CHAPTER V

SUMMARY, CONCLUSIONS AND FUTURE RESEARCH

5.1 Summary

This research was carried out to investigate the effect of varying levels of age (21-30, 31-40, and 41-50 years) on readability task performance under the influence of levels of noise, illumination levels and text-background colour combinations. Another objective was to study the effects of internet use duration on readability task performance on the above said variables. Subjects were selected from a carefully selected pool for the present work. All the subjects selected for the experiment had normal vision without any previous history of neuromuscular disorder. In the study three independent variables namely equivalent noise levels, illumination levels and text-background colour combinations and three dependent variables viz. spontaneous eye blink rate, reading time and subjective response were determined. The experimental task was carried out in the environment of different equivalent noise levels and illumination levels on varying text-background colour combinations. The dependent variable spontaneous eye blink rate was measured with the help of a web cam while the reading time was obtained with the help of a specially designed timer. The subjective response was determined with the help of a response questionnaire given to the subjects. The independent variables noise level and level of illumination were measured using a sound level meter and a lux meter respectively. Various web pages with text-background colour combinations used were prepared and loaded on the computer. A three factor factorial design of repeated measure type was used for the analysis of the data. The conclusions derived were as presented below:

5.2 Conclusions

Based upon the result of this research, the following conclusions are made.

1. The level of illumination had no significant effect on different performance parameters for age level -1 (21-30 yrs). It was found to be significant for age level -2 (31-40 years) for both categories of users when the task performance was measured on the basis of reading time. Also for age level -3 (41-50 years) the illumination level was significant for subjects having an internet use duration of more than 2 hours per day on the basis of reading time.
2. The level of noise was observed to be significant on subjective response and reading time measure for all levels of age except at level-2 (31-40 years) and -3 (41-50 years) of category-1 subjects when reading time was used as a measure of performance. The level of noise was not significant on spontaneous eye blink rate measure.

3. The colour combination was found to have a significant effect on reading time for all levels of age. Moreover on SEBR measure the colour combination was significant only for category-2 subjects of age level-3 (41-50 years). The text-background colour combination was also observed to be significant for category-1 users of age level-2(31-40 years) and for both categories of subjects of age level-3(41-50 years) when subjective response was taken as a measure of task performance.

5.3 Research implications

The research implications that are based on the present study are stated below:

1. Proper and due importance should be given to the ambient illumination while designing a human computer interaction environment for subjects of higher age group.

2. Since the noise has been found to affect the performance, measures should be taken to control it and create a proper working environment.

3. Colour combination was also found to affect the task performance implying thereby that a proper selection of colour combination was needed to improve the performance.

5.4 Future research

In the form of the scope for future research, following suggestions are made:

1. Investigations should be carried out to study the performance of the subjects by taking into consideration the workstation design.

2. User performance should be studied by checking the luminance contrast and viewing distance for different text sizes and format under the varying environmental factors for different age groups.

3. Studies on users for different exposure durations in a mobile environment should be done to get a complete insight on the subject.
4. The eye problem is the single most common complaint in computer work task, the factors responsible for the complaint should be thoroughly worked out for a better computer work environment.

5. The effect of task performance in the presence of physical environment like humidity, temperature, air velocity, visual ergonomics etc. and comfort also need to be investigated.