

傳統輪椅使用障礙分析與對  
「i輪椅」功能期待之研究  
國家與社會 2011年6月  
第十期 頁109-161  
Journal of State and Society  
No.10, Jun. 2011.

## 傳統輪椅使用障礙分析與對「i輪椅」 功能期待之研究

**Analysis of Obstacles to Using Traditional Wheelchairs  
by Elderly People and Study of the Functions of “i  
Wheelchair”**

◎陳燕禎\*

Yen-Jen Chen

---

\* 元智大學社會暨政策科學學系所專任副教授，聯絡方式：yjchen1231@yahoo.com.tw。

## 摘要

本研究旨在探討當前使用輪椅的問題，以及功能改善和功能提升之期待，以提供研發智慧型輪椅輔具的關鍵技術、支援輔助判斷和風險，滿足失能老人和照顧者的使用需求，改善生活品質。本研究方法採質化研究的深度訪談法，收集深度性、核心性的資料，訪談對象包含使用者、照顧者和未曾使用輪椅者，共完成訪談32人。本研究結果依老人坐輪椅時間的長短、照顧者與使用者、以及未使用者的使用障礙和需求功能的改善期待，進行比較分析，並歸類出：1.獨立移動、2.健康管理、3.人因工程、4.休閒通訊、5.市場生產等五大問題，以及對未來智慧型「*i*輪椅」功能研發之期待。本研究結論：未來傳統手動輪椅需朝向人性化的智慧型「*i*輪椅」功能研發，增加自主移動能力和社會互動的機會。希望智慧型「*i*輪椅」能克服傳統輪椅的使用障礙和潛藏的危險性問題，並期待功能增加移動的避障、導航系統、緊急求救系統、健康管理監測、人因工程的坐姿、上下起身角度的壓力計算、休閒通訊娛樂等功能，且產品價格能考慮一般老人的購買能力；更希望「*i*輪椅」的亮麗外觀，能讓社會改變「坐輪椅就等同病人」的刻板印象，以提升生命品質與生活福祉。最後，作者亦提出建議，如發展老人福祉科技輔具，必須切合高齡者的身心發展狀況、教育程度及認知學習能力退化問題，並具有「憑直覺」就能操作的人機介面，以及提供充足、體貼的服務支援系統等。

**關鍵字：**高齡者、老人福祉科技、*i*輪椅（智慧型輪椅）、科技輔具、人機介面、客製化

## Abstract

This study intends to analyze present obstacles to using wheelchairs and the expectations of improved and upgraded functions. It hopes to provide the development of intelligent assistive devices such as a wheelchair with crucial technology, aid support analysis and risk analysis, so that it may satisfy the needs of disabled elderly people and caretakers and improve their living quality. This study employed a qualitative methodology and used in-depth interviews to gather data from a sample of 32 participants comprising of wheelchair users, caretakers and non-users. Conclusions were made regarding five issues: 1.Independent mobility; 2.Health management; 3.Human factor engineering; 4.Recreational communicationand; 5. Market production. Based upon a comparative analysis of the duration of the use of wheelchairs by elderly people, obstacles to using experienced by users, caretakers and non-users, and their expectations of the improvement, evaluations have been made in relation to the potential of developing future intelligent wheelchairs. And to the expectations have been reached in this study. This study concludes that it is expected traditional manual wheelchairs will be developed into human intelligent wheelchairs in the future so as to facilitate independent mobility and social interaction. Furthermore, it is also anticipated that intelligent wheelchairs will overcome operation obstacles and potential dangers in the use of traditional models; this is

hoped to be achieved through the development of features such as mobility obstacle aversion, navigation system, emergency system, health monitor, human factor sitting gesture, angle pressure calculation at getting up and down and recreational communication. Moreover, in order to improve the life quality and welfare standards of the elderly, an intelligent wheelchair should be both affordably priced and should have the capacity to aid society to see a wheelchair user as more than just a "patient". The researchers end with the suggestion researchers also proposes that the development of elderly welfare technology must correspond with the physical and mental development of elderly people, their educational background, and the regression of their cognitive learning ability. In addition, an intelligent wheelchair should have an "intuitively" manageable user interface and be provided with sufficient and custom-made service support system.

**Keywords:** Elderly People, Welfare Technology, Intelligent Wheelchair, Technological Assistive Aid, User Interface, Custom-made