/LIGHTING EFFECTS ON VIDEO DISPLAY TERMINALS/

by

MAX J. ATWOOD

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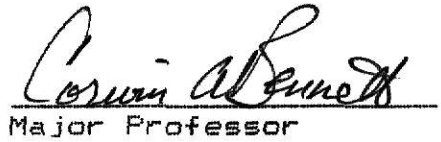

Major Professor

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INTRODUCTION

Video display terminals (VDTs) are still new to the workplace and their use is quickly increasing. It is estimated that during the year 1985 over 75% of all office jobs will involve computers in some way, thus making the VDT commonplace (Shaffer, 1981). With the elements of the traditional office changing in this manner, the adequacy of traditional office equipment, furniture, and design must be re-examined to consider the computerized office system (Springer, 1980). Most terminals have been placed into already existing conditions without being certain they are set up for maximum productivity or comfort.

Since VDTs were introduced to the workplace the interest in their use has been growing. With this growing use, an interest was also produced in increasing the productivity of the users. This produced studies that focused on various aspects of the workplace for electronic systems in an office. Studies have been done on the various components of the workplace and this study focused on the aspect of lighting. Few studies have been done to find the best lighting for the VDT.

A study at the University of Colorado by Harvey, Mistrick, DiLaura, and Ngai (1984) found a preference for indirect lighting in which the subject was tested in each condition. This study did not find a statistical difference in the productivity of the tasks. Two studies at Kansas State University, one by Miller (1985) and the other by Kendrick and Harris (1985) found a preference for task with indirect lighting, but found no significant differences in the performance between it and direct lighting. Both of these studies were conducted with each subject

being under each condition.

IBM is a large producer of VDTs and takes an interest in the best workplace for them. IBM sponsored a study by Kansas State University focusing on the problem of lighting. This was done to study the effects on worker performance and to see how the worker felt about the lighting and the glare produced by the lighting conditions.

The workplace consisted of an office with an adjustable work station and an IBM Personal Computer. The work station was adjustable various ways. One form of adjustment was the height and angle of the keyboard and of the video terminal. The document holder was one that held the document to the side of the screen and could be moved by the operator. The chair for the operator was also adjustable for height.

The variable was the lighting. The types of lighting were "diffuse", "louvered", and "kiosk/task" lighting. The lights were changed in a random manner and each subject was run under only one of the three conditions.

METHODS

Lighting

Diffuse lenses on lights are used to spread the light evenly over an area. This is done by having prismatic surfaces on the lens that send the light in differing directions. This type of lens is placed on ceiling lights. These are the type that are in many offices at the present. (See Figure 1.)

Louvered lights are used to direct the light down into an area without spreading it out and are placed to reduce the amount