

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Conclusions

This study was aimed at the investigation of mental fatigue accumulated throughout a day shift during two forms of repetitive work, pipe cutting and pipe machining work in industrial settings. There were various methods in measuring mental fatigue: critical flicker fusion frequency, reaction time, hand grip strength and a self-scaling questionnaire. Furthermore, the theory of fuzzy sets was applied to threshold values which can be used as the indicator of fatigue resulting from mental stress.

The conclusions from the results of this study are as follows:

1. The trend of degree of mental fatigue for task III is higher than those for task IV, task I, and task II.
2. Fuzzy critical flicker fusion frequency was highly correlated with the self-scaling of fatigue on three opposite designations. These designations were: refreshed-tired, strong-weak, and vigorous-exhausted.
3. Results of the relationship between fuzzy critical flicker fusion frequency and the self-scaling of fatigue were effective indices used to evaluate mental fatigue in this study. However, both reaction times and hand grip strength were not used as an indicator of fatigue.

According to the results of the experiment, it appears that the rank of all tasks is task III, task IV, task I and task II.

Task III had a higher level of fatigue than task IV because the rest break during task III was less than task IV. Furthermore, the wages in comparison with task IV was low. The workers received 0.4 baht per piece for task III and 1.50 baht per piece for task IV. Therefore they might rush their task in order to obtain a higher output and gain higher wages. Of the two forms of pipe cutting work, task I caused more fatigue than task II, because the pipes used in task I were heavier than those used in task II. Additionally, the pipe used in task I was more difficult to cut.

Between pipe cutting work (task I, task II) and pipe machining work (task III, task IV), pipe machining work was the more fatiguing. The pipe machining workers did not have so many defective tool as the pipe cutting workers, due to experience and the ages of pipe machining workers was higher. Therefore fatigue due to task III was higher than any other task mentioned above.

Recommendations for Future Research

1. Some factors such as drugs, drinking and smoking can not be avoided. However, these data may be useful when the result of the experiment is unusual
2. The appropriate amount of training should be carefully determined in order to avoid experimental errors due to learning effects.
3. It may be interesting to investigate the effect of an increase in hand grip strength after work in the future
4. The results on the increase in degree of mental fatigue during a day should be considered by factory executive and management. The more workers are fatigued, the higher the wages or benefits they

receive should be.

5. The use of the theory of fuzzy set should be expanded in the field of human factors, not only those considered in this study.

6. Establish the causes of mental fatigue.

7. Expand the study to similar types of work so that more conclusive results can be drawn.



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