

# 捷運車站內人行系統服務水準之研究

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## 摘要

隨著新的都市發展與運輸觀念帶動下，人行系統的相關研究逐漸受到重視，不再只是探討行人流量、速度或是密度間之關係，亦增加舒適性、方便性、安全性等質化因素的討論。一般捷運車站內人行系統之研究多著重於乘客動線或是空間設施配置等課題進行探討，少有綜合性之完整評估，因此本研究構建一套捷運車站內人行系統服務水準之簡易衡量標準。一方面將近年人行系統服務水準的研究轉化為捷運車站內之應用，一方面也為捷運車站內人行系統之服務水準建立一套完整的衡量標準。

本研究乃以乘客的觀點，考量乘客於捷運車站內行走之主觀感受以蒐集影響因素，並彙整相關文獻選取最終衡量因素，共計 15 項影響因素，得以有效衡量捷運車站內人行系統之服務水準。透過層級分析法分析並制定各構面與因素之相對權重，得知「安全」與「效率」仍是捷運乘客主要考量之影響構面。利用各因素權重值與其不同等級之劃分求算出衡量值，以衡量捷運車站內人行系統服務水準。最後配合乘客主觀感受問卷調查，利用統計分析並引入模糊理論之概念，制定捷運車站內人行系統服務水準分級之臨界值，其臨界值為：A 級(衡量值  $> 4.4148$ )、B 級( $3.5671 < \text{衡量值} < 4.4148$ )、C 級( $2.5523 < \text{衡量值} < 3.5671$ )、D 級( $1.6029 < \text{衡量值} < 2.5523$ )、E 級(衡量值  $< 1.6029$ )。

關鍵字：人行系統服務水準、層級分析法、模糊理論

# **Establishment of Level of Service for Pedestrian System in MRT Station**

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## **Abstract**

It is generally recognized that Level of Service (LOS) value enables us to realize and qualify the facilities and other elements in MRT stations that are conducive to the needs of pedestrians. However, LOS measure for pedestrians in MRT stations is not well developed until now. The primary objective of this study is to develop a standard to evaluate the Pedestrian LOS in MRT stations.

In this study, six comprehensive dimensions are generalized and consist of 15 factors. These dimensions and factors have been defined and weighted by related importance through Analytic Hierarchy Process, and the result indicates the dimension “safety” and “efficiency” have greater importance than other dimensions. The grades of these factors are subsequently described and the measurements of different cases composed of each grade of all factors are set up. Finally a standard for measuring the Pedestrian LOS in MRT stations is developed by Fuzzy theory and defined through a LOS grade from LOS A to LOS E. This study provides the standard to determine the Pedestrian LOS in MRT stations, as well as dimensions and factors contributing to low and high Pedestrian LOS.

**Keywords :** Pedestrian Level of Service, Analytic Hierarchy Process, Fuzzy Theory