



**RELATIONSHIP BETWEEN ILLUMINANCE AND HUMAN VISUAL  
ACCEPTANCE**

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## ABSTRACT

Visual comfort is significant necessary, each day when we open our eyes after sleeping. The process of visual perception operates throughout our waking hours, continually seeking to make sense of the flow of information being delivered to the brain through the sense of vision. Since visual comfort is important, this research is done to measure instantaneous illuminance level indoor and outdoor of classrooms to obtain better range daylight factor, to determine the visual preference/acceptance of the subjects in relation to the illuminance level for reading and writing activities in a classroom; and also to compare the finding of the research with the Malaysian standard MS1525:2001. Unfortunately there is no other study in Malaysia on the suitable illuminance level required in a classroom. The target subjects for the research are students occupied in classrooms. The research was done on 179 Applied Sciences students. Questionnaires, work puzzles and Mini Environmental Meter were used to determine the level of visual comfort and the level of illuminance. The test was done during daytime only and sunlight is considered as a light source. From the research, it is found that 3m from the window is the best range for daylight factor and the minimum illuminance level of visual comfort is 100 Lux. The finding may be used to help and add to the literature collection for future researchers especially those of in the visual comfort area.

# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND

This research is a study on the relationship between illuminance and subjects' visual acceptance in classroom. It is noted that visibility and visual performance depend on how well the eyes could see a target. The process of visual perception operates throughout our waking hours, continually seeking to make sense of the flow of information being delivered to the brain through the sense of vision. Many factors influence visibility. The most important factor affecting visibility is illuminance.

Illuminance is defined as light intensity measure on a surface at a specific location. Cuttle in his book *Lighting by Design* defined illuminance is the measure of luminous flux density in Lux, and it usually refer to either flux incident at point on a surface, or average value over a surface or a plane, such as a ceiling or the horizontal workplace. Illuminance can be measured by using a light meter located on the work surface where the task performed. Illuminance is measured in Foot Candle or Lux. Lux is the unit matrix of illuminance. One Lux is equal to one lumen per square meter or it equal to 0.0929 Foot Candle. Illuminance is also measured lumens per square meter ( $\text{lm/m}^2$ ).