

Research Paper :

Study of visual task performance under different lighting conditions

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ABSTRACT

Illumination is important to humans because it alters stimuli to the visual system and the operating state of the visual system itself. Researches have shown that proper lighting make a positive contribution to our physical and mental health, to our physical comfort and to our safety. The present study was conducted to analyze visual task performance under different lighting conditions. Results revealed that task performance was affected by different light sources. Results showed that maximum numbers of mistakes were made and maximum time was taken under incandescent filament bulb of 60 watt. Changes in physiological parameters; heart rate and blood pressure were also observed and most preferred source of light was fluorescent straight light (tube light, 40 watt).

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Many of our oldest and wisest sayings deal with the eyes. That's probably because vision is our primary connection with the world. We use our eyes to interact with our environment in more than a million ways every second. The eyes really are an extension of the brain and a direct link between our environment and our minds. More than 80% of our learning comes from our vision, which indicates how important our sense of sight is in our daily lives. The process of vision begins with visible light — a portion of the radiation spectrum that stimulates the nerve endings in the retina.

Illumination is important to humans because it alters stimuli to the visual system and the operating state of the visual system itself. The visual system is composed of the eye and brain working together. Interior lighting is almost always sufficient for the visual system to be operating in the photonic region. If concerned with the colour appearance as well as colour discrimination, choose a light source that gives both good colour discrimination and the desired colour appearance. Differences between persons in visual capabilities are common and are usually dealt with by providing lighting that is more than adequate for visual performance and visual comfort.

Ibn al-Haytham (Alhacen), the “father of optics”, pioneered the scientific study of the psychology of visual perception in his influential Book of Optics in the 1000s,

being the first scientist to argue that vision occurs in the brain, rather than the eyes. He pointed out that personal experience has an affect on what people see and how they see, and that vision and perception are subjective. He explained possible errors in vision in detail, and as an example, describes how a small child with less experience may have more difficulty interpreting what he/she sees.

The visual sense is the most important channel of information in information-intensive work. From the point of view of seeing and eye fatigue, the ordinary visual displays are not the most optimal solutions. Stability of the image, lighting conditions, reflections and glare, as well as the invisible flicker are among the most common factors affecting the visual observations.

Lighting in the dwelling should provide certain emotional and aesthetic satisfaction. Researches have shown that proper lighting make a positive contribution to our physical and mental health, to our physical comfort and to our safety. The efficiency of light sources largely depends upon the extent to which electrical energy (watts) is converted to light energy (lumens). The lighting in a room is typically designed to provide a predetermined illumination level. Higher illumination levels are required for more demanding visual tasks. This is because human visual discrimination abilities continue to improve with more light (Sheedy *et al.*, 1984). Proper illumination is