A Study of Gas Cabinet Design for the Operator Working Effect and Subjective Preference

廖瑞琳、郭文宏

E-mail: 9510883@mail.dyu.edu.tw

ABSTRACT

This research is for the purpose of discussing the eyesight, age, height and control panel offer operation gas cabinet working effect and subjective preference. The gas cabinet is widely used on the control system matches the software formula control gas cabinet valve accessory. Aim eyesight, age, height and control panel begin operator carry on the experiment to combine on the gas cabinet system, and carries on the sequence of operation working effect and subjective preference on appraisal. The factors and levels are as below. The eyesight divides into two standards, respectively has nearsighted with glasses correction and normal without glasses ; the age divides into two standards, respectively is below above 30 years below and 30 years upward; The control panel divides into two standards, respectively has control panel #1 and control panel #2; The height divides into two standards, respectively is below above 170cm below and 170cm upward .The experimental result showed the eyesight and height and control panel have reveals the influence, the age does not only have reveals the influence. This experimental result showed normal without glasses operation gas cabinet system working effect to be good; on the operator age, operation the gas cabinet system to working effect not to reveal the influence; But the control panel matches the gas cabinet, the experimental result display control panel#2 pair of gas cabinets operation working effect to be good; The operator height above 170 cm upward operates the gas cabinet system to working effect to be good. As the subjective preference aspect, gas cabinet of control panel#1 and control panel#1 presents the way to have reveals the difference, all for control panel#2 to control panel#1 good under, only has in the control panel warning pattern presents the control panel#1 to control panel#2 to be good .

Keywords : Gas Cabinet ; Control Panel ; Eyesight ; Height

Table of Contents

目錄 封面內頁 簽名頁 授權書..... iii 中文摘要..... iv ABSTRACT..... v 誌 謝..... vi 目錄..... vii 圖目錄..... ix 表目錄..... x 第一章 緒論..... 1 1.1 研究背景..... 1 1.2 研究動機..... 1 1.3 研究目的..... 2 第二章 文獻探討..... 4 2.1 視力變化..... 4 2.2 面板呈現方式..... 6 2.3 介面設計原則..... 7 2.4 氣瓶櫃控制系統評估..... 7 第三章 研究方法..... 9 3.1 實驗設備..... 9 3.2 工作條件..... 19 3.3 實驗設計..... 20 3.4 實驗程序..... 26 3.5 資料蒐集與分析..... 28 第四章 結果..... 30 4.1 閱讀績效..... 30 4.2 主觀偏好..... 35 4.3 綜合討論..... 39 第五章 結論與建議..... 41 5.1 結論與建議..... 41 5.2 未來研究建議..... 43 參考文獻..... 44 附錄..... 46

REFERENCES

參考文獻 一、中文部分 【1】王安祥、甘雲?。動態資訊呈現方式及訊息呈現特性對於使用者閱讀績效的影響，民國92年。 【2】許銘津，多媒體CAI 之文字與效應研究，國科會八十五年度科學教育專題研究計劃成果討論會第91-98頁，民國85年。 【3】陳正勳，「前導式動態資訊呈現之設計對使用者視覺績效與視覺疲勞的影響」，大葉大學工業工程研究所碩士論文，民國90年。 【4】蘇啟宗，人機介面安全衛生設計規範研究－電腦終端機工作站，行政院勞工委員會勞工安全衛生研究所委託研究報告，民國88年。 【5】行政院勞工安全衛生技術叢書，電腦工作站安全衛生指引行政院勞工委員會勞工安全衛生研究所，民國89年。 【6】王滿堂:《醫用驗光配鏡學》，健康文化事業有限公司香港:pp.60-61，民國88年。 【7】滄海書局:人因工程第二版,許勝雄、彭游、吳水丕編譯，民國85年。 二、英文部分 【8】 Haider, M., Kundi, M., and Weissenbock, M., Worker strain related to VDU swith differently colored characters. In Ergonomic Aspects Of Visual Display Terminals, Grandjean, E. and Vigliana, E., Taylor and Francis, London, pp.53-64，(1982)。 【9】 ISO 9241 Ergonomics Requirements for Office Work with Visual Display Terminals, Part 1-6, General Introduction, Guidance on task requirements,Visual display requirements, Keyboard requirements, Workstation layout and postural，(1992)。 【10】 Marlys L. Garcia and Cesar I. Caldera, The Effect of Color and Typeface On the Read Ability Of On-line Text, omputer industrial Engineering Vol.31, No.1/2, pp77-87，(1996)。 【11】 Juola, J.F., Tiritoglu, A., and Pleunis J. Reading text presentedon a small display. Applied Ergonomics 26, 227-229，(1995)。 【12】 Haber, R.N., and

Haber, L. R. Visual components of the reading process.Visible Language, xv2, 147-182，(1981)。【13】 Kroemer, K. H. E., and Grandjean, E.. Fitting the Task to the Human. London : Taylor &Francis，(1997)。【14】 K. Kroemer, H. Kroemer and K. Kroemer-Elbert, Ergonomics, Chapter5, Prentice Hall, Englewood Cliffs, N.J.USA，(1994)。【15】 Sander, M.S., and McCormick, E.J. Human Factors in Engineering and Design,7thEdition, McGraw-Hill International Editions, Singapore，(1993)。