## THE IMPROVEMENT OF BRAILLE TYPEWRITER BY QFD

# 陳慧鴻、宋明弘

E-mail: 9018462@mail.dyu.edu.tw

#### **ABSTRACT**

MOST ASSIST DEVICES FOR BLINDNESS HAVE BEEN RELIED ON IMPORTATION. HOWEVER, THE USAGE AND THE SIZE ARE DIFFERENT BETWEEN DOMESTIC AND ABROAD ONES, MANY FAMOUS ASSIST DEVICES COULD NOT PERFORM WELL, SO THAT THE DOMESTIC USERS MUST READAPT TO THE ORIGINAL DESIGN, AS A RESULT, INCREASING THE BURDEN DURING THE APPLICATION. THIS RESEARCH APPLIED THE QFD TO THE BLINDER TYPEWRITER, THE VOICES OF CUSTOMER HAVE BEEN COLLECTED FROM THE QUESTIONNAIRES, THROUGH THE CALCULATIONS, AND THE DESIGN PARAMETERS WERE DERIVED. IT WAS FOUND THAT THE BOTTLENECKS OF THE CURRENT BLINDER TYPEWRITER THAT NEED TO BE IMPROVED WERE: 1. THE INNER TRANSMISSION MODULE; 2. THE INDEX PARTS, 3. THE PAPER ROLLER MODULE; 4. THE PAPER FEEDER DEVICE, AND 5. THE PUNCH PIN.

Keywords: QFD, BRAILLE WRITER, ASSISTANT TECHNOLOGY.

#### Table of Contents

第一章 緒論--P1 1.1 研究背景與動機--P1 1.2 研究目的--P3 1.3 研究範圍與限制--P3 1.4 研究流程--P4 1.5 論文章節結構--P5 第二章 文獻探討--P6 2.1 視障之相關法令--P6 2.2 視障輔具之介紹--P7 2.3 品質機能展開相關文獻探討--P8 第三章 研究方法與流程--P11 3.1 品質機能展開特性討論--P11 3.2 相關的分析工具--P13 3.3 品質機能展開之流程--P15 第四章 案例探討-以柏金斯點字機為例--P21 4.1 柏金斯點字機簡介--P21 4.2 柏金斯點字機之品質企劃--P 22 4.3 品質要素部分--P38 4.4 設計品質部份--P40 4.5 柏金斯點字機機能-機構展開--P44 4.6 瓶頸技術的決定--P49 第五章 結論與建議--P52 5.1 研究結果--P52 5.2 研究貢獻--P53 5.3 未來方向與建議--P54 參考文獻--P55 附錄 附錄一、盲人閱讀輔具--P59 附錄二、盲人點字機研究第一次問卷--P60 附錄三、盲人點字機研究第二次問卷--P62

### **REFERENCES**

- [1].日本能率協會著,沈士涼譯,「KJ法應用實務」,清華管理出版社,1990。
- [2].水野滋、赤尾洋二原著,傅和彥翻譯,品質機能展開,前程企業管理公司出版,1987。
- [3].中國生產力中心全面品質管理組QFD 研發小組編 , 「系統化品質機能展開技術手冊 」 , 1992 。
- [4].赤尾洋二原著,中國生產力中心 OFD 研發小組編譯,新產品開發-品質機能展開之實際應用。
- [5].宋明弘,「品質機能展開在鞋業之應用」,國科會專題研究計畫,NSC 86-2213-E-212-004, 1997。
- [6].巫銘昌,「殘障人士高科技訓練中心-美國殘障職訓之實例」,社區發展季刊,第六十一期。
- [7].郭人傑 , 「QFD 應用於產品開發過成中規格訂定之研究以NOTEBOOK 為例 」 , 國立台灣工業技術學 院管理技術所 工業管理學程碩士論文 , 1996 。
- [8].陳向偉,「品質機能展開技術導入軟體開發過程之產品定位與規格訂定之研究」,國立台灣工業 技術學院管理技術所工業管理學程碩士論文,1996。
- [9].許總欣、潘昭賢、揚長林,「以產品機能為基礎之產品定位研究」,工業工程學刊, VOL.14, NO.2, PP.209-216, 1997。
- [10].新QC 七大手法研究小組譯,「新QC 七大手法」,先鋒企管出版社,1989。
- [11].楊長林、方孝華,「模糊環境下QFD 以筆記型電腦為例」,中國工業工程學會八十八年度年會論 文集。
- [12].蕭世文、周孚茂、林銘泉,「助行器設計之輔助系統-先導研究」,工業工程學刊,15(4),頁371-381,1998。
- [13].羅鈞令,「認識輔助用具」,第一復康輔具資源服務輔具之有通訊第五期。
- [14].BART BAUWENS, FILIP EVENEPOEL, JAN ENGELEN, "SGML AS AN ENABLING TECHNOLO GY FOR ACCE -SS TO DIGITAL INFORMATION SGML AS AN ENABLING TECHNOLOGY FOR ACCESS TO DIGITAL INFOR -MATION BY PRINT DISABLED READERS," COMPUTER STANDARDS & INTERACES, 18,55-69 , 1996.
- [15].BIREN PRASAD, ELECTRONIC DATA SYSTEMS (EDS), WEST BLOOMFIELD, MICHIGAN, "TRENDS AND PERSP-ECTIVES REVIEW OF QFD AND RELATED DEPLOYMENT TECHNIQUES", J. OF MANUFACTURING SYSTEM -S, VOL.17, NO.3, 1998. [16].DAVID A. RICE, ROBERT J. HIRKO, ALLEN H. HOFFMAN, HOLLY K. AULT, RONALD C. ANDERSON, "ASSISTIVE

TECHNOLOGY TRANSFER AND THE NSF BIO ENGINEERING RESEARCH TO AID THE DISAB -LED (BRAD) PROGRAM," TECHNOLOGY AND DISABILITY 7,47-54 , 1997.

[17].D.B. SINCLAIR, M. CAMPBELL, P. BYRNE, W. PRASERTSOM, C.M.T. ROBERTSON, "EEG AND LONG- TERM OUTCOME OF TERM INFANTS WITH NEONATAL HYPOXIC -ISCHEMIC ENCEPHALOPATHY," CLINICAL NEUROPHYSIOLOGY, 110, 655-659, 1999.

[18].GEORGE L.VAIRAKTARAKIS, "OPTIMIZATION TOOLS FOR DESIGN AND MARKETING OF NEW/IMPROVED PRODUCTS USING THE HOUSE OF QUALITY", J. OF OPERATIONS MANAGEMENT 17, PP.645-663, 1999.
[19].GRIFFIN,A., "EVALUATING QFD'S USE IN US FIRMS AS A PROCESS FOR DEVELOPING PRODUCTS," J. OF PRODUCT INNOVATION MANAGEMENT, 9, PP.171-187, 1992.

[20]. H. THYS, P. A. WILLEMS AND P. SAELS, "ENERGY COST, MECHANICAL WORK AND MUSCULAR EFFIC -IENCY IN SWING-THROUGH GAIT WITH ELBOW CRUTCHES," J. OF BIOMECHANICS , VOL. 29, NO. 11,PP.1473-1482 , 1998.
[21].JOHN L. HUMM, PH.D., DOMENICO PIZZUTO, PH.D., ERIC FLEISCHMAN AND RADHE MOHAN, PH.D., "COLLISION DETECTION AND AVOIDANCE DURING TREATMENT PLANNING," INT. J. OF RADIATION ONCOLOGY BIOL. PHYS., VOL. 33, NO.5.1101-1108 , 1995.

[22].JUERGEN STAHL, JOHANNES SPRINGER, "RESOURCE ALLOCATION AND SCHEDULING IN WORKSHOPS WITH MENTALLY DISABLED PEOPLE." INTERNATIONAL J. OF INDUSTRIAL ERGONOMICS,17, 193-203 , 1996.

[23].LAWRENCE A. SCADDEN, "TECHNOLOGY AND PEOPLE WITH VISUAL IMPAIRMENTS A 1997 UPDATE," TECHNOLOGY AND DISABILITY, 6,137-145 , 1997.

[24].LAWRENCE R. GUINTA, NANCY C. PRAIZLER, "THE QFD BOOK " AMERICAN MANAGEMENT ASSOCIAT -ION , 1993. [25].LOCKAMY, ARCHIE ; KHURANA, ANIL, "QUALITY FUCTION DEPLOYMENT: TOTAL QUALITY MANAGEME -NT FORNEW PRODUCT DESIGN", INTERNATIONAL J. OF QUALITY & RELIABILITY MANAGEMENT, 12, PP.73-84 , 1995. [26].MICHAEL PIEPER, DIRK HERMSDORF, "BSCW FOR DISABLED TELEWORKERS: USABILITY EVALUATION AND INTERFACE ADAPTATION OF AN INTERNET-BASED COOPERATION ENVIRONMENT," COMPUTER NET -WORKS AND ISDN SYSTEMS, 29, 1479-1487 , 1997.

[27].R.RADHARAMANAN AND LEONI P.GODOY, "QUALITY FUNCTION DEPLOYMENT AS APPLIED TO A HEALTH CARESYSTEM", COMPUTERS IN ENGNG , VOL.31 , NO.1/2 , PP.443-446 , 1996.

[28].VATHSALA I. STONE, STEPHEN M. BAUER, JOSEPH P. LANE, DOUGLAS J.USIAK, ZAFAR KHAN, CHETA -N PRABHU, "WHEELCHAIR TIE-DOWNS: IDEAL FEATURES AND EXISTING PRODUCTS", TECHNOLOGY AND DISABILITY, 8, PP.159-178, 1998.

[29].WILLIAM E. EUREKA, NANCY E. RYAN, "QUALITY UP, COSTS DOWN ,A MANAGER'S GUID E TO TAGUCHI METHODS AND QFD" IRWIN , 1995.

[30].ZULTNER,R.E., "TQM FOR TECHNICAL TEAMS", COMMUNICATIONS OF THE ACM, 36, PP.79-91, 1993.