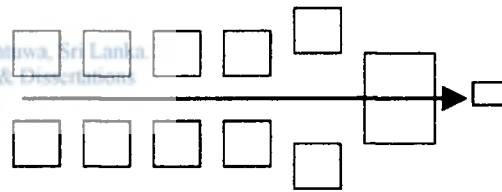


Fig 6: Spatial Progression  
Source: by other

An architectural product is a series of spaces. The spaces should be organized in a particular manner, with a directional sense. Series of building approaches can be identify as listed below,

- Building approach
- About to enter
- Entering
- Having entered

Progression

Interim (or false) climax

Climax

Uuh - Coming back point.

Exit

It is clearly indicates the starting point, terminating point with the progression of movement manipulating in such a way. The sense of progression towards a climax, is achieving by manipulating of spaces with different qualities, which gives different sensations at different stages of progression



Fig 7: Spatial Progression  
Source: by other

### 1.3.3. Detailing

“Essence is the form, Detail is the shape” Sri Nammuni V. 1993

While creating form is the primary function and shaping the form is a secondary force of the design. It is applicable to all designs not only an architecture.

Colour, texture, pattern, light and shadow, and solid void ratio all include as detailing. Detailing in Architecture is shaping the form of product to establish what form wants to express and communicate. It enhances the meaning of the space as well as physical attributes of the space.



Fig 8: Details in nature  
Source:  
Essential House Book



Fig 9: Details in Architecture  
Source: By Author

## 1.4. The Theory of Colour

### What is Colour?

The Universe is a magnetic field of positive and negative charges, constantly vibrating and producing electromagnetic waves. Each of these has a different wavelength and speed of vibration; together they form the electromagnetic spectrum.

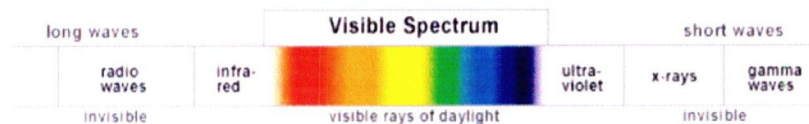


Fig 10: Electromagnetic colour spectrum  
Source: <http://www.hauntedhamilton.net>

Visible sight is about 40% of the colours, contained in sunlight. Therefore, although white light appears colourless and intangible, it is made up of distinct colour vibrations, which have not only wavelengths but also a "corpuscular structure." The radiant energy of pure white sunlight is a vital factor in nourishing our bodies, our minds, and our spirits, and each colour vibration has its own healing qualities.



### 1.4.1. Colour Wheel and its components

Arranging colour spectrum around a circle is defined as colour wheel. This shows that certain colours fall opposite to each other. Each colour has a complimentary or opposite hue. Consequently, the colour wheel has three complementary pairs.

Colour can divide in to 3 sectors.

1. Primary colours
2. Secondary colours
3. Tertiary colours

### Johannes Itten

developed his colour-wheel early this century it remains one of the most popular schematic displays of the relationships between the subtractive colours

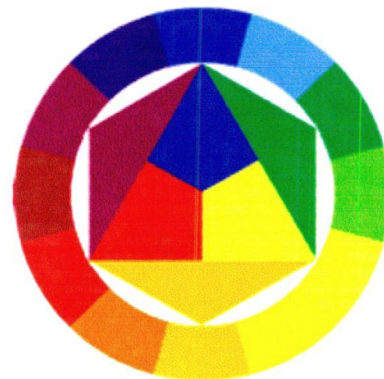


Fig 11: Johannes Itten's Colour Wheel  
Source: <http://www.labyrinth.net.au>

### 1) Primary colours

The colour wheel is based on the three primary colours (Red, Yellow and Blue) placed evenly around a circle. Primary colours are basic and cannot mix from other elements. They are to colour what prime numbers are to mathematics.

### 2) Secondary colours

A combination of any two primary colour pigments, end up with another trio of pigments: red and yellow make orange, yellow and blue make green, and red and blue make violet. These are the three secondary colours

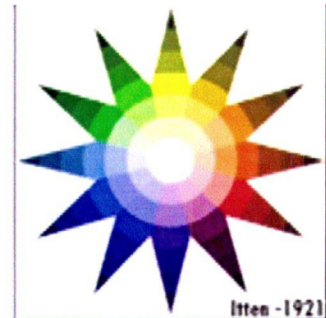


Fig 12: Johannes itten's colour star

Source:

<http://www.hauntedhamilton.net>

### 3) Tertiary colours

Tertiary colours are making by mixing visually equal amount of a primary and a secondary colour together.

### Cool colours

Colours ranging between blue-violet and yellow-green on the chromatic circle i.e. blue-violet, blue, blue-green, green, yellow-green.

However, interaction between colours may cause a hue such as yellow-green to appear colder if it is placed next to a warm colour, such as red, or warmer if it is placed next to a cold colour, such as blue.

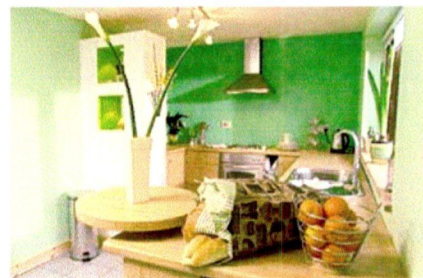


Fig 13: Use of cool colours

Source: <http://www.paintcafe.com>

### Warm colours

Colours ranging between yellow to red-violet on the circle i.e. yellow, orange-yellow, red and red-violet.

However, interaction between colours may cause a hue such as red-violet to appear warmer if it is placed next to a cold colour, such as green, or colder if it is placed next to a warm colour, such as orange.



Fig 14: Use of warm colours  
Source: <http://www.paintcafe.com>

### Neutral colours

Neutrals are one of the easiest groups of colours - or non-colours - to work with. They don't appear on the colour wheel and include Black, Grey, White and sometimes Brown and Beige. They all go together and can be layered and mixed and matched. None will try to dominate over another.



Fig 15: Use of Neutral Colours  
Source: <http://www.paintcafe.com>

### 1.4.2. Dimensions of Colour

There are key words that relate with colour, similar elements of some major subject. Those key words introduced here to know well about colour system. The world renowned Munsell System describes each colour according to three attributes: hue, value and chroma (saturation), terms that allows all those interested in colour to speak the same language.



Fig 16: Munsell System  
Source: <http://www.paintcafe.com>



**Hue:**

The quality distinguishes one colour from another. Each hue in the spectrum has its own characteristic. Some are bright, some are dull; some are dark, some light, some are strong, some weak. In addition, when juxtaposed, hues affect each other's appearance. It is, for example, what differentiates blue from yellow.

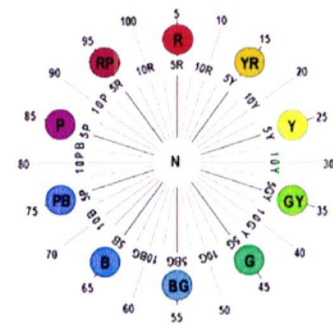


Fig 17: Munsell System  
 Source: <http://www.paintcafe.com>

**Value:**

It refers to the position of lightness from a darkness of a colour in relation to the vertical grey scale. Value allows qualifying hues as pale or dark, or light and dark. For instance, Pink and Brown are different values of the same basic hue - Red.



Fig 18: Vertical spread of colour  
 Source: <http://www.paintcafe.com>

**Chroma (saturation):**

It describes the horizontal spread between a hue of the same scale value as neutral grey. Chroma allows us to describe a colour as saturated or unsaturated, or as bright or grey-tinted. Adding grey makes the hue less saturated or more unsaturated. A hue can also be modified with the addition of some of its complementary colour.



Fig 19: Horizontal spread of colour  
 Source: <http://www.paintcafe.com>

### 1.5. Colour and Nature

"Nature is never modular. Nature is full of almost similar units (waves, raindrops, blades of grass) but through the units of one kind are all alike in their broad structure no two are ever a like in detail" Alexander, C. (1997)

Nature is the beginning of colour. In nature colour developed with vast area like function, life, seed processing. Nature is the best way to examine the variation and the similarities of the using of colour. As Alexander, C. (1997) further describes '...there is always

variation and uniqueness in the way the patterns manifest themselves.'

In nature, there are many references to colour harmony and colour contrast. There are many theories and formulas for colour harmonies and contrasts. The following illustrations and descriptions present some basic formulas.

This figure 21 shows a colour scheme based on analogous colours

Analogous colours are any three colours, which are side-by-side on a 12-part colour wheel, such as yellow-green, yellow, and yellow-

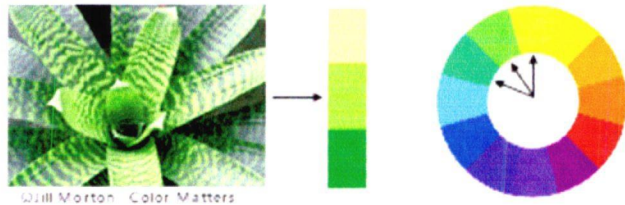


Fig 20: Use of harmony colours  
Source: <http://www.paintcafe.com>

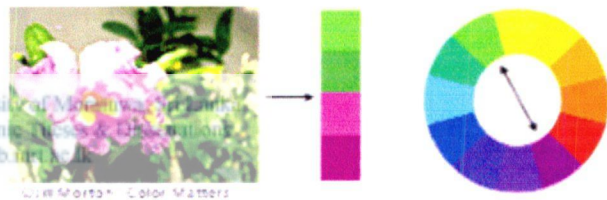


Fig 21: Use of complementary colours  
Source: <http://www.paintcafe.com>

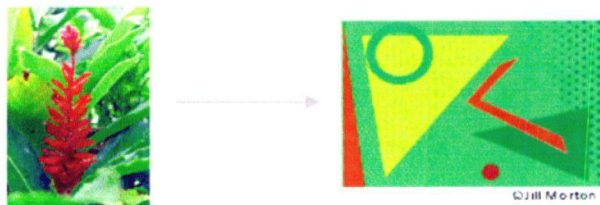


Fig 22: Use of creative colours  
Source: <http://www.paintcafe.com>

orange. Usually one of the three colours predominates.

Here this figure shows a colour scheme based on complementary colours <sup>2</sup> H 2.

Complementary colours are any two colours, which are directly opposite each other, such as red, green, red-purple, and yellow-green. In the illustration above, <sup>2</sup> there are several variations of yellow-green in the leaves and several variations of red-purple in the orchid. These opposing colours create maximum contrast and maximum stability.

Figure 22 implies, a colour scheme based on nature. Nature provides a perfect departure point for colour harmony. In the illustration above, red yellow and green create a harmonious design, regardless of whether this combination fits into a technical formula for colour harmony.

### 1.6. Meaning of Colour

From ancient time, human beings respond to colour. It is evident in different cultures and, traditions. Emotional expression and powerfulness of the colour are part of life in human beings. For instance, origin of wearing white for bride, it remains purity, blessing, sincerity, etc. the origin of wearing black for death, remain in fear and sorrow.

<sup>2</sup> "High saturation colours may be considered advertising, exiting, loud or clashing ; low saturation colours may be considered receding, soft, blend; serene or quite." Miller, Mary C. (1997) .

Most of meanings of colour are associated with visual experiences. Symbolic, meanings of colour are associated with people, functions, customs, tradition, etc. The same colour gives a plus meaning or else minus meanings according to its associations. For example Blood Red, visually express means of danger or excitement or energy. A Red Rose expresses love.

Below indicates some of the major colours and meanings of its use.

White is mainly for the protection, purification, calm, blessing and simplicity. Eastern people believed it has healing power and pure focused energy because white is strengthens the powers of other colours.

Gold is connection with higher powers and divine inspiration. It has spiritual energy, it also expresses wealth of the person and it implies attraction and abundance. Gold also has leadership quality because visually sun is of the gold colour.

As discussed above, Red involve for excitement, self-assertion or energy, courage. It Also depict red is for love, sex, attraction and magnetism. Red of the Fire gives warmth and action.

Pink is for affection and romantic love, compassion, friendship, benevolent forces, understanding, diplomacy, purity, healing of the feminine

Orange depicts energy, attraction, self-control, organization, self-esteem, warmth, adaptability, vitality, joy, kindness, alertness, creativity, harvest, maturity

Purple means power of the mental. It has ceremony power, so it is use as royal purple. Specially mental healing and combating disease and infections is major role of purple. Purple is also for spirituality, psychic healing, meditation, judgment etc

Power of a body and activeness shows the yellow. Yellow is again for attraction, communication, eloquence, intellect, confidence, travel, concentration, agility, inspiration, happiness, luck, optimism, faith, and balance

Green money, prosperity, healing, growth, employment, fertility, success, health, harmony, new beginnings, renewal (think of green plants)

Blue healing, relaxation, peace, truth, wisdom, clarity of expression, serenity, meditation, harmony, calm, devotion, spiritual understanding, introspection (think of a clear blue sky or the ocean)

Black banishing, absorbing negativity, exorcisms, the presence of all colours

Power  
worthy

dark  
space



## 1.7. Colour in Architecture

"Colour can reinforce design-adding layer of meaning to the parameters of a space. A different hue might define each architectural element. Drawing attention to the overall structure or colour, many highlight just one grand detail. It guides the eyes through entire building, showing how the rooms flow in to and art of each other like the regions of the spectrum" Kafman, D. (1992)

Colour is an element of shaping the form. Colour can affect to a building to give the exact meaning of the outer as well as inner.

### 1.7.1. Schemes Of Colour Use In Architecture

There are several combinations to using colours in a building. Changing "mood" is depends on how colours relate with one another. There are two types of primary colour schemes and the First is related and second is the contrasting.

#### 1.7.1.1. Associated schemes

This refers to promote harmony and unity. In addition, it is pleasing to the eye. According to Ching F.D.K. (1987) associated scheme again classified as Monochromic and Analogous.

##### 1) Monochromic colour scheme

Monochromic colour schemes are drawn from shades, tints and tones of one hue or natural colour. They are the safest, most conservative of colour combinations, and are widely used as backgrounds in interior. Miller, Mary C. (1997) p6

This is the easiest type of colour arrangement. A monochromatic scheme or tonal scheme means use just one colour but in varying tones from light to dark. Choosing everything in the same tone and colour scheme will look properly bland.



Figure 23 shows the monochromatic colours, on the outside are the pale tones, which graduate into the middling tones and on into the deeper tones in the centre.

Using texture and pattern can aggravate the potential monotony of using one colour. One colour is more successful when they are enlivened with a second colour.

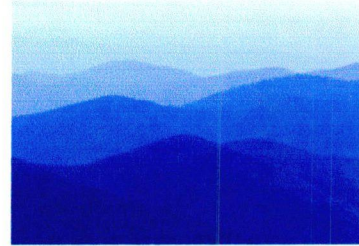


Fig 23: Natural example for The monochromatic colours  
Source: [www.webshots.com](http://www.webshots.com)

## 2) Analogous Colour Scheme

An Analogous or harmony colour is one that sits next to another on the colour wheel or very close to it. For example, red is near rust, which is near terra cotta.



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It's very easy to create a balanced, unified scheme that is pleasing to the eye using harmonious colours. Basic principle of this style is to achieve the warmth that is convenient to the user.



Fig24: Natural example for the analogous colours  
Source: [www.labyrinth.net.au](http://www.labyrinth.net.au)

In French Room, book by Wilhide E., (1989) mention her, this style as 'a way of life'. Here arrangement of harmony is always comfortable for user and it gives welcoming. It shows building and user are no more two things but a one. It insists of an approach, which relies on an affinity of tone and design.

"In the style of harmony, Variety can be making by varying value and intensity. Colours in harmony, is strong and enveloping. This means to generate introverted atmosphere". <http://www.labyrinth.net.au>

### 1.7.1.2. Contrast Colour Schemes

Contrasting hue schemes are based on complementary or triadic colour combinations. According to colour theoretician Johannes Itten, colour contrasts are divided into seven categories.

In the colour wheel opposite colour is the contrast colour.

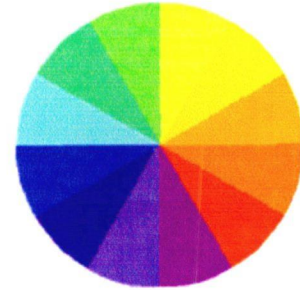


Fig 25: Colour spectrum  
Source: [www.colourmatters.com](http://www.colourmatters.com)

#### 1) Complementary Colour Contrast

A complementary colour scheme is created by mixing opposite colour and colours in different concentrations to achieve a balance of tones. This is the most stimulating of all, because when complementary colours are used together, one colour always gives the impression of being warm and other colour of being cool. As example, red and green of an apple, or the purple and yellow of an iris



Fig 26: Natural example for the complementary colours  
Source: [www.colormatters.com](http://www.colormatters.com)

Black and white is the fundamental complementary contrast scheme. As well as red with green, blue with orange, yellow with violet are true complementary contrasting colour schemes. Such combinations tend to be bolder, dynamic and visually contrasting more dramatic than harmonious schemes.

#### 2) Pure Colour Contrast

They result from the juxtaposition of saturated colours that are clearly different. These contrasts are at its peak when the three primary colours are juxtaposed to one another.

### **3) Light Dark Contrast**

They are produced by the juxtaposition of a pale and dark colour or of a clear and dark colour. In a monochromatic palette, the use of such contrasts adds depth to the entire palette. In a palette made up of different colours, however, the absence of such contrasts, or the use of hues of equivalent lightness, help to link the different colours.

### **4) Warm Cold Contrast**

They result from the juxtaposition of warm and cold colours, which makes warm hues appear warmer, and vice versa. This type of contrast, which helps balance colour schemes, can be found in many of the Harmony Collection palettes.

### **5) Simultaneous Contrasts**

They flow from the juxtaposition of two colours that are not exactly complementary. In such cases, colours seem to repel one another and vibrate as the eye tries to bring them closer to their precise complementary colours. The use of such contrasts makes chromatic compositions livelier and more interesting.

### **6) Quality Contrasts**

They are the result of juxtaposing saturated and unsaturated colours, or bright and a grey-tinted colours (to which grey or its complementary colour was added). This contrast exists only if unsaturated colours are considerably dominant.

### **7) Quantity Contrast**

They are the result of the juxtaposition of little and much, small and large. The surface devoted to each colour influences their impact on compositions. Creating balanced compositions calls for more than devoting equal space to each colour. The brightness and saturation of each hue must also be taken into account. The lighter a hue, the greater its impact and the lower its need for space. The more saturated or bright the colour is, the more powerful is its effect.



### 1.8. Concluding Remarks

In the Past 'Colours', were uses as a decorative item in various things. However, colour has come to have a deeper meaning today. Colour has vast an area of characteristics. Colour temperature, colour symbolism and psychological meanings of colour can change qualitative attributes of architecture and the mood of user.

Chapter in Architecture & Color.  
But the theories have not  
gone on to include color. It is  
Only a presentation of facts of color  
in disorganized manner.



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## **CHAPTER TWO**

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### **HUMAN PERCEPTION AND COLOUR EXPRESSIONS**

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## **Chapter Two –Human Perception and Colour Expressions**

### **2.1. Human Perception on Colour**

“Perception .... Is anything but a passive reception of impressions” Schulz, N. (1965) p.31

Since the dawn of the race humans have begun, therefore they relate the many varieties according to several circumstances. Those are developed according to their personal beliefs, custom, tradition, culture etc. From the re-birth of science humans try to find meaning of colour not only outer but also inside in

it. Hence colour has power it mainly effects the healthiness of man's mind and soul. That means colour can heal the mind when it is used in the correct way. Human experiences also affect their perception of colour. Certain colours can evoke emotions, smells, and even memories. Advertisers and manufacturers also pay attention to other factors that affect human perception of colour:



Fig 27: Perception on Human  
Source:  
[www.skoletjenesten.dk](http://www.skoletjenesten.dk)

Gestalt psychologists outlined what seemed to be several fundamental and universal principles of perceptual organization. Those are Figure, proximity, similarity, continuity, closure, smallness, surroundedness, symmetry and pregnance.

Human perception can also seem to work in the opposite direction. When a strong signal is present, enabling to hear only what humans like to perceive as meaningful and to ignore anything irrelevant which interrupts.

The brain, apparently, does not preserve sequences systematically but, instead, recognizes overall patterns. Our not necessarily conscious but prior recognition of these patterns enables to unconsciously synthesize gaps such as missing phonemes without noticeable effort (Campbell 269; Schank 14).  
<http://www.labyrinth.net.au/~saul/essays/05lawsPercept.> (04 – 10 – 2003)

Colour is subjective. Therefore, a colour does not exist until it is seen. Although it is subjective, principle perception of colour can be divided in to two ways: as an attribute of object and as separate sensory phenomena.

### **2.1.1.Colour Trends and Traditions**

There are many trends and traditions which can be identified under the colour traditions. That trend or tradition developed under several different circumstances. It has been changed over the years and it may keep changing in future as well. Among those traditions and trends, there can be categorized according to regional, ethnic group, culture, climate religion, nationalities customs etc...in the categories are discussed under general use of colour.

Traditionally Eastern people do not use dark hues like in westerns for day today works. However, it changes with occasional ceremonies. For example, Indian people never use white for weddings. Their wedding ceremony is very colourful.



Fig 28: Indian Wedding

Source:

Film; Bent it like Beckham

In gulf countries, they use earth colours very much while people in tropics use bright colours. Colour usage also differs with seasons and trends.

Before the world war second people tend to use white colour in most of buildings. However, it gradually changed with industrial revolution. Then from the open economy and free market, traditional styles develops in countries come in to make public.

“Contemporary Scandinavian style is very understood in colour as it places more emphasis on the architectural shapes involved than shape”. Burdett, R. (1995) p 13

Throughout Scandinavian style, they serve with whitest shades of pastel pale colours. The brightest colours can found in folk cottages. In addition, one of the most important colour and texture is timber colour.

In Japanese tradition colour does not get much prominence.

Traditionally in Japanese culture, there has never been much emphasis on the interplay of different colours, Pearson D. (1989)p 123

However, they create balance between colour and Natural organic, materials, which they applied, like cane, bamboo, paper, and wood. In Japanese interiors are always flexible minimized and flexible. Boundaries of the room also movable and flexible.

Colour schemes are muted and neutral but with accent colours of red, black, occasionally yellow and the green of sushi.

In Victorian style,

Rich dark colours such as ruby reds and forest greens are typical. The Victorian colour palette was quite limited because chemical processes were still developing. Purple and blue came in by the middle of the century. Most of the leading paint companies now produce good heritage ranges. [www.bbc.co.uk/homes/design/period\\_style/japanese](http://www.bbc.co.uk/homes/design/period_style/japanese) (04 – 10 – 2003)

Within French tradition there are three primary styles called contrasts, harmony and purity. French people believe colour increase there productivity. Although white and whitish colour use in early traditional architecture, contemporary usage of colour is different.

There were some trends also developed on colours. There was a trend began to 80's with more complex colour patterns and also desire for detail. In the same way materiality is express through colours. Warm colours use to create a



Fig 29: Minimal Use of Colours  
Source: [www.bbc.co.uk/homes](http://www.bbc.co.uk/homes)



Fig 30: use of neutral colours  
with contrasting red  
Source:

[www.bbc.co.uk/homes/design/period\\_style/japanese](http://www.bbc.co.uk/homes/design/period_style/japanese).



Fig 31: Use of colours In  
Victorian style

Source: [www.bbc.co.uk/homes](http://www.bbc.co.uk/homes)

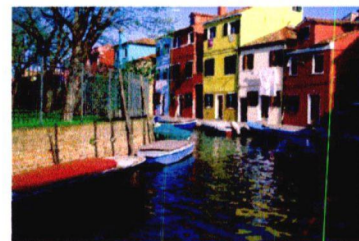


Fig 32: Use of colours in France

sophisticated exclusive environment. But it does not look at user and the function. Although 80s is sophisticated more of 90s trend looked for 'Eco' concept. With the economy race people got stuck with polluted air, dusty environment etc. to give answer to this tiredness world almost turn in to green theories and concepts.

Colour is a affect to health and well being. What ever social cultural aspects may there, psychological side is also come into view in contemporary world.

### 2.1.2. Colour in Sri Lankan Context

Section 2 meaning less

Colour use in Sri Lankan context is lot more in contemporary world than earlier. Colours in Sri Lanka also differ with climate, culture, tradition, custom, national, religion etc. As a tropical country, light colour, that is white and whitish colours most useable colours in Sri Lankan buildings.

It may because of the climate which white has power of reflection and also it does not absorb heat as well. In dress colours also use in this manner. In daytime, under bright tropical sun, light colours are more comfortable than hues. As Example, school dress is pure white. Nevertheless, this is differing at night.

Tamils always deal with contrast colours. In buildings darks with white, in dresses green and red are most commonly use. Their buildings are very decorative and colourful while traditionally Muslims use white.

Although in most of religious places are not use bright hues, in functions it change according to different religions. Buddhist and Muslim people use to prepare in white colours in religious activities while Tamils and Christians use colourful wears.

In colour psychology white, denotes happiness. That is the reason it is used in wedding for bride. All Sri Lankan nationalities other than Tamils accept. Tamils never use white for bride, but use colours like red, gold. Those are fascinating, and attractive colours and they believe it is symbol of wealth. White means poverty according to their manner. As black means sorrow in colour psychology, Christians use to wear black in funeral. However, Buddhist as custom never dress in black, they use to white on sorrowful occasions.

However, use of colour is not restricted to less luminance colour in the contemporary world. People are not fear to use hue or pale colours. How ever achieving concept and quality of space colour is important as well. However, use of colour in a proper way is reducing day by day.

How can you say?

## 2.2. Power of Colour

what is power of colour  
not clear text

Colour has different powers to change the environment, power of healing and more important is it has power to effect to psychology of user. Although Colours are always associated with fundamental moods, there are also varieties of cultural and personal tastes.

David Pearson in 'Natural House Book' indicates 'light colours and tones tend to make a room look larger, while bold, dark tones have the opposite effect. Although dark tones can make a small room feel oppressive'



Fig 33: Black conceded as danger colour

Source: www.haunted.com

source?  
1990

In general, colours are grouped in to warm, cool and natural. Warm colours evoke certain responses such as, red are the most exiting and auspicious; yellows are joyful, lively; pink as health and well-being. Cool colours such as green are pleasant, restful, fresh; blue are peaceful and distant; purples are dignity and spirituality. Warm colours appear as advance where as cool colours are appear to recede.



"We emphasis that colour harmonies, usually the special interests or aim of colour systems, are not the only desirable relationships. As with tones in music, so with colour dissonance is as desirable as its opposites, consonance". (Albers. 1963) - Page?

not in bibliography

Colour can play an important role in satisfying the human need for visual variety, stimulation, and challenge. Excitement requires an element of the new and unexpected. Interesting colour can alert you to your surroundings and keep you in touch with your own sensibilities; if well chosen, colour can delight the eye and elevate the spirit. Miller, Marry C. (1997) p101

### 2.2.1. Colour as Energy

what is energy  
not clear text

"Colour is a power which directly influences the soul. Colour is the keyboard, the eyes are the hammers, and the soul is the piano with many strings. The artist is the band that plays, touching one key or another to cause vibrations in the soul" Wassily Kandinsky- www.labyrinth.net.au/~saul/essays/05colour. (04 – 10 – 2003)

Colour makes neutral spaces warm, for example, orange make dead space warm. Power of the colour again can change with the way of using it. If it use vertically it feels advance of the height with warm. If it use band of horizontal way it feels low scale space with warm.

Colour used in different ways; instead of horizontal or vertical bands or lines or sponged etc... That also affects the shape size or small, large quality of space.

The ancient Egyptians, Chinese, and Indians had believed in chromo therapy, or healing with colours. In chromo therapy, red is believed to stimulate physical and mental energies, yellow to stimulate the nerves, orange to stimulate the solar plexus and revitalize the lungs, blue to soothe and heal organic disorders such as colds, hay fever, and liver problems, and indigo to counteract skin problems and fevers (Paul '89). Most people have sceptical opinion about colour healing; however, in the medical profession makes use of colour in certain treatments. For instance, premature babies with jaundice are cured by a chemical reaction triggered by exposure to blue light for several days. The relation between blue light and jaundice is beginning to be well understood scientifically. // (Kaiser, '84) [www.shibuya.com/garden/colourpsycho\(04-10-2003\)](http://www.shibuya.com/garden/colourpsycho(04-10-2003))

“Large intervals between the colours and values will create lively contrasts and dramatic effects. Small intervals will result in more subtle contrasts and patterns” Ching, F.D.K. (1987) — Page

Colour can be used in built environments as a power generating factor. Colour affects the sizes shapes and location of the things and sizes and shapes of enclosures. Colour makes place advance or reduce, For example white makes place large and black makes place smaller. White walls, surfaces expand the space where as black close.

Light and dark are another element of colour of energy. As example, dark and gloomy space can light up on all six planes with paint of white. Colour always interacts with the user. It affects the mood of the viewer, it delights or depresses, it stimulates or calms. Black is most heat-absorbing colour so use of black in cold climate is advantage.

According to Feng Shui, with Architectural use of colours are great sources of help in improving one's own life, as they are forms of energy whose vibrations can



substantially modify one's perception of space. Thus, painting a room in blue will make it appear colder, while painting the same room in yellow will create an illusion of warmth. Colours are also used to increase whatever effect one looks for in a room. Hence, in choosing colours, using its full amount of energy is depending on the room's function, user, lighting, size etc.



### 2.2.2. Colour and Communication

*Two paragraphs*

"Colour has a life of its own, and breathes life into the space, giving vitality—and that special spark! It is the colour, which animates the building, finishes, and must be part of the total environment from the earliest stages of architectural design. I work with the whole team to bring the space to life." <http://www.livingcolourstudio.com.au>

"Colour is communication – a language all its own. With colour, you can communicate an enormous variety of messages". Miller, Marry C. (1997) p6

Communication is conversation between two or more people regarding something. It meant conveying ideas attitudes views etc... to communicate there has to be some meaning. with-out meaning there can be nothing doing with communication. To give birth, to meaning, it must have expressions. Consequently, expression, meaning and communication are three elements attached together.

*What are they??*

There are several types of communicative properties. Colour has temperature. There are hot colours such as Red, orange yellow etc. those are give worm quality. Where as green, blue gives cold quality.

"Colour can be music to the eyes; it is more relevant to poetry, music, and art than physics or psychology, or behavioural engineering. Transcending function and practicality, colour engages feeling before reason and intellect."

Miller, Marry C. (1997) p7

As continue to be affected by use of colours in ways that reflect these evolutionary biological purposes and responses. In design contexts colour is a central component of communicating information on both a conscious and unconscious level.

Colour contains information: ex, the green/amber/red succession is now so deeply embedded in contemporary culture that its use is always read as stop / wait / go.

Maps often display colour scheme that make them easier to read and understand -- colour areas of water blue, shading landforms in tones of green and brown to indicate topographical features etc.

There are four known ways that can be identified as communicative aspect in colour.

1. To attract attention: ex, coloured fruit signal that they are good to eat; flowers signal their presence to insects.
2. To warn: ex. sensationally coloured reptiles and insects signal that they are poisonous
3. Camouflage and mimicry
4. To stimulate the emotions: ex. some animals use colour to signal that they are available for mating and are better than their peers

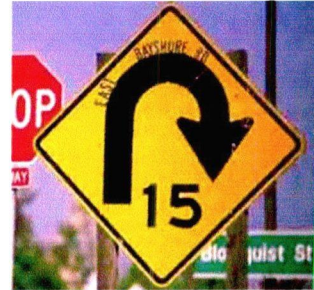


Fig 34: Colour as Communication Media  
Source: [www.riverdeep.net/current](http://www.riverdeep.net/current)

“Colour is used to draw attention to important information; bright or highly contrasting colours draw the eye more quickly than subtle and low-contrast palettes. Certain colour schemes are used to appeal to particular audiences, to create a particular mood or to denote particular values; ex the use of green and brown hues are used to connote that a product is environmentally-friendly, natural etc.: pastels and flowery shades that a product is soft, comfortable and unthreatening. Colour helps people to differentiate and remember information. Obvious examples include the use of different colours to code wiring and pipes in industry: colour to define identity such as national flags, sports-teams uniforms”.

<http://www.labyrinth.net.au/~saul/essays/05othersens.html>

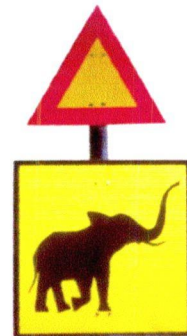


Fig 35: Colour as Communication Media  
Source: Coral Clip Arts

Colour communicates powerful messages without words. Colour experts have determined that "classifier colours," such as burgundy, narrow the market for a certain product, while "declassified colours," such as orange, tend to broaden the

appeal of a product. These classifications can be applied to concepts related to product packaging, interior design, and car colours.

The younger people, the more essential the colour message, and kids want and expect bright, vivid colours. Hot, bright, neon colours appear on backpacks, clothing, and bicycles. Sometimes kids choose a colour, slime green for example, just because it repels their parents, thus making it more appealing.

"Some colour experts predict that numerous shades of copper, bronze, and metallic colours will appear over the next few years to conform to a more "high tech" view of colour. These complex colours say "exciting" and "new," and appeal to our sophisticated visual expectations. <http://www.riverdeep.net>(04 – 10 – 2003)

### 2.2.3. Colour and Sense

Faber Birren defines this commonality of the colours of the spectrum by associating each with two moods. The warm colours are active and exciting such as a red and its neighbouring hues. The cool colours, which are passive and calming, are blue, violet and green. Likewise, light colours are active, while deep colours are likely to be passive and colour and senses are differ along gender, ethnic, or cultural lines as well. As example, In North America, white is associated with snow, youth, and bridal gowns. However, in China, white is the colour worn for mourning. Among Caucasians, red commonly sends a message of power. However, among Hispanics, bright blue sends the same message.

"Colour, like music, offers an unlimited range of expressions and atmospheres. What some may call the 'boldness' of our work often lies in the fact that it is conscious about its colour-influenced character and hence is identifiable, as opposed to the 'incidental' colour found in much of our environment". <http://www.framemag.com/articles>

"Colour, which like music is vibration, captures that which is most general, and consequently, most elusion in nature." Martina Duttman

Below example shows the differences with colour on the same place. Different colour schemes make the different sense in the same place.

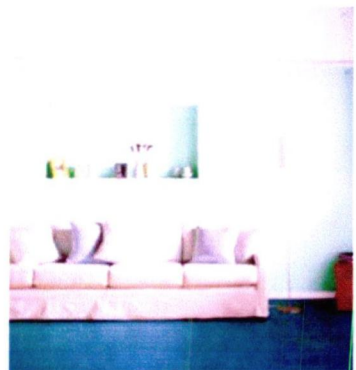
Fig 36: white makes spiritual quality  
Source: The Colour Book



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Fig 37: Bright colour makes happier  
Source: The Colour Book



Fig 38: Blue makes natural calm quality  
Source: The Colour Book



The various colours group presents various emotional expressions. Use of colours always affected its user. As an example when using dark colours; it makes one feel very gloomy and scared but when using bright colours; to same environment, it creates happy and pleasing feeling. This theory can apply to paintings as well as to a place.

In the book called, Colour for Interior Architecture Miller, Marry C. (1997) says, <sup>Page</sup>

Whatever practical uses interior colour may serve, its ultimate purpose is to elevate the spirit, to make life more enjoyable. Colour is the music of design, and as with music, mastery of colour use requires both intellect and artistry; discipline and experience must augment innate talent. <sup>h</sup>

Further describes, <sup>h</sup>

The impact of the visual environment on our psychological and spiritual well-being, however, must be taken seriously. By engaging us with our surroundings, colour contributes to sense of being aware and alive. Colour affects how feels are about others and oneself and "good" colour is presumed to promote satisfying human relationships and to make mundane task of life more enjoyable.

In a sense, it is about connectedness, sequence, and order qualities, which are inextricably linked to the way human view the world around human. Might even say that narratives represent a reflection of human tendency to perceive the world in terms of intentional or causal states, it is a reflection which produces an orderly, predictable, and complete world within a static structure. Therefore if this mode of perception is part of what makes narratives so attractive to, it becomes important a component of lives.

### 2.3. Concluding Remarks

Colour use developed under many trends and traditions according to human perception of colour and power of colour. Any country gets colour perception its own way. In Sri Lanka also use colour is different according to environment, tradition, customs etc. because colour has energy it feels, sense to human and it communicates the meaning of its usage.

- not properly structured  
- Just giving strong that colour  
- The reason & definition are not given.

not detailed



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## **CHAPTER THREE**

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### **THE COLOUR EXPRESSIONS AND PSYCHOLOGY OF USER**



## **Chapter Three - The Colour Expressions and Psychology of User**

### **3.1. Concept of Office Environment**

In today's busy world, people are increasingly aware of the benefits of a home, which provides a comfortable, development and supportive place from the strictness of everyday life.

Businesses are taking in to account of how their environment and premises are presented to customers, staff and the public. Because first impressions go a long way towards success in business, a warm, welcoming environment is considered very favorable.

“To be able to carry out the intentions man has to understand spatial relations and unify the in a space concept. The space schemata are culturally determined and comprise qualitative properties resulting from the need for effective orientation to the environment”. Schutz N.C. 1971 p 11

Office is a working space that mostly deals with responsibilities and duties. Consequently, it is more stressful space rather than being funny or exciting. Therefore, environment of the office place should always affect to user the do their works effectively and a in more relax mode.

There are two kinds of users in office, permanent users and temporary users. Both of these users are affected by the environment of the place. Even though there are, two kinds of users eventually most affected is permanent users.

Some offices are crowded and some offices are less crowded. According to the accumulation of the place, light and shades of the place, concept may differ. There can be two different themes are together in the same office. For example in a bank, it must be friendly to the customer as well as high secure

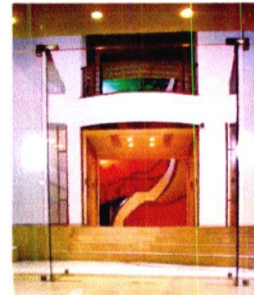


Fig 39: Highlighting the entrance with colour  
Source: <http://www.dulux.com>



Fig 40: Reception Counter  
Source: [bbc.com](http://bbc.com)

because it deals with money

As described in chapter one spatial orchestration in an office is not just only for visual satisfaction but also for total emotional experience .To achieves this, the spaces should be organized in a particular manner with a directional sense.

In office environment, entrance would clearly indicate because it is the most important place to before the main space or a climax.

Colour takes part in significant responsibility as to achieve the above purpose in giving this sense of progression towards a climax, which deliberate manipulation of spaces with different qualities at different levels. These qualities would make different sensations at different stages of progressions.



Fig 41: Enhancing the important elements  
Source:www.greatebuilding.com

This is an orchestration of space to create a certain progression, so that one is oriented towards the required directions with the correct emotional impact, which convey the correct message. Here it creates the built environment a meaningful space of people to behave, accommodate & feel comfortable with psychological impacts & stamp & image. Thus, the sensitive orchestration of the main spatial progression of buildings eventually express their differences, individuality & their purpose. Obviously, this leads to create better & meaningful built environment.

### 3.2. Colour & Context

Colour has certain purposes. Some dominate others, conveying information, stimulating emotions, deception the reality etc...

Buildings should always relate to the context which can be identified as adjacent older building through design elements such as scale, proportion, configuration, pattern, materials, color, texture etc. but context does not only give a meaning of front elevation, but mean as whole.

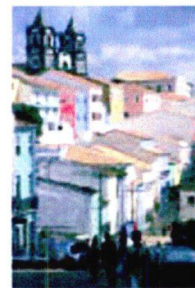


Fig 42: use of colours in context  
Source:  
<http://www.paintcafe.com>



Colour in context approach is the most challenging as it involves most subjective judgment like how it is good in contemporary architecture. To give attention, attraction or to give message colour can be use in different ways. It gives a particular identity to the area. As example, Heights, proportion of building's front facades, proportion of the openings within that facades, rhythm of solids & voids in front facades, rhythm of spacing of buildings on streets, rhythm of entrance & porch projections, relationship of materials texture, architectural details, roof shapes walls, landscaping, ground cover, scale, directional expressions of front elevation etc.

### 3.2.1. Use of Colour schemes in Office Environment.

Colour can be used to bring a building to life, and to inspire and support those who live or work there. Frequently, in an office, the interior could be change with details, furnishing etc. However, a simple change in the colour scheme can breathe new life into a building, and it may highly effect to user of the building. There are no differences any longer in what colours are acceptable in homes, and not in offices—or vice versa. The differences in lighting, may effected to how colour works in a smaller or larger space.



Fig 43: Grey Office Environment does not feel cheer up  
Source: bbc.com

Colour impacts upon the concentration and productivity of office workers. As ex, power of colour the perception of temperature in a space—so a grey office, black computer, black blinds are not helpful for workers' comfort, or for productivity.

How colour schemes are, evolve use in increase the productivity?

<http://www.livingcolourstudio.com.au>, Web site introduced that how the harmony and contrast work in office building. "Working with opposite colours is one of the most important aspects of composing colour themes and schemes—a bit like human relationships! So when trying to satisfy different tastes and personalities when choosing colours, it is important to explore the spectrum and a colour wheel.

A basic approach is to use colours, which appear opposite to one another in a colour wheel. The harmonious effect of colour is the human response to a conscious application of the emotional, physical and metaphysical aspects of colour. Taking all these elements into consideration means creating a dynamic between the energies of the people using the space, the reflected colour from surfaces and objects and the changing colours which occur in response to natural and artificial lighting.”

In addition, colour schemes in office, they use to have co-operated colours to their scheme. It may lift up their own motto or a symbol. However, this usage is badly impact to the user, because colour has its own psychology to express their qualities. If colours use according to colour psychology it is effect to user and increase their efficiency.



As example, Figure shows up lifting way of use of colours As CIC Paints deals with paint and colours, the Concept was evolved by referring Master Palette. Insides of the cubicles are of cool colours that frame the warm colours, outside. A common colour was used to tie these colours. The yellow brush strokes on the wall and the yellow colour senveeneer tabletops tries to tie the place while lightening it. Neutral colour black and silver supports this tying. Silver ties the space upwardly while black ties the space to the base. Subtle means of colour selection, style and size is used to maintain the hierarchical order of the staff in the interior.

Fig 44: CIC Office use of warm colours according to their motto.  
Source: By Author

Using the same colour in different buildings does not make the same quality or result. Architects should process the proper skill and knowledge to make use of such colour meaningfully to achieve appropriate spatial quality.

Office building more prominent and if it is public, it must have inviting quality. Entrance of the building more important, and must be handled very carefully, in uplifting the character of the building.

### 3.3. Colour Expressions and Impact to the Psychology of User

There are many colour expression impacts psychology of user, which affect the life of buildings. A particular aspect or a function in a building may change with colour that use for the building. As example, Heights, proportion of building's front facades, proportion of the openings within that

facades, rhythm of solids & voids in front facades, rhythm of spacing of buildings on streets, rhythm of entrance & porch projections, , architectural details, scale, directional expressions of front elevation etc are change with use of colours.



Fig 45: In retail shop, odel winter cloths selling area. Used according to the concept of the place  
Source: ODEL Unlimited

Colour create new life to the building as well as it create appropriate mood for user. A different colour makes different expressions. Colour expresses the temperature (cool / warm) weight (heavy / light) smell (fresh or innovative) sound (louder or soft) and emotions (fun or sorrow)

Expressions according to colour,

- red: urgency, passion, heat, love, blood
- purple: wealth, royalty, sophistication, intelligence
- blue: truth, dignity, power, coolness, melancholy, heaviness
- black: death, rebellion, strength, evil
- white: purity, cleanliness, lightness, emptiness
- yellow: warmth, cowardice, brightness
- green: nature, health, cheerfulness, environment, money, vegetation

These all expressions are in buildings. To identify those expressions easily it is categorized under four ways. Those are,

Form and space

Scale and proportion

Volume

Architectural Details

Each category looked in to these parameters. How it promotes a positive atmosphere, increases productivity, from colour is it got interest, individuality and value to building, increases perception of energy and warmth, elevates self confidence, presents the correct image and attracts people to its business, identifies function from colour, enlivens dead spaces etc

### 3.3.1. Form and Space

"Space constantly encompasses our being. Through the volume of space ... visual form, quality of light, dimensions and scale, depends totally on its boundaries...." Ching, F.D.K. (1979)

Human beings, like all objects, exist in a form-space relationship. Form cannot exist without space, and space is an aid to the perception and appreciation of form. However, people fail to visualize and comprehend three-dimensional forms.

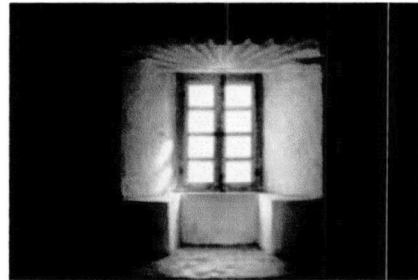


Fig 46: Form and space  
Source: BAWA

The most intangible of all architectural elements, space is also the most important one. Whether a small two-dimensional composition or a large three-dimensional structure, the spatial aspect must be studied thoroughly and used sensitively.

The concept of space, as put forth by Jacob Van Uexkiill, goes thus: "Like the spider with its web, so every subject weaves relationships between itself and particular properties of objects; the many strands are then woven together and finally form the basis of the subject's very existence." <http://www.artinarch.com>

### 3.3.2. Scale and Proportion

“While scale alludes to the size of something compared to a reference standard or the proper harmonious relation of one part to another or to the whole, this relationship may not only be one of magnitude but also of quality or degree.” Ching, F.D.K. (1979)

Scale refers size of the space is relative to other forms in the context or relative to dimensional scale. Scale implies the relationship between one object to the other objects. As example, an office building should be prominent along in the street escape.



Fig 47: Scale and proportions  
Source: Essential house book

“Other structural forms, such as bearing walls, floor and roof slabs, vaults and domes, and roof slabs, also give us visual clues with their proportion as to their role in a structural system as well as the nature of the material.” Ching, F.D.K. (1979)

Although Scale and proportions are constant, from the use of proper colour and use in appropriate way, colour can change the length width and height of the space. Visually space make reduce and advance or lightweight or heavy.

For example, brightly colored spaces generally appear larger than dark ones of equal size. People will judge yellow larger than blue.

### 3.3.3. Volume

A plane extended (in direction other than its intrinsic direction) becomes a volume. Conceptually, a volume has three dimensions: length, width and depth. Ching, F.D.K. (1979)

Although volume has three dimensions, its appearance can change by using colour. For example, warm colours such as orange, red, yellow and pink appear depth of the volume closer. Cool colours such as blue, green, grey, and purple appear distant. An Architect can use these colour properties to enhance separation of foreground and background. The foreground-background separation works best when foreground colour is, bright and highly saturated while the background is de-saturated.

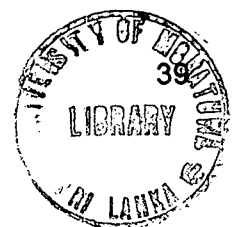
For example, Tom porter 1976 described his book, scientific findings about colour and psychology.

**Brightness, Colour Saturation and Illumination Level, Effect on the Perception of Volume**

Volume	Brightness	Colour saturation	Illumination level
Enlarge	Areas will be enlarged by lightness and small patterns (use to alleviate feeling of oppression or 'closed in')	Pale or De-saturated colours 'recede'. In situations where equipment projects in to a room and tends to make it appear smaller than it actually is, paint the same colour as the ceiling or wall - a very light shade - to make them appear to recede in to wall r ceiling	High
Close-in	Areas will be closed-in by darkness and large patterns	Dark saturated hues 'protrude'	Low

Table 1

In addition to this theory, according to colour temperature, it is described as, 'Warm' Colour Decreases apparent Volume of rooms Cool Colour Increases apparent Volume of rooms



### 3.3.4. Architectural Details

“Essence is the form, Detail is the shape” Sri Nammuni V. 1993

Creating of form is the primary function and shaping the form is a secondary force of the design. This is applicable to all designs not only an architecture.

Although architectural details contains Colour, texture, pattern, light and shadow, and solid void ratio all include as detailing. Detailing in Architecture is shaping the form of product to establish what form wants to express and communicate. It enhances the meaning of the space as well as physical attributes of the space.



Fig 48: Details in stairway  
Source:  
Essential house Book

This category looks at how detailing or deteriorations improve with colours.

### 3.4. Psychological Effects of Colour on People



Feelings and emotions of the human are directly affected by the balance or imbalance of hormones in the body; since colours affect this, they will also have a marked influence on human's moods and feelings. Certain colours can calm one's minds, while others stimulate mental activity. By restoring a balance of Colour energy flowing to the pituitary, metabolic and emotional equilibrium can be restored. This can alleviate stress, tension, anxiety, and depression. Certain colours can help to deal with feelings of loneliness, frustration, and grief.

“Colour rather than shape is more closely related to emotion.” David Katz (1992)

Using Colour to alter emotional energy in 'Architecture' is a result in changed perceptions of the place, and experience of it. Since Colour directly links to the subconscious mind, Architects can use it to diagnose and lead to the concept or a treat a problem at a deep level and larger context

Birren F. '(1955) says, “Though the conclusion may be largely empirical, warmth and coolness in colour are dynamic qualities, warmth signifying contact with environment, coolness signifying withdrawal into oneself. In conclusion, emotionally

the red is exciting the blue is subduing. Physically and physiologically, the same sort of complementation exists. Red colors tend to increase bodily tension, to stimulate the autonomic nervous system, but green and blue colors release tension and have a lesser physiological effect. It is to be granted, of course, that direct connections exist between the brain and the body and that reactions take place independently of thought or deliberation.

Tom porter 1976 described his book, scientific findings about colour and psychology.

### **Psychological Test Findings**

#### **1. Colour Effects on Perception of Time, Size, Weight and Volume**

Colour	Perception of Time	Size	Weight	Volume
'Warm'	Time is over estimated: Use warm colours for areas where time in apparent slow motion might be more pleasurable (eating, recreation)	Things seem longer and bigger	Weights seem heavier	Decreases apparent size of rooms
'Cool'	Time is under estimated; use cool colours for areas where routine or monotonous tasks are performed	Things seem shorter and smaller	Weights seem lighter. (Use on boxes & containers which must be carried about)	Increases apparent size of rooms

Table 2



### 2. Interrelationships in Living Areas

Colour	Sound	Temperature	Subjective Impression in Living Areas
'Warm'	Noise induces a hazier perception of warm colours.  Brightness, loudness, stimulation of senses in general are associated with the most active effect of warm colours	'Warmness' use to soften up chilly or vaulty spaces	Centrifugal action _ with high levels of illumination, warm and luminous colours, the person tends to direct attention outward. There is increase activation in general, alertness, outward orientation. Such an environment is conducive to muscular effort, action, and cheerfulness.
'Cool'	Noise increases sensitivity for cool colours. Dimness, quietness and sedation of the senses in general are associated with the most active effect of cool colours	'Coolness' _ use where working conditions expose person to warm temperatures.	Centripetal action _ with softer surroundings, colour hues, and lower levels of illumination, there is less distraction and a person's ability to concentrate on difficult visual and mental tasks is enhanced. Good inward orientation is furthered.

Table 3

### 3. Effects of Hue

Effect	Hue	Contrast
Exciting	Bright Red/ Bright Orange	High
Stimulating	Red/Orange	Moderate
Cheering	Light Orange/ Yellow/ Warm Grey	Moderate
Neutralizing	Grey / White/ Off White	Low
Retiring	Cool Grey/ light Grey /blue	Low
Relaxing	Blue / Green	Low
Subduing	Purple	Moderate
Depressing	Black	Low

Table 4

### 3.5. Concluding Remarks

Colour use is not only restricted to Architectural Detailing, but also colour impact to Form and Space, Scale and Proportion, and Volume. Colour expresses the temperature (cool / warm) weight (heavy / light) smell (fresh or innovative) sound (louder or soft) and emotions (fun or sorrow)

In an office environment most of colour schemes based on cooperate colours. It may express their concept of office but it has danger to bad impact on user's psychology.

Same as 'Introduction' chapter One. It is a clear indicator section substantiated chapter has been discussed in this

I believe it is only base on a case example. Therefore, whether it is valid, not known





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## **CHAPTER FOUR**

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### **CASE STUDIES**

## Chapter Four – Case Studies

### 4.1. SUNSTREET, Sri Jayawardhanapura

#### 4.1.1. Concept of the Office

This is an outstanding example to show the capture of aesthetics in a place to enhance the quality of place with colours.

Sun moves right above the site. Building captures the sunrise all day along. Persons who work in the office can easily identify the time throughout the day. Thus, it is called the Sun Street building.



Fig 49: concept of Sun Street  
Source: Sri Lanka Architect

#### 4.1.2. Colour and Context

Site is a rectangular 10 perch block, edging the road. Site gets maximum optimum sun light throughout the daytime.

The northern and southern facades of the building are along the boundaries of the site. The Northern façade, where the entrance is positioned, is bright orange colour, while southern façade is brilliant white.

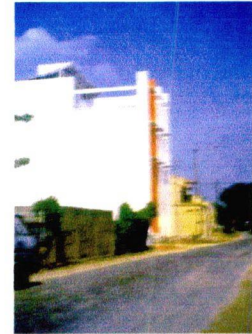


Fig 50: contrast with context  
Source: Sri Lanka Architect

#### 4.1.3. Use of Colour scheme in the Office Environment

A 'contrast colour scheme' is used to celebrate the sun light entering the building. Painted walls in the interior are warm and cosy. A flame orange is used for this purpose. To tone this down white is used on all other walls except inner side of the rear wall and a column.



Fig 51: contrast colour scheme  
Source: Sri Lanka Architect

A glamorous office with bright white surfaces and elegant orange, create a fresh and sophisticated living space rather than a stressful office space. The user of the building can check the time by looking at shadows of the sun on the rear wall of the building.

#### **4.1.4. Colour Expressions and Impact to the Psychology of the User**

White is the most used colour in the building. Flame orange is used to give contrast and also to relate with the concept - Sun Street.

**Orange:** According to colour psychology, Orange is a joyous colour. It frees and releases emotions and alleviates feelings of self-pity, lack of self-worth, and unwillingness to forgive. It stimulates the mind, renewing interest in life; it is a wonderful antidepressant and lifts the spirits. Apricot/peach is good for nervous exhaustion.

**White:** Colour of ultimate purity is white. It is an all-round colour of protection, bringing peace and comfort, alleviating emotional shock and despair, and helping inner cleansing of emotions, thoughts and spirit. White can give a feeling of freedom and uncluttered openness. Too much white, however, can be cold and isolating, because white separates from other people.

#### **Form and Space**

Square form is dominant. Every bit of colour use was done to preserve the form the architect wanted to maintain. In the front façade, there are four decorative columns. Three of those are coloured with white except one column, which is painted in orange.



Fig 52: Dominating Square form  
Source: Sri Lanka Architect

#### **Scale and Proportion**

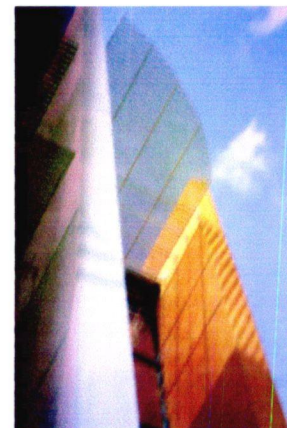


Fig 53: Highlighting scale and Proportion with colour  
Source: Sri Lanka Architect

## Volume

White and high luminance level enlarges the place while orange controls the volume

Fig 54: Warm quality with sun  
Source: Sri Lanka Architect



## Architectural Details

Fig 55/56: Highlighting the entrance with colour  
Source: Sri Lanka Architect



### 4.1.5. Psychological Effects of Colour on People

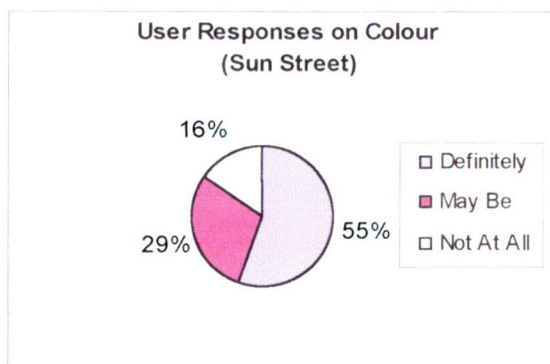


Fig 57:

By analyzing data, collected from different users (management and customers) showed in the diagram, 55% feel that colour change their psychological mood. 29% cannot definitely say whether it has an effect or not, but 16% maintain colour does not effect their psychology.

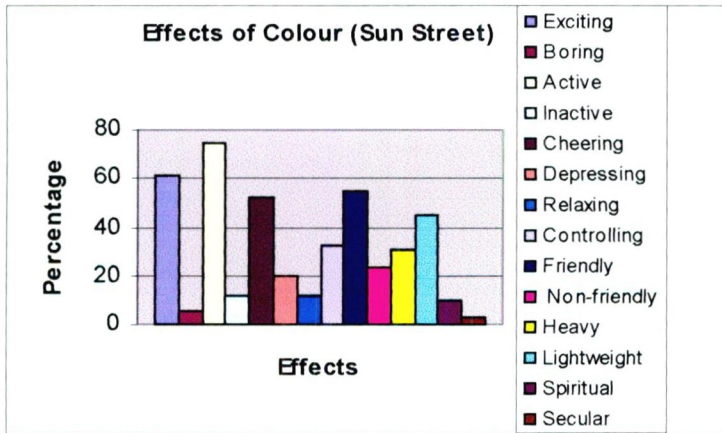


Fig 58:

Effect	%
Exciting	61
Boring	5
Active	75
Inactive	12
Cheering	52
Depressing	20
Relaxing	12
Controlling	32
Friendly	55
Non-friendly	23
Heavy	31
Lightweight	45
Spiritual	10
Secular	3

Table 5

According to the graph, Sun Street building is more active, exciting, friendly and cheering place. 45% feel it is lightweight, 31% feel it as heavy, because the use of pale orange and brilliant white. 12% feel relaxed, 32% feel they are being controlled. Only 5% and 6% feel boring and depressing. 10% people feel spiritual quality because of the white colour and its high glare.

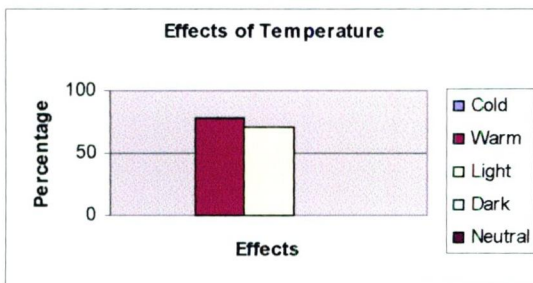


Fig 59:

Temperature	%
Cold	
Warm	78
Light	71
Dark	
Neutral	

Table 6

The above graph shows, cold warm quality, light –dark quality or neutral quality of the building. It clearly shows the warm and light quality. That means, colour changes the quality of the building and its effect on the user in the building.

## **4.2. HEM TOURS ,Bray Brook Place, Colombo 02**

### **4.2.1. Concept of Office**

The sunset seen along the coastal belt was taken as the theme that gives a message of touring in Sri Lanka. Elegant ambiance that of 'hem tours' is maintained by the final finish. Partitions, furniture & some of the light fittings were specially designed to suit this context by the Architect.



Fig 60: contrast with context

### **4.2.2. Colour in Context**

Because it is interior design, it is restricted only to the office context and not the facade.



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Fig 61: Highlighting the space with yellow

### **4.2.3. Use of Colour schemes in Office Environment.**

A contrast colour scheme is used to celebrate the theme of the office, which is called "sun set". After entering to the office there is seating which is ocean green coloured and this completely contrasts with the orange and yellowish colours used for the walls.

While Walls, ceiling and tables got the bright warm and exciting sun set theme, the floor and seating depict the colours of ocean.

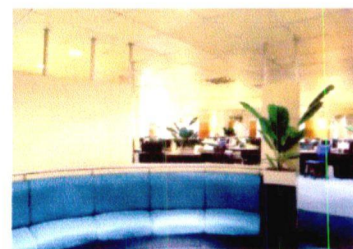


Fig 62: seating area @ the lobby



#### 4.2.4. Colour Expressions and Impact to the Psychology of the User

Using a contrast colour scheme, the office environment gets qualities of both colours in extremes.

**Orange:** Orange has stimulating attributes of red and yellow. It is a "happy" hue with a strong personality that pleases active, self-confident people. It seems that dancers are often attracted to orange. Those who find orange too strong often find such as terra-cotta, peach or amber more acceptable as they retain some of the attributes of orange. (www.paintcafe.com)

Orange is also joyous colour, as mentioned in Sun Street building. It frees and releases emotions and alleviates feelings of self-pity, lack of self-worth, and unwillingness to forgive. It stimulates the mind, renewing interest in life; it is a wonderful antidepressant and lifts the spirits. Apricot/peach is good for nervous exhaustion.

**Yellow:** Yellow is also a happy, bright, and uplifting colour, a celebration of sunny days. It is associated with the intellectual side of the mind, and the expression of thoughts. It therefore aids the powers of discernment and discrimination, memory and clear thinking, decision-making and good judgment. It also helps good organization, assimilation of new ideas, and the ability to see different points of view. It builds self-confidence and encourages an optimistic attitude. Conversely, dull yellow can be the colour of fear.

**Blue:** Blue is a cool, calming Colour and is associated with a higher part of the mind than yellow. It represents the night, so it makes feel calm and relaxed as if being soothed by the deep blue of the night sky. Light and soft blue, makes one feel quiet and protected from all the bustle and activity of the day, and alleviates insomnia.

#### Form and Space

"Things seem longer and bigger, by Warm colours." Tom porter 1976

Uses of warm colours on higher levels create vast and large areas visually, while darker colours on floor do not expand the floor proportionately.

## Scale and Proportion

Using horizontal strips cut down the too much height that gains from the tones of the yellow and oranges.

Fig 63

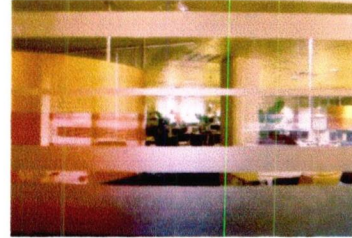


Fig 64: Using Horizontal strips



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## Volume

Fig 65: seating area @ the lobby



## Architectural Details

Fig 66/67: Detailing with colour



#### 4.2.5. Psychological Effects of Colour on People

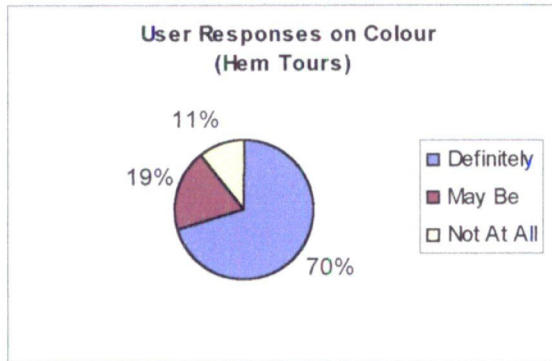


Fig 68:

Both foreign and local users deal with Hem Tours. 70% Users are accepting colour has power to change the people. 19% are not sure if it exactly effect the people. 11% maintains colour has no power to change their psychology and ones own psychology depends on their own way of thinking.

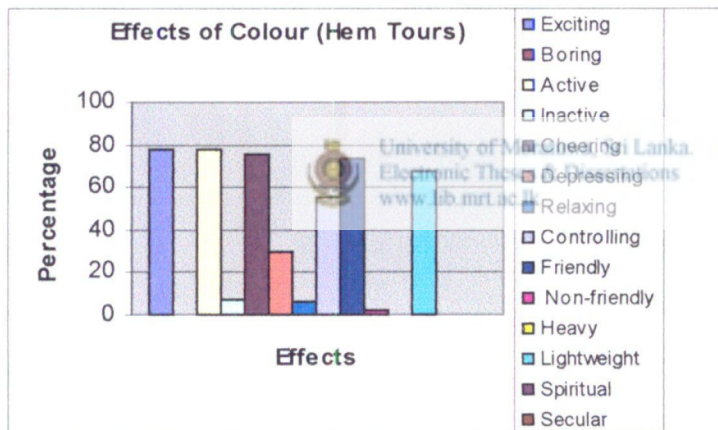


Fig 69:

Effect	%
Exciting	78
Boring	0
Active	78
Inactive	7
Cheering	76
Depressing	30
Relaxing	6
Controlling	55
Friendly	73
Non-friendly	2
Heavy	0
Lightweight	67
Spiritual	0
Secular	0

Table 7

Figure 69 and table 7 shows the effects of colour to the user. Exciting, active cheering, friendly and lightweight columns are remarkably higher in percentage. They are respectively 78%,78%, 76%, 73% 67%. 55% of users in the office feel they are extremely being controlled, because of colour scheme. 30% are depressed. Specially, this situation showed in permanent users in central area who are mainly exposed to the bright hues with an illusive effect. In addition, in this area people are inactive (7%) non friendly 2% because they are depressed.

None of the users feel boring, heavy, spiritual or secular in hem Tours interior.

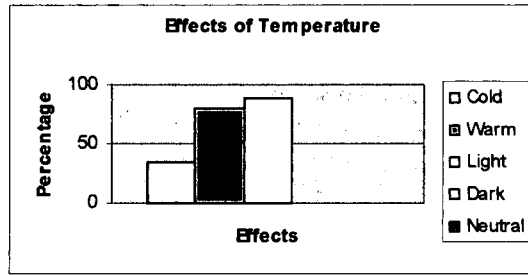


Fig 70:

Temperature	%
Cold	34
Warm	80
Light	88
Dark	
Neutral	

Table 8

According to colour temperature effects, 34% feel cold because used a tones of blue flooring, blue chairs, lower part of the walls and partitions.80% feels warm and 88% feel light because upper part of the interior including walls, ceiling table tops are got orange and shades of yellow.

### **4.3. HATTON NATIONAL BANK (HNB)- Boralessgamuwa.**

#### **4.3.1. Concept of the Office**

This is an outstanding example for combination of two different extremes that are, friendliness and security. Concept of office building is to highlight the changing process of spaces from exterior to interior. HNB Boralessgamuwa is situated in a middle of a busy town.



Fig 71: Contrast with Context

#### **4.3.2. Colour and Context**

Site is a rectangular block, on the Dehiwala - Maharagama road. This building completely contrasts with the pale coloured buildings.



In the building, northern and southern facades are boundaries to the site. Northern facade, it is entrance side too, gets bright orange colour, while southern facade made with natural white.

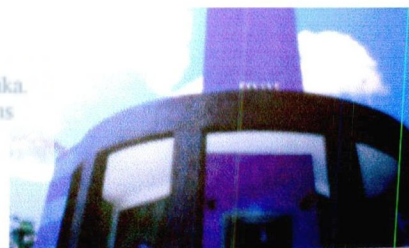


Fig 72: Contrast with Context

#### **4.3.3. Use of Colour scheme in the Office Environment**

A harmonizing colour scheme is used with the corporate colours of the HNB. The exterior wall colours create identity of the bank itself. The use of rows of ash and blue brings the scale down. However, the bright blue makes a strong state entrance. Ash colour used for circular column structure in the entrance tone down its contrast of the blue tower.



Fig 73: Harmony Colour Scheme

The "have entered" position is a very dark blue tower that also acts as a light well. In interior, the exciting quality changes the mood of user.

Dark usage of exterior colours is made gradually lighter, because, the waiting area is the most crowded area in the bank. Blue colour tinted slim window above the entrance door make a contrast.

White surfaces and blue seating in the office creates a spiritual and elegant space rather than in rush, busy office space. Tile arrangements are directed to counter areas.

#### **4.3.4. Colour Expressions and Impact to the Psychology of User**

Blue and grey are the cooperate colours of the bank. To give the friendly welcoming quality these two colours are highly involved. Neutral colours like black, light beige are used to give the safe quality of the building.

**Blue:** Blue is a cool, calming colour and is associated with a higher part of the mind than yellow. It represents the night, so it makes feel calm and relaxed as if being soothed by the deep blue of the night sky. Light and soft blue, makes one feel quiet and protected from all the bustle and activity of the day, and alleviates insomnia.



Blue inspires mental control, clarity, and creativity. Midnight blue has a strong sedative effect on the mind; allow connecting to intuitive and feminine side.

**Gray:** Grey is Associated with independence, self-reliance, self-control, grey acts as a shield from outside influence. However, grey generally has a negative feeling - thick grey clouds, fog, and smoke. Gray is the colour of evasion and no commitment, since it is neither black nor white. It relates to walling everything off, remaining separate, uncommitted, and uninvolved, inevitably leading to loneliness. It also denotes self-criticism.

**Black:** Black Colour is comforting, protective, and mysterious. It is associated with silence, the infinite, and the feminine life force - passive, uncharted, and mysterious. Black can also prevent from growing and changing. We often cloak ourselves in black to hide from the world.

### Form and Space



Fig 74: Dominating Form

### Scale and Proportion



Fig 75/76:  
Proportions with  
Counter Areas



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### Volume



Fig77/78: Lobby get bigger  
volume while counters get  
lower



### Architectural Details



Fig 79: Detailed with Colour

### 4.3.5. Psychological Effects of Colour on People

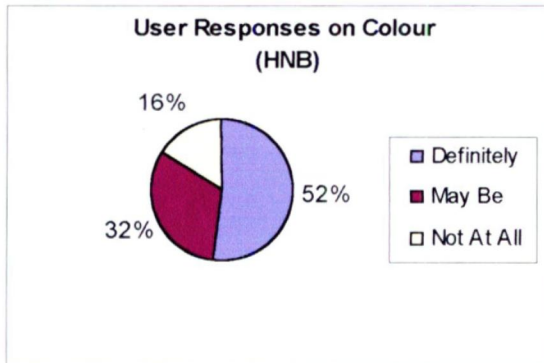


Fig 80:

Hatton National Bank Borlasgamuwa is a bank that target local people who are living around. As shown in Figure 80. most of the customers said they can not decide if colour has an impact or not,( 32% ), and 16% maintains there is no impact. However, customers who are employed in the upper management sections or professionals and the most of bank

staff believe colour has impact on user.

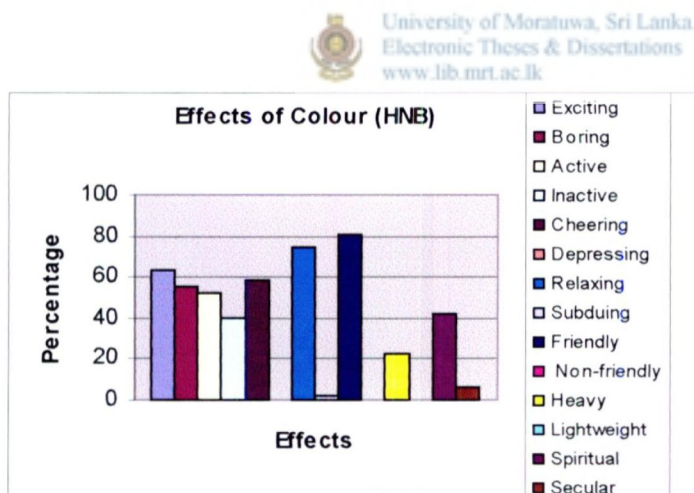


Fig 81:

Effect	%
Exciting	63
Boring	55
Active	52
Inactive	40
Cheering	58
Depressing	0
Relaxing	75
Controlling	2
Friendly	81
Non-friendly	0
Heavy	22
Lightweight	0
Spiritual	42
Secular	6

Table 9

Higher amount of people (81%) said that, the building is very much friendly.2% said building subduing and 75% feel it is more relaxed. According to this charts 63% finds it exiting. As well as 55%, feels bored because too much use of dove white colour. This is mainly effect the people who work in the building. Depressing and non friendliness are zero, Cheering 58% and Exiting 63% due to colours.



Although 65% use dove-white people stated most used colour as blue. That implies people look at brighter colours than lighter colours. As a result Lightweight ness in the building is also zero and 22% seen as heavy building.

Active and inactive percentage is close by as 42% 40%. 42% of the users believe building got spiritual quality.

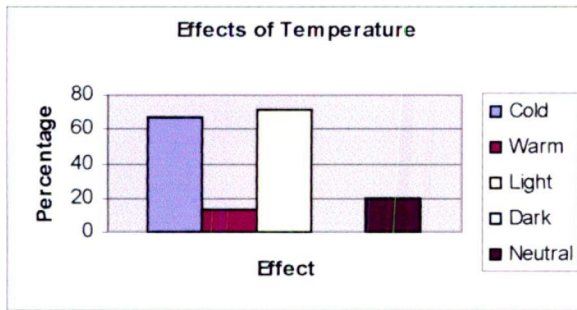
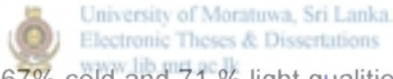


Fig 82:

Temperature	%
Cold	67
Warm	13
Light	71
Dark	
Neutral	20

Table 10



A chart brings about 67% cold and 71 % light qualities of the building. Warm quality cut down by using black and brown for floor and counters.

#### **4.4. JETWING TRAVELS, Nawam Mawatha, Colombo.**

##### **4.4.1. Concept of the Office**

Concept of the office is very different from the examples that discussed above. All examples discussed above are related with contemporary fashionable architecture. Although this example is contemporary, the Concept was evolved by Sri Lankan tradition and culture. It is based on cultural and traditional elements.

Since, Jetwing travels deals as travels and tours operators; more foreign people are seen in this office.

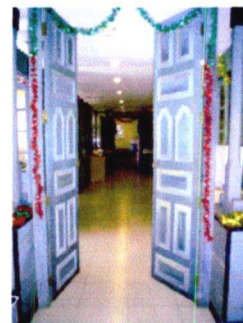


Fig 83: Traditional well come

##### **4.4.2. Colour and Context**

Colour scheme is selected to high light the Sri Lankan identity. A chic sophisticated retreat, a place where one could unwind from the stresses of the day, is created. Cool colours and simple features help to create that exclusive Sri Lankan tradition in a modern office interior.



Fig 84: Harmony With context

##### **4.4.3. Use of Colour scheme in the Office Environment**

Used a 'colour harmony colour scheme', to celebrate the traditional Sri Lankan culture with, warm and cosy walls of light avocado green colour. To tone down brightness 'palali' (Bamboo Tats) are used as window curtains and sand colour tiles make an effect of "Weli Maluwa" (Sand court).



Fig 85: Harmony colour Scheme

A glamorous office with dull surfaces and elegant orange, Create a fresh and primitive living

#### 4.4.4. Colour Expressions and Impact to the Psychology of User

Use of earth colours brown, Green White are used as colour scheme. To enhance the quality of traditional, blue, red and yellow act as supportive colours. The impacts of colours used are as follows;

**Brown:** The colour of Mother Earth, brown brings a sense of stability, alleviating insecurity. However, it also relates to bottling up of emotion, a retreat from and a fear of the outside world, and also narrow-mindedness. This often results from a lack of self-worth.

**Green:** Lime and olive-green can have a detrimental effect on both physical and emotional health since sickly yellow and green are associated with the emotions of envy, resentment, and possessiveness. However, when green becomes muddy, dull, or olive, it indicates decay. Just like fallen leaves when they return to the Earth, muddy green represents the onset of death and is nondescript, unassertive, a \*negation of life and joy.

**White:** Colour of ultimate purity is white. It is an all-round colour of protection, bringing peace and comfort, alleviating emotional shock and despair, and helping inner cleansing of emotions, thoughts and spirit. White can give a feeling of freedom and uncluttered openness. Too much white, however, can be cold and isolating, because white separates from other people.

#### Form and Space

Fig 86/87: harmony makes smooth space



### Scale and Proportion



Fig 88: Scale and Proportion

### Volume



Fig 89: Harmony makes larger volume

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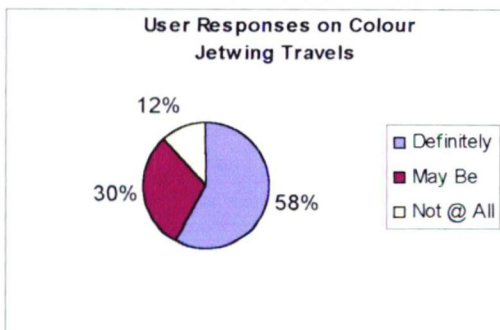
### Architectural Details



Fig 90/91: Detailing the Partitions



#### 4.4.5. Psychological Effects of Colour on People



In this building 58 % believe colour change the human mood. 12% not agree with this. 30% can not decide colour has an impact or not.

Fig 92:

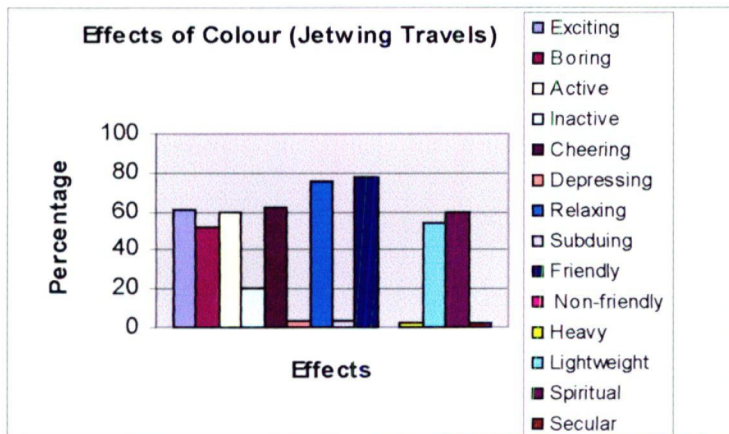


Fig 93:

Effects	%
Exciting	61
Boring	52
Active	60
Inactive	20
Cheering	62
Depressing	3
Relaxing	75
Controlling	3
Friendly	77
Non-friendly	0
Heavy	2
Lightweight	54
Spiritual	60
Secular	2

Table 11

In Jetwing, percentages of effects are; friendly 77% relaxing 75%, cheering 62% .Active and exiting and spirituality are 60% 61% and 60% respectively. Depressing 3% and boring 52% according to the graphs. Non friendly is 0% secular and subduing is 2% and 3%.

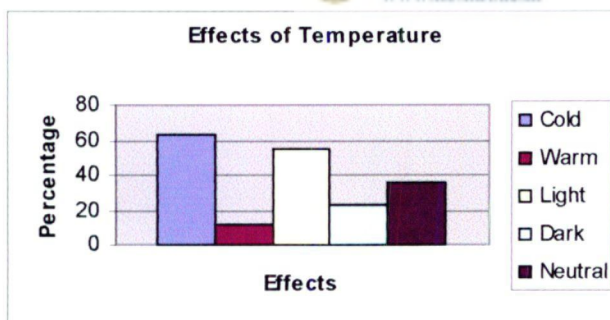


Fig 94:

Temperature	%
Cold	63
Warm	12
Light	55
Dark	23
Neutral	35

Table 12

Use of cold colours feels cold 63% and light 55%. But 23 % (most of permanent staff) feel interior become dark because colour scheme is not bright. Because of earthy colours 35% feel interior was neutral.

#### 4.5. Concluding Remarks

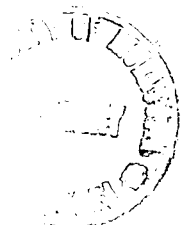
Usages of colours always affect the user. What ever the colours used in the office the bright hues or pale colours are the most eye-catching. Whitish colours give effects of relaxing, friendly, boring etc... While, bright colours control, excite and depress etc...



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## **CONCLUSION**

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## CONCLUSION

This study is carried out discussing issues relevant to colour and its usage in the built environment, especially in contemporary offices. It is looked at the basic theory of colour, colour meanings and the power of colour. It also examined, whether those colours, colour psychology and the colour meanings, which are used in buildings to give the intended impact as to give the correct psychological effect to the user.

The buildings are indivisible objects from human beings. Therefore when an Architect designs a building, human being should be the most important and crucial consideration, due to the fact that all the buildings have to cater to the user. Thus the Architect should design buildings for the user and the function. That means every building should be designed by considering the basic aspects of the function, clients requirements etc...

Colour is an essential medium to give an identity to a building, it also help to shape the form which is designed by the Architect. This aspect of the building is a bond of both user and the function. If the use of colour is weak then the whole office environment may become useless. People who use the building will not be given the correct psychological impact and therefore the target productivity wouldn't be accomplished.

The study is focused on several aspects. Basically how colour is involved in contemporary Architecture. Colour Theory, Colour Expressions, psychology of user and the context of the general office has been identified.

The use of colours in some offices does not provide the appropriate effect. Therefore there offices does not work properly. Office buildings with the proper use of colours to achieve a certain concept and also the offices that function well are selected for the case studies of this study.

The selected case studies, which are Hem Tours, HNB, Sun Street, And Jetwing are colourful and function well. But the important thing is how those colour schemes work with user's psychology.

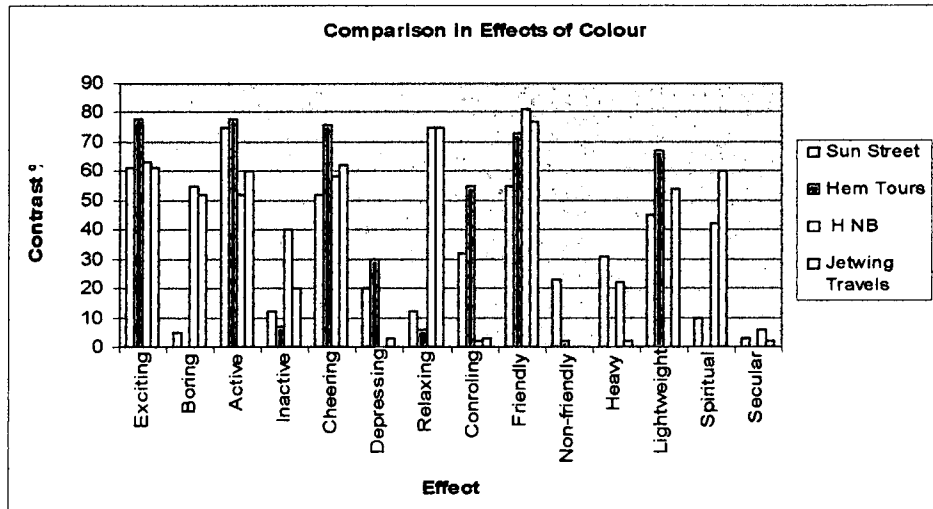


Table 13

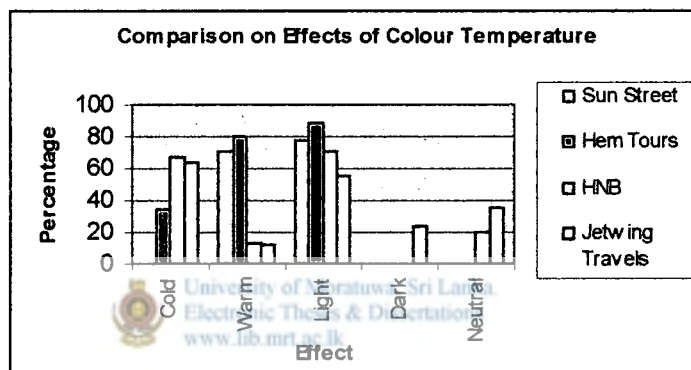
"Colour, not necessarily bright, but positive is the most memorable feature of all rooms and interiors." Jocasta Innes(1992)

This quotation is re-proved by the graphs shown in the case studies. In addition, the graphs also show that the 'effects' of using of a particular colour changes according the other colours it has been used with. E.g. Harmony colours, Contrast colour, percentage of colour used, and verticality –horizontality etc...

- All four offices had exceeded 50% of the Exciting, cheering and friendly effects. - **Both cool colours and warm colours had been used to achieve these qualities.**
- Activeness is very much high in Hem tours and Sun Street (78%). Although in HNB and Jetwing travels Activeness is between 50 and 60 %, inactiveness is higher comparatively to Hem Tours and Sun Street. - **Bright colours increase the activeness than cool or neural colours.**
- Boringness is higher in HNB and Jetwing. – Whitish colours increase boring quality.
- Hem Tours and sun street got 30% and 20% depression -**Bright hues make depression than light colours.**



- Both HNB and Jetwing Travels got 75% relaxing while Hem Tours 6% Sun Street 12% - **Relaxing and spirituality is higher with harmony colour schemes than contrast colour schemes.**
- Hem Tours and Sun Street got 55% and 32% of user controlled by the colour and HNB and Jetwing 2% and 3% - **Contrast colours in the office interiors are under control than harmony or monochromic colour schemes.**
- **In all examples the secular quality is very low.**



*Handwritten notes:*  
 (1) 2' boundary  
 (2) 1' 6" (1.5m)  
 (3) 1' 6" (1.5m)  
 (4) 1' 6" (1.5m)  
 (5) 1' 6" (1.5m)

Table 14

Colour temperature chart shows the spatial qualities vary with colour.

- Both colour schemes can be used to make a place light up.
- Harmony colour schemes provide cold and neutral effects than contrast schemes. According to colour psychology, cool colours make places smaller and safe.

Even though colour is considered to be an insignificant component in architecture than in painting and some of other arts, it was found to be quite a significant component to achieve meaningful architecture. **It has direct psychological effect on the users.** This study reveals, while Architects use colour to derive a certain concept, it will only be meaningful to architecture if the used colours have a positive effect on the users in regard to do their function.

Hence, colour expressions should not be treated as inconsequential when used in buildings but, dealt with great care taking into consideration their psychological effects on the users.

Further studies could be done how impact to change the form colour, or how colour impact to scale and proportion.

Conclusion should be narrated & summarised version of all 5 chapters of introduction & 4 chapters. And specifically not the outcome of the last chapter. Therefore this conclusion is not in that format.



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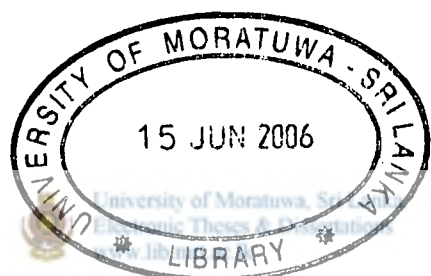
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## **ANNEXURE**

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Building:.....  
Sheet No:.....

**Questionnaire of Survey for user**  
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**Tick/ write the appropriate box and give short answers. Please give sketches, use colour pens/pencils if you have.**

1. Age;

- a) Below 19
- b) 20~30
- c) 31~40
- d) 41~50
- e) Above 51

2) Profession;

- a) Professional
- b) Senior management
- c) Junior management
- d) Staff Assistant
- e) Clerical
- f) Other (specify).....

3. Gender; Male  Female

4. Which category are you in?

- a. Permanent User ( person who employee)
- b. Temporary User- **Daily / weekly** ( clients or customers come here daily or weekly)
- c. Temporary User- **Need** ( clients or customers who come here only in needs)
- d. Others (specify).....

5. Is this colour scheme helpful to do your work easily?

Definitely  May be  Not much  Not at all   
why?.....  
.....

6. Do you think it increase your work capacity?

Definitely  May be  Not much  Not at all   
why?.....  
.....

7. What do you feel about this office?

Exciting	<input type="checkbox"/>	Boring	<input type="checkbox"/>
Active	<input type="checkbox"/>	Inactive	<input type="checkbox"/>
Cheering	<input type="checkbox"/>	Depressing	<input type="checkbox"/>
Relaxing	<input type="checkbox"/>	Subduing	<input type="checkbox"/>
Friendly	<input type="checkbox"/>	Non-Friendliness	<input type="checkbox"/>
Heavy	<input type="checkbox"/>	Light-weight	<input type="checkbox"/>
Spiritual	<input type="checkbox"/>	Secular	<input type="checkbox"/>

8. What was your first impression when you first walked in to this building/ interior in terms of colour? *Why not direct answer*  *eg. Good*

.....  *Bad*  
 .....  *Neutral*  
 .....

9. What are your feelings on Colour usage of this building when comparing with your office/previous office/ previous interior which has the same function? (give 3 reasons in point form) *Why not direct answer*

- 1).....  
 .....  
 2).....  
 .....  
 3).....  
 .....

10. What is the most used colour in this building/ interior?.....

11. Did you find the entrance easily at the first visit?

Easily  With Difficult

12. Do you feel the colour scheme improved the quality this building/ interior? (compare with your office/previous office/ previous interior)

Definitely  May be  Not much  Not at all

13. Does colour change the environment of the building/ interior?

Definitely  May be  Not much  Not at all

How ?

Light  Dark  Cold  Warm  Neutral

14. What do you feel as negative aspects, with reference to the use of colours in this building/ interior?

why?.....  
 .....  
 .....

15. Do you suggest any other colour scheme? Yes  No

Why/How?.....  
 .....