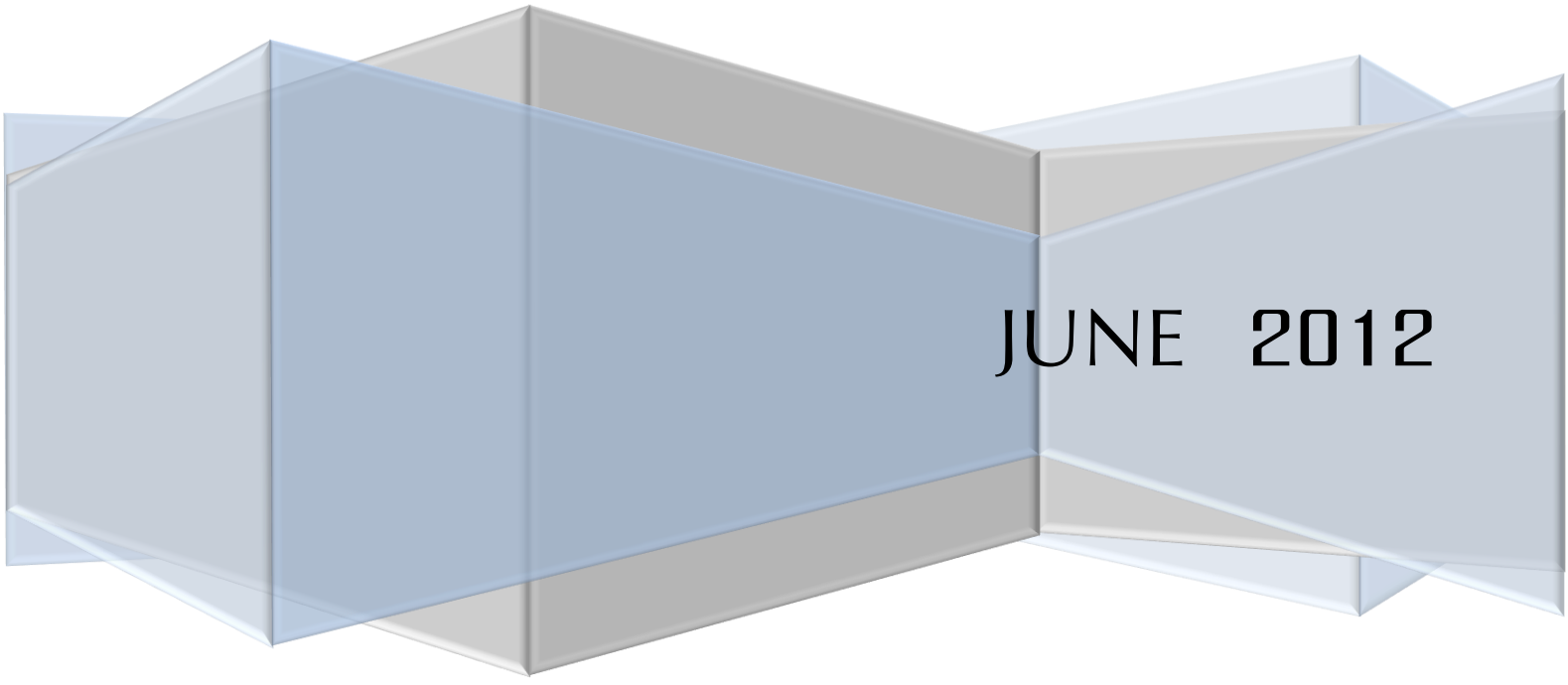
# SEM-based Customer Contentment Analysis on Mass Merchandiser

**Kuan Min Chen** National Chengchi University
**Wei Cheng Chen** National Chengchi University



# Contents

## I. Introduction

Mass merchandisers need to provide the correct information about their products and services to customers. Thus, it is necessary to have the information to enable customers to meet their real needs and to discover the best way to satisfy and retain customers, as well as to follow consumer sentiment, which can provide early warnings of market conduct and performance. This study seeks to understand ways to retain customers and to identify their levels of contentment with mass merchandisers. The research also focused on helping managers assess and identify the major strengths of the critical success factors of merchandisers, so that the company can sustain and maintain the success it has achieved in the market.

## II. Methodology and methods

In this research, a previously validated questionnaire was used that was the basis of the study by Wu et al. (2009), which aimed to identify critical success factors for the E-Life Mall Corporation (Taiwan). In the present study, individual characterization items were adapted for the context, to be applied to customers of merchandisers. Five topics in the present study, analyses obtained **Cronbach's α** up to 0.897 or higher, which, according to the parameters, means the reliability of the instrument was good and very good for the respective dimensions.

The main objective of the study was to identify CSFs that maximize the satisfaction of customers, as well as to observe the degree of their satisfaction. To this end, data were collected using a survey with a questionnaire composed of 2 sections, collecting ***objective*** and ***subjective*** feedbacks, respectively. The former aims at the objective perspective from customers, commenting on the building, the products of the merchandiser, the quality of the service and product, and the traffic flow in the shopping area. The later aims at the subjective perspective, where the customers comment on the level of satisfaction, contentment, and impression on collective topics. In the questionnaire, qualitative variables were measured on a Likert ordinal scale with five points: 1 – Strongly disagree, 2 – Disagree, 3 – Neither agree nor disagree, 4 – Agree and 5 – Strongly Agree. The questions designed are presented as follows.

| factor | | measurement | |
|---|---|---|---|
| Building (M) | staff (AS) | A1 | Staff is proactive and amicable. |
| | | A2 | Store has a sufficient number of staff. |
| | | A3 | Staff is energetic. |
| | | A4 | Staff is generous in giving help. |
| | design (AD) | A5 | Products are labeled with detailed and regulated information. |
| | | A6 | Products are appropriately displayed. |
| | | A7 | Facilities are attractive. |
| | | A8 | Shopping center is clean and tidy. |
| | | A9 | Shopping center is comfortable. |
| | | A10 | Decor is with appropriate selection of colors. |
| | decor (AE) | A11 | Background music is delightful. |
| | | A12 | Store lightening is bright. |
| | | A13 | Air is fresh indoor. |
| | | A14 | Store has a comfortable and pleasant atmosphere. |

| factor | | measurement | |
|---|---|---|---|
| Product (P) | variety (BC) | B1 | Store offers a variety of products. |
| | | B2 | Store has a wide spectrum of product type. |
| | | B3 | Store offers special and interesting products. |
| | placement (BW) | B4 | Store offers products released by famous brands. |
| | | B5 | Store has enough inventory |
| | | B6 | Store offers mostly mainstream products |
| | | B7 | Store offers new products |
| | | B8 | Store offers products released by international brands. |
| | private brand (BP) | B9 | Store offers a variety of products released by its own in-house brand. |
| | | B10 | Store has a wide spectrum of product type for products from its own in-house brand. |

| factor | | measurement | |
|---|---|---|---|
| Quality (Q) | service (DS) | D1 | Staff treats customers with respect. |
| | | D2 | Staff takes good care of customers. |
| | | D3 | Staff offers high-quality service. |
| | | D4 | Staff offers real time service. |
| | product (DP) | D5 | Store offers high-quality products |
| | | D6 | Store offers durable products |
| | | D7 | Store offers fine products |
| | | D8 | Store offers reliable products |

| factor | | measurement | |
|---|---|---|---|
| Traffic Flow (T) | space (ES) | E1 | Store is specious. |
| | | E2 | Store has good air flow. |
| | | E3 | Store is uncomfortably confined. |
| | customer (EP) | E4 | Store is usually crowded with customers |
| | staff (EB) | E5 | Staff is always busy. |

| factor | | measurement | |
|---|---|---|---|
| Satisfaction (F) | delight (CP) | **C1** | You feel joyful while shopping. |
| | | **C2** | You feel comfortable while shopping |
| | | **C3** | You feel excited while shopping |
| | | **C4** | You feel stressed while shopping |
| | comfort (CC) | **C5** | You feel that you are in control of the surrounding. |
| | informative (CD) | **C6** | The store provides you with sufficient information while looking for certain products. |

| factor | | measurement | |
|---|---|---|---|
| Contentment (S) | environment (FE) | **F1** | Store offers an ambient atmosphere for shopping. |
| | | **F2** | Store offers a clean and sanitary environment. |
| | | **F3** | Products are appropriately displayed, and traffic flow is well designed. |
| | parking (FS) | **F4** | It is easy to park. |
| | staff (FP) | **F5** | Staff is amicable. |
| | | **F6** | Staff are clean and tidy in appearance |
| | | **F7** | Cashiers has satisfactory register speed. |
| | product (FC) | **F8** | Prices are reasonable. |
| | | **F9** | Prices are clearly labeled. |
| | | **F10** | Product information is consistent with the advertisements. |
| | | **F11** | Price matches the value of product. |
| | | **F12** | Price matches the staff service. |
| | | **F13** | Products offer great value for money. |

| factor | | measurement | |
|---|---|---|---|
| Impression (I) | product (GP) | **G1** | Store offers a variety of products. |
| | | **G2** | Prices are reasonable. |
| | | **G4** | Product qualities are credible and trustworthy. |
| | | **G5** | Store offers a variety of product brands. |
| | | **G6** | Store has a good assortment of products. |
| | ambience (GS) | **G8** | Decor is bright and fresh. |
| | | **G9** | Space is roomy and bright. |
| | | **G10** | Store is well-equipped with safety facilities. |
| | | **G11** | Staff has a good attitude in customer service. |
| | | **G13** | Store offers good after-sales service. |
| | service (GG) | **G3** | Store offers mostly mainstream products. |
| | | **G7** | Recreational facilities are attractive. |
| | | **G12** | Staff have good knowledge of products. |
| | activity (GA) | **G14** | Store has many taste testing activities. |
| | | **G15** | Store has many promotional activities. |
| | | **G16** | Store has many exhibitions. |

In order to meet the goals of the present study, the following analyses were carried out:

- Descriptive Analysis
  - With the background information and the behavioral research on consumers, descriptive analysis was performed on gender, education, monthly income, and so on and so forth.
  - By analyzing the averages and standard deviations of the variables among mass merchandisers, the demographics of samples were observed.

- Reliability Analysis and Confirmatory Factor Analysis
  - Reliability analysis were conducted, using **Cronbach's α**, where the factors with weaker reliability were removed, so to reduce dimensions.
  - $1^{st}$-order & $2^{nd}$-order confirmatory factor analysis (CFA) were proceeded for all factors.

- Structural Equation Modeling Analysis
  - Structural equation modeling (SEM) analysis was performed on the initialized model.
  - Based on the first output, weak connections were removed. Aiming at maximizing indexes, e.g. **GFI** and **AGFI**, the process was repeated to fine the best model.

## III. Presentation of results and discussion

### a. Descriptive Analysis

The study population was based on the customers visiting mass merchandisers, *Costco*, *Carrefour*, and *a.mart*, and all analyses were based on the responses of customers. Data were collected in 2012, from 280 customers responded to the questionnaire.

Regarding **sampling design**, mass merchandiser was our target, not individuals. Since complete random division of a limited dataset may lead to over-crowded or complete absence of customers at a certain region or merchandiser, we adopted the **stratified sampling** to avoid such inconsistency. Based on the distribution of the merchandiser, the sample sizes on different locations for each merchandiser were assigned.

**Distribution of the merchandisers**

| location | Costco | Carrefour | a.mart |
|---|---|---|---|
| North | 6 | 15 | 5 |
| Central | 1 | 3 | 1 |
| South | 3 | 5 | 0 |
| East | 0 | 0 | 0 |
| total | **9** | **24** | **6** |

**Sample size**

| location | Costco | Carrefour | a.mart |
|---|---|---|---|
| North | 42 | 110 | 33 |
| Central | 6 | 22 | 10 |
| South | 20 | 36 | 0 |
| East | 0 | 1 | 0 |
| total | **68** | **169** | **43** |

**Table 1. Summary of the sample characterization**

| Item | | Costco | | Carrefour | | a.mart | | total | |
|---|---|---|---|---|---|---|---|---|---|
| | | #sample | % | #sample | % | #sample | % | #sample | % |
| Location | North | 42 | **61.8** | 110 | **65.1** | 33 | **76.7** | 185 | **66.1** |
| | Central | 6 | **8.8** | 22 | **13.0** | 10 | **23.3** | 38 | **13.6** |
| | South | 20 | **29.4** | 36 | **21.3** | 0 | **0.0** | 56 | **20.0** |
| | East | 0 | **0.0** | 1 | **0.6** | 0 | **0.0** | 1 | **0.4** |
| gender | Male | 31 | **45.6** | 82 | **48.5** | 22 | **51.2** | 135 | **48.2** |
| | Female | 37 | **54.4** | 87 | **51.5** | 21 | **48.8** | 145 | **51.8** |
| age | <20 | 7 | **10.3** | 21 | **12.4** | 2 | **4.7** | 30 | **10.7** |
| | 21 to 40 | 29 | **42.6** | 102 | **60.4** | 20 | **46.5** | 151 | **53.9** |
| | 41 to 60 | 30 | **44.1** | 45 | **26.6** | 21 | **48.8** | 96 | **34.3** |
| | 61< | 2 | **2.9** | 1 | **0.6** | 0 | **0.0** | 3 | **1.1** |
| Education | PhD | 4 | **5.9** | 7 | **4.1** | 3 | **7.0** | 14 | **5.0** |
| | Master | 18 | **26.5** | 54 | **32.0** | 9 | **20.9** | 81 | **28.9** |
| | Graduate | 44 | **64.7** | 106 | **62.7** | 28 | **65.1** | 178 | **63.6** |
| | High School | 2 | **2.9** | 2 | **1.2** | 3 | **7.0** | 7 | **2.5** |
| Marital Status | Married | 36 | **52.9** | 60 | **35.5** | 23 | **53.5** | 119 | **42.5** |
| | Single | 32 | **47.1** | 109 | **64.5** | 20 | **46.5** | 161 | **57.5** |
| Monthly Income | 170k< | 9 | **13.2** | 16 | **9.5** | 5 | **11.6** | 30 | **10.7** |
| | 140k to 170k | 6 | **8.8** | 11 | **6.5** | 3 | **7.0** | 20 | **7.1** |
| | 110k to 140k | 9 | **13.2** | 20 | **11.8** | 3 | **7.0** | 32 | **11.4** |
| | 80k to 110k | 16 | **23.5** | 38 | **22.5** | 9 | **20.9** | 63 | **22.5** |
| | 50k to 80k | 15 | **22.1** | 39 | **23.1** | 10 | **23.3** | 64 | **22.9** |
| | <50k | 13 | **19.1** | 45 | **26.6** | 13 | **30.2** | 71 | **25.4** |
| #people in a Household | 11 | 0 | **0.0** | 2 | **1.2** | 0 | **0.0** | 2 | **0.7** |
| | 8 | 0 | **0.0** | 1 | **0.6** | 1 | **2.3** | 2 | **0.7** |
| | 7 | 2 | **2.9** | 2 | **1.2** | 0 | **0.0** | 4 | **1.4** |
| | 6 | 0 | **0.0** | 11 | **6.5** | 4 | **9.3** | 15 | **5.4** |
| | 5 | 15 | **22.1** | 33 | **19.5** | 9 | **20.9** | 57 | **20.4** |
| | 4 | 35 | **51.5** | 65 | **38.5** | 12 | **27.9** | 112 | **40.0** |
| | 3 | 4 | **5.9** | 28 | **16.6** | 10 | **23.3** | 42 | **15.0** |
| | 2 | 10 | **14.7** | 16 | **9.5** | 5 | **11.6** | 31 | **11.1** |
| | 1 | 2 | **2.9** | 11 | **6.5** | 2 | **4.7** | 15 | **5.4** |
| #visits per Monthly | 7< | 2 | **2.9** | 2 | **1.2** | 0 | **0.0** | 4 | **1.4** |
| | 5 to 6 | 0 | **0.0** | 3 | **1.8** | 5 | **11.6** | 8 | **2.9** |
| | 3 to 4 | 17 | **25.0** | 29 | **17.2** | 11 | **25.6** | 57 | **20.4** |
| | 1 to 2 | 49 | **72.1** | 135 | **79.9** | 27 | **62.8** | 211 | **75.4** |
| Visiting Time | 20:00~23:00 | 10 | **14.7** | 41 | **24.3** | 14 | **32.6** | 65 | **23.2** |
| | 17:00~20:00 | 24 | **35.3** | 74 | **43.8** | 14 | **32.6** | 112 | **40.0** |
| | 14:00~17:00 | 23 | **33.8** | 45 | **26.6** | 12 | **27.9** | 80 | **28.6** |
| | 11:00~14:00 | 6 | **8.8** | 6 | **3.6** | 2 | **4.7** | 14 | **5.0** |
| | 08:00~11:00 | 5 | **7.4** | 3 | **1.8** | 1 | **2.3** | 9 | **3.2** |

Through the analysis of the results in Table 1, it can be said that:

- The largest percentage of respondents were belonging to the age group 21 to 40 years old, representing 53.9% of the respondents. It can also be noted that 98.9% of the individuals were less than or equal to 60 years old. Only 1.1% were older than 60 years. Also, comparing to Costco and a.mart, which have close ratios for group 21 to 40 years old and group 41 to 60 years old, Carrefour has 2 times higher for the former group than the later.
- The educational levels of the respondents corresponded to mostly university graduates (63.6%), for a total of 178 respondents. A large percentage of respondents also had a master's degree (28.9% or 81 respondents).
- The marital status of the respondents corresponded to mostly unmarried people for Carrefour (64.5% unmarried), while it was evenly observed in general for Costco and a.mart. Also, most customers are from a family of 4 with 40.0% of respondents, followed by a family of 5 with 20.4% of respondents.
- It can also be noted that up to 75.4% of respondents visit mass merchandisers 1 to 2 times; the most popular visiting hours were from 17:00 to 20:00 with 40.0% of respondents.

**Table 2. Summary of statistics**

| Factor | | Costco | | Carrefour | | a.mart | | total | |
|---|---|---|---|---|---|---|---|---|---|
| | | avg. | std. | avg. | std. | avg. | std. | avg. | std. |
| Building | staff | 2.12 | 0.56 | 1.90 | 0.43 | 2.04 | 0.43 | 1.98 | 0.47 |
| | design | 2.27 | 0.48 | 2.05 | 0.39 | 2.11 | 0.44 | 2.11 | 0.43 |
| | decor | 4.63 | 0.79 | 4.22 | 0.74 | 4.28 | 0.75 | 4.33 | 0.77 |
| Product | variety | 2.40 | 0.40 | 2.11 | 0.39 | 2.11 | 0.39 | 2.18 | 0.41 |
| | placement | 4.03 | 0.59 | 3.45 | 0.61 | 3.35 | 0.75 | 3.57 | 0.68 |
| | private brand | 1.47 | 0.31 | 1.36 | 0.27 | 1.28 | 0.36 | 1.38 | 0.30 |
| Quality | service | 0.72 | 0.16 | 0.67 | 0.15 | 0.66 | 0.19 | 0.68 | 0.16 |
| | product | 0.69 | 0.21 | 0.68 | 0.18 | 0.67 | 0.19 | 0.68 | 0.19 |
| Traffic Flow | space | 1.56 | 0.29 | 1.42 | 0.29 | 1.41 | 0.31 | 1.45 | 0.30 |
| | customer | 0.74 | 0.20 | 0.74 | 0.19 | 0.81 | 0.25 | 0.77 | 0.22 |
| | staff | 2.07 | 0.56 | 1.87 | 0.42 | 1.91 | 0.49 | 1.92 | 0.47 |
| Satisfaction | delight | 3.21 | 0.44 | 2.51 | 0.52 | 2.52 | 0.57 | 2.68 | 0.59 |
| | comfort | 1.55 | 0.38 | 1.39 | 0.30 | 1.33 | 0.35 | 1.42 | 0.34 |
| | informative | 0.79 | 0.19 | 0.68 | 0.17 | 0.68 | 0.18 | 0.71 | 0.18 |
| Contentment | environment | 0.75 | 0.22 | 0.75 | 0.19 | 0.68 | 0.24 | 0.74 | 0.21 |
| | parking | 2.33 | 0.43 | 2.06 | 0.38 | 2.02 | 0.49 | 2.12 | 0.43 |
| | staff | 1.46 | 0.35 | 1.36 | 0.28 | 1.34 | 0.32 | 1.38 | 0.31 |
| | product | 4.66 | 0.66 | 4.03 | 0.75 | 4.10 | 0.95 | 4.19 | 0.81 |
| Impression | product | 3.93 | 0.59 | 3.48 | 0.63 | 3.54 | 0.81 | 3.60 | 0.68 |
| | ambience | 2.00 | 0.45 | 1.77 | 0.42 | 1.76 | 0.50 | 1.83 | 0.45 |
| | service | 3.86 | 0.73 | 3.40 | 0.63 | 3.44 | 0.72 | 3.52 | 0.70 |
| | activity | 1.60 | 0.32 | 1.34 | 0.33 | 1.33 | 0.38 | 1.40 | 0.35 |

## b. Reliability analysis and Confirmatory Factory analysis

Reliability Analysis were conducted and presented in Table 3. Factors as **Building**, **Product**, **Quality**, **Contentment** obtained **Cronbach's α** up to 0.897 or higher with the analysis. This indicates that the set of items in a group are closely related to each other. For example, **Cronbach's α** for group Building is above 0.9, meaning the measurements from *A1* to *A14* provided by the respondents, i.e., how good the decoration is, how good the staff is at service, and so on, are highly correlated to each other. After removing the factors with weaker reliability, the **Cronbach's α** for all topics are presented in the table.

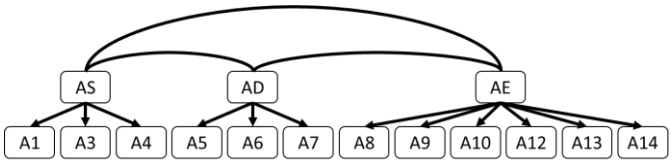
**Table 3. Reliability analysis on variable**

| factor | | variable | factor loading | Cronbach's α | Composite Reliability (CR) | t-value |
|---|---|---|---|---|---|---|
| Building (M) | AS | A1 | 0.829 | 0.928 | 0.898 | 36.039 |
| | | A3 | 0.895 | | | 49.634 |
| | | A4 | 0.863 | | | 42.490 |
| | AD | A5 | 0.720 | | 0.800 | 20.826 |
| | | A6 | 0.814 | | | 29.371 |
| | | A7 | 0.749 | | | 23.082 |
| | AE | A8 | 0.802 | | 0.904 | 33.018 |
| | | A9 | 0.826 | | | 37.219 |
| | | A10 | 0.815 | | | 35.131 |
| | | A12 | 0.720 | | | 22.785 |
| | | A13 | 0.678 | | | 19.360 |
| | | A14 | 0.841 | | | 40.522 |
| Product (P) | BC | B1 | 0.621 | 0.897 | 0.753 | 14.178 |
| | | B2 | 0.764 | | | 22.220 |
| | | B3 | 0.758 | | | 21.821 |
| | BW | B4 | 0.798 | | 0.863 | 30.373 |
| | | B5 | 0.638 | | | 16.236 |
| | | B6 | 0.748 | | | 24.497 |
| | | B7 | 0.782 | | | 28.256 |
| | | B8 | 0.773 | | | 27.192 |
| | BP | B9 | 0.837 | | 0.820 | 24.019 |
| | | B10 | 0.795 | | | 22.116 |
| Quality (Q) | DS | D1 | 0.815 | 0.920 | 0.899 | 34.715 |
| | | D3 | 0.951 | | | 65.903 |
| | | D4 | 0.825 | | | 36.264 |
| | DP | D5 | 0.887 | | 0.924 | 55.315 |
| | | D6 | 0.889 | | | 56.009 |
| | | D7 | 0.805 | | | 34.032 |
| | | D8 | 0.893 | | | 57.510 |
| | | G16 | 0.898 | | | 41.919 |
| Traffic Flow (T) | ES | E1 | 0.832 | 0.633 | 0.837 | 8.388 |
| | | E2 | 0.866 | | | 8.447 |
| | EB | E5 | 0.979 | | --- | 34.511 |
| Satisfaction (F) | CP | C1 | 0.925 | 0.782 | 0.943 | 51.927 |
| | | C2 | 0.965 | | | 57.520 |
| | CC | C5 | 0.871 | | --- | 103.500 |
| | CD | C6 | 0.980 | | --- | 150.300 |

| factor | | variable | factor loading | Cronbach's α | Composite Reliability (CR) | t-value |
|---|---|---|---|---|---|---|
| Traffic Flow (T) | ES | E1 | 0.832 | 0.633 | 0.837 | 8.388 |
| | | E2 | 0.866 | | | 8.447 |
| | EB | E5 | 0.979 | | --- | 34.511 |
| Satisfaction (F) | CP | C1 | 0.925 | 0.782 | 0.943 | 51.927 |
| | | C2 | 0.965 | | | 57.520 |
| | CC | C5 | 0.871 | | --- | 103.500 |
| | CD | C6 | 0.980 | | --- | 150.300 |
| Contentment (S) | FE | F1 | 0.845 | 0.944 | 0.884 | 40.210 |
| | | F2 | 0.913 | | | 57.746 |
| | | F3 | 0.790 | | | 30.586 |
| | FS | F4 | 0.997 | | --- | 138.200 |
| | FP | F5 | 0.869 | | 0.891 | 43.146 |
| | | F6 | 0.925 | | | 54.092 |
| | FC | F8 | 0.775 | | 0.929 | 29.953 |
| | | F9 | 0.756 | | | 27.488 |
| | | F10 | 0.858 | | | 47.950 |
| | | F11 | 0.895 | | | 62.576 |
| | | F12 | 0.905 | | | 67.726 |
| | | F13 | 0.779 | | | 30.544 |
| Impression (I) | GP | G1 | 0.751 | 0.948 | 0.917 | 26.537 |
| | | G2 | 0.817 | | | 36.583 |
| | | G4 | 0.798 | | | 28.317 |
| | | G5 | 0.833 | | | 39.982 |
| | | G6 | 0.865 | | | 48.772 |
| | GS | G8 | 0.875 | | 0.888 | 51.966 |
| | | G9 | 0.617 | | | 14.738 |
| | | G10 | 0.855 | | | 44.109 |
| | | G11 | 0.882 | | | 52.194 |
| | | G13 | 0.781 | | | 29.919 |
| | GG | G3 | 0.748 | | 0.800 | 25.704 |
| | | G7 | 0.836 | | | 32.603 |
| | | G12 | 0.677 | | | 19.341 |
| | GA | G15 | 0.902 | | 0.895 | 42.531 |
| | | G16 | 0.898 | | | 41.919 |

To continue, 1st-order & 2nd-order CFA were proceeded for all factors with path diagrams.

- **Building -** 1st-order CFA

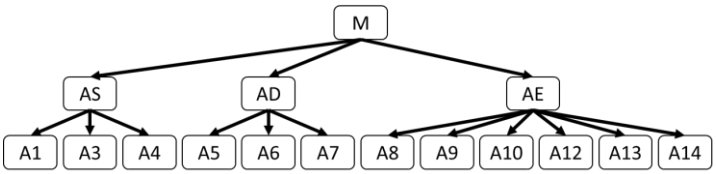


| Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| AS→A1 | 0.83 | 0.02 | 36.04 |
| AS→A3 | 0.90 | 0.02 | 49.63 |
| AS→A4 | 0.86 | 0.02 | 42.49 |
| AD→A5 | 0.72 | 0.03 | 20.83 |
| AD→A6 | 0.81 | 0.03 | 29.37 |
| AD→A7 | 0.75 | 0.03 | 23.08 |
| AE→A8 | 0.80 | 0.02 | 33.02 |
| AE→A9 | 0.83 | 0.02 | 37.22 |
| AE→A10 | 0.81 | 0.02 | 35.13 |
| AE→A12 | 0.72 | 0.03 | 22.78 |
| AE→A13 | 0.68 | 0.04 | 19.36 |
| AE→A14 | 0.84 | 0.02 | 40.52 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| A1 | 0.31 | 0.04 | 8.20 |
| A3 | 0.20 | 0.03 | 6.13 |
| A4 | 0.25 | 0.04 | 7.26 |
| A5 | 0.48 | 0.05 | 9.66 |
| A6 | 0.34 | 0.05 | 7.47 |
| A7 | 0.44 | 0.05 | 9.06 |
| A8 | 0.36 | 0.04 | 9.13 |
| A9 | 0.32 | 0.04 | 8.70 |
| A10 | 0.34 | 0.04 | 8.91 |
| A12 | 0.48 | 0.05 | 10.61 |
| A13 | 0.54 | 0.05 | 11.39 |
| A14 | 0.29 | 0.03 | 8.39 |

| between Factors | estimated corr coef. | Std. | t-value |
|---|---|---|---|
| AS-AD | 0.69 | 0.04 | 16.27 |
| AD-AE | 0.83 | 0.03 | 27.52 |
| AS-AE | 0.68 | 0.04 | 17.45 |

- **Building -** 2nd-order CFA



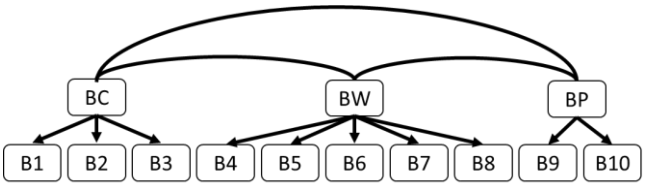

| Sub Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| AS→A1 | 0.83 | 0.02 | 36.12 |
| AS→A3 | 0.90 | 0.02 | 49.57 |
| AS→A4 | 0.86 | 0.02 | 42.45 |
| AD→A5 | 0.72 | 0.03 | 20.69 |
| AD→A6 | 0.81 | 0.03 | 29.37 |
| AD→A7 | 0.75 | 0.03 | 23.21 |
| AE→A8 | 0.80 | 0.02 | 33.18 |
| AE→A9 | 0.83 | 0.02 | 37.30 |
| AE→A10 | 0.81 | 0.02 | 35.01 |
| AE→A12 | 0.72 | 0.03 | 22.77 |
| AE→A13 | 0.68 | 0.04 | 19.33 |
| AE→A14 | 0.84 | 0.02 | 40.47 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| A1 | 0.31 | 0.04 | 8.18 |
| A3 | 0.20 | 0.03 | 6.14 |
| A4 | 0.26 | 0.04 | 7.27 |
| A5 | 0.48 | 0.05 | 9.70 |
| A6 | 0.34 | 0.05 | 7.47 |
| A7 | 0.44 | 0.05 | 9.02 |
| A8 | 0.35 | 0.04 | 9.11 |
| A9 | 0.32 | 0.04 | 8.69 |
| A10 | 0.34 | 0.04 | 8.92 |
| A12 | 0.48 | 0.05 | 10.61 |
| A13 | 0.54 | 0.05 | 11.40 |
| A14 | 0.29 | 0.03 | 8.39 |

| Factor to Sub Factors | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| M→AS | 0.75 | 0.04 | 20.91 |
| M→AD | 0.91 | 0.03 | 31.52 |
| M→AE | 0.91 | 0.02 | 36.93 |

| Sub Factors | Estimated Errors | Std. | t-values |
|---|---|---|---|
| AS | 0.31 | 0.04 | 8.18 |
| AD | 0.20 | 0.03 | 6.14 |
| AE | 0.26 | 0.04 | 7.27 |

- **Product -** 1st-order CFA

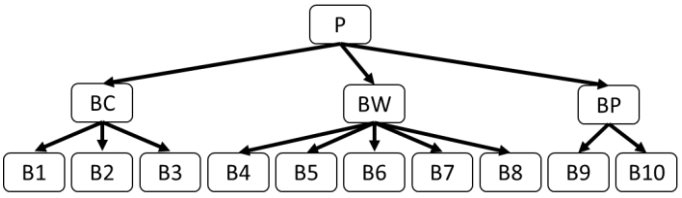



| Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| BC→B1 | 0.62 | 0.04 | 14.18 |
| BC→B2 | 0.76 | 0.03 | 22.22 |
| BC→B3 | 0.76 | 0.03 | 21.82 |
| BW→B4 | 0.80 | 0.03 | 30.37 |
| BW→B5 | 0.64 | 0.04 | 16.24 |
| BW→B6 | 0.75 | 0.03 | 24.50 |
| BW→B7 | 0.78 | 0.03 | 28.26 |
| BW→B8 | 0.77 | 0.03 | 27.19 |
| BP→B9 | 0.84 | 0.03 | 24.02 |
| BP→B10 | 0.79 | 0.04 | 22.12 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| B1 | 0.61 | 0.05 | 11.27 |
| B2 | 0.42 | 0.05 | 7.91 |
| B3 | 0.42 | 0.05 | 8.06 |
| B4 | 0.36 | 0.04 | 8.66 |
| B5 | 0.59 | 0.05 | 11.85 |
| B6 | 0.44 | 0.05 | 9.66 |
| B7 | 0.39 | 0.04 | 9.00 |
| B8 | 0.40 | 0.04 | 9.17 |
| B9 | 0.30 | 0.06 | 5.15 |
| B10 | 0.37 | 0.06 | 6.46 |

| between Factors | estimated corr coef. | Std. | t-value |
|---|---|---|---|
| BC-BW | 0.83 | 0.03 | 23.95 |
| BW-BP | 0.73 | 0.04 | 17.36 |
| BC-BP | 0.58 | 0.06 | 10.00 |

- **Product -** 2nd-order CFA



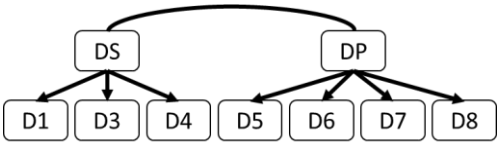

| Sub Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| BC→B1 | 0.62 | 0.04 | 14.18 |
| BC→B2 | 0.76 | 0.03 | 22.22 |
| BC→B3 | 0.76 | 0.03 | 21.82 |
| BW→B4 | 0.80 | 0.03 | 30.37 |
| BW→B5 | 0.64 | 0.04 | 16.24 |
| BW→B6 | 0.75 | 0.03 | 24.50 |
| BW→B7 | 0.78 | 0.03 | 28.26 |
| BW→B8 | 0.77 | 0.03 | 27.19 |
| BP→B9 | 0.84 | 0.03 | 24.02 |
| BP→B10 | 0.79 | 0.04 | 22.12 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| B1 | 0.61 | 0.05 | 11.27 |
| B2 | 0.42 | 0.05 | 7.91 |
| B3 | 0.42 | 0.05 | 8.06 |
| B4 | 0.36 | 0.04 | 8.66 |
| B5 | 0.59 | 0.05 | 11.85 |
| B6 | 0.44 | 0.05 | 9.66 |
| B7 | 0.39 | 0.04 | 9.00 |
| B8 | 0.40 | 0.04 | 9.17 |
| B9 | 0.30 | 0.06 | 5.15 |
| B10 | 0.37 | 0.06 | 6.46 |

| Factor to Sub Factors | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| P→BC | 0.81 | 0.04 | 18.51 |
| P→BW | 1.02 | 0.04 | 25.67 |
| P→BP | 0.71 | 0.05 | 15.17 |

| Sub Factors | Estimated Errors | Std. | t-values |
|---|---|---|---|
| BC | 0.34 | 0.07 | 4.80 |
| BW | 0.05 | 0.08 | -0.58 |
| BP | 0.50 | 0.07 | 7.45 |

- **Quality -** 1st-order CFA

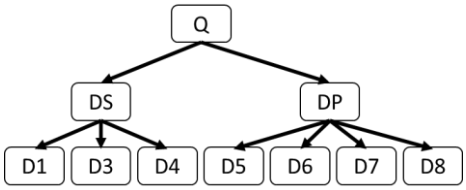



| Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| DS→D1 | 0.82 | 0.02 | 34.71 |
| DS→D3 | 0.95 | 0.01 | 65.90 |
| DS→D4 | 0.82 | 0.02 | 36.26 |
| DP→D5 | 0.89 | 0.02 | 55.31 |
| DP→D6 | 0.89 | 0.02 | 56.01 |
| DP→D7 | 0.80 | 0.02 | 34.03 |
| DP→D8 | 0.89 | 0.02 | 57.51 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| D1 | 0.34 | 0.04 | 8.75 |
| D3 | 0.10 | 0.03 | 3.47 |
| D4 | 0.32 | 0.04 | 8.53 |
| D5 | 0.21 | 0.03 | 7.51 |
| D6 | 0.21 | 0.03 | 7.46 |
| D7 | 0.35 | 0.04 | 9.25 |
| D8 | 0.20 | 0.03 | 7.34 |

| between Factors | estimated corr coef. | Std. | t-value |
|---|---|---|---|
| DS-DP | 0.70 | 0.04 | 19.80 |

- **Quality -** 2nd-order CFA



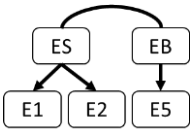

| Sub Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| DS→D1 | 0.82 | 0.02 | 34.71 |
| DS→D3 | 0.95 | 0.01 | 65.90 |
| DS→D4 | 0.82 | 0.02 | 36.26 |
| DP→D5 | 0.89 | 0.02 | 55.31 |
| DP→D6 | 0.89 | 0.02 | 56.01 |
| DP→D7 | 0.80 | 0.02 | 34.03 |
| DP→D8 | 0.89 | 0.02 | 57.51 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| D1 | 0.34 | 0.04 | 8.75 |
| D3 | 0.10 | 0.03 | 3.47 |
| D4 | 0.32 | 0.04 | 8.53 |
| D5 | 0.21 | 0.03 | 7.51 |
| D6 | 0.21 | 0.03 | 7.46 |
| D7 | 0.35 | 0.04 | 9.25 |
| D8 | 0.20 | 0.03 | 7.34 |

| Factor to Sub Factors | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| Q→DS | 0.84 | 0.02 | 35.27 |
| Q→DP | 0.84 | 0.02 | 44.79 |

| Sub Factors | Estimated Errors | Std. | t-values |
|---|---|---|---|
| DS | 0.30 | 0.04 | 7.53 |
| DP | 0.30 | 0.03 | 9.54 |

- **Traffic Flow -** 1st-order CFA

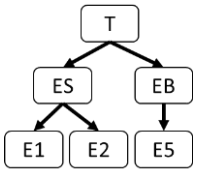



| Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| ES→E1 | 0.83 | 0.10 | 8.39 |
| ES→E2 | 0.87 | 0.10 | 8.45 |
| EB→E5 | 0.98 | 0.03 | 34.51 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| E1 | 0.31 | 0.16 | 1.87 |
| E2 | 0.25 | 0.18 | 1.41 |
| E5 | 0.04 | 0.06 | 0.75 |

| between Factors | estimated corr coef. | Std. | t-value |
|---|---|---|---|
| ES-EB | 0.23 | 0.06 | 3.94 |

- **Traffic Flow -** 2nd-order CFA



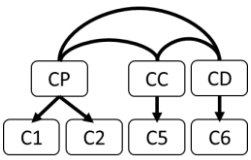

| Sub Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| ES→E1 | 0.83 | 0.10 | 8.39 |
| ES→E2 | 0.87 | 0.10 | 8.45 |
| EB→E5 | 0.93 | 0.01 | 92.48 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| E1 | 0.31 | 0.16 | 1.87 |
| E2 | 0.25 | 0.18 | 1.41 |
| E5 | 0.13 | 0.02 | 6.85 |

| Factor to Sub Factors | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| T→ES | 0.25 | 0.07 | 3.68 |
| T→EB | 0.96 | 0.00 | 1160.30 |

| Sub Factors | Estimated Errors | Std. | t-values |
|---|---|---|---|
| ES | 0.94 | 0.03 | 28.29 |
| EB | 0.08 | 0.00 | 50.36 |

- **Satisfaction -** 1st-order CFA

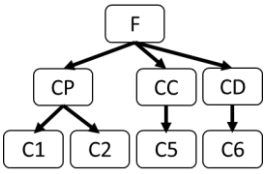



| Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| CP→C1 | 0.93 | 0.02 | 51.93 |
| CP→C2 | 0.97 | 0.02 | 57.52 |
| CC→C5 | 0.87 | 0.01 | 103.50 |
| CD→C6 | 0.98 | 0.01 | 150.30 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| C1 | 0.14 | 0.03 | 4.36 |
| C2 | 0.07 | 0.03 | 2.11 |
| C5 | 0.24 | 0.01 | 16.49 |
| C6 | 0.04 | 0.01 | 3.13 |

| between Factors | estimated corr coef. | Std. | t-value |
|---|---|---|---|
| CP-CC | 0.73 | 0.04 | 20.17 |
| CC-CD | 0.21 | 0.07 | 3.21 |
| CP-CD | 0.30 | 0.06 | 5.34 |

- **Satisfaction -** 2nd-order CFA



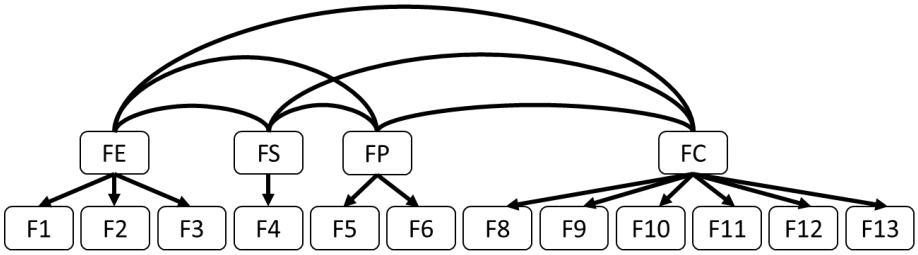

| Sub Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| CP→C1 | 0.93 | 0.02 | 51.93 |
| CP→C2 | 0.97 | 0.02 | 57.52 |
| CC→C5 | 0.82 | 0.04 | 19.79 |
| CD→C6 | 0.86 | 0.01 | 94.56 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| C1 | 0.14 | 0.03 | 4.36 |
| C2 | 0.07 | 0.03 | 2.11 |
| C5 | 0.33 | 0.07 | 4.97 |
| C6 | 0.27 | 0.02 | 17.06 |

| Factor to Sub Factors | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| F→CP | 1.02 | 0.13 | 8.06 |
| F→CC | 0.77 | 0.07 | 11.58 |
| F→CD | 0.34 | 0.07 | 4.62 |

| Sub Factors | Estimated Errors | Std. | t-values |
|---|---|---|---|
| CP | -0.04 | 0.26 | -0.17 |
| CC | 0.41 | 0.10 | 4.04 |
| CD | 0.89 | 0.05 | 18.03 |

- **Contentment -** 1st-order CFA

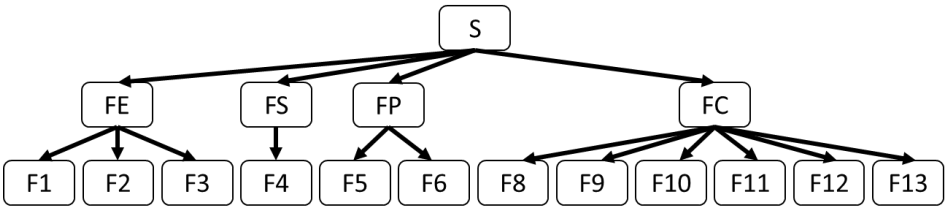


| Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| FE→F1 | 0.85 | 0.02 | 40.21 |
| FE→F2 | 0.91 | 0.02 | 57.75 |
| FE→F3 | 0.79 | 0.03 | 30.59 |
| FS→F4 | 1.00 | 0.01 | 138.20 |
| FP→F5 | 0.87 | 0.02 | 43.15 |
| FP→F6 | 0.92 | 0.02 | 54.09 |
| FC→F8 | 0.77 | 0.03 | 29.95 |
| FC→F9 | 0.76 | 0.03 | 27.49 |
| FC→F10 | 0.86 | 0.02 | 47.95 |
| FC→F11 | 0.90 | 0.01 | 62.58 |
| FC→F12 | 0.90 | 0.01 | 67.73 |
| FC→F13 | 0.78 | 0.03 | 30.54 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| F1 | 0.29 | 0.04 | 8.03 |
| F2 | 0.17 | 0.03 | 5.76 |
| F3 | 0.38 | 0.04 | 9.20 |
| F4 | 0.01 | 0.01 | 0.40 |
| F5 | 0.24 | 0.04 | 6.98 |
| F6 | 0.15 | 0.03 | 4.59 |
| F8 | 0.40 | 0.04 | 9.99 |
| F9 | 0.43 | 0.04 | 10.29 |
| F10 | 0.26 | 0.03 | 8.57 |
| F11 | 0.20 | 0.03 | 7.76 |
| F12 | 0.18 | 0.02 | 7.49 |
| F13 | 0.39 | 0.04 | 9.92 |

| between Factors | estimated corr coef. | Std. | t-value |
|---|---|---|---|
| FE-FS | 0.53 | 0.04 | 12.00 |
| FE-FP | 0.81 | 0.03 | 28.44 |
| FE-FC | 0.77 | 0.03 | 25.59 |
| FS-FP | 0.48 | 0.05 | 10.09 |
| FS-FC | 0.51 | 0.04 | 11.58 |
| FP-FC | 0.78 | 0.03 | 26.62 |

- **Contentment -** 2nd-order CFA



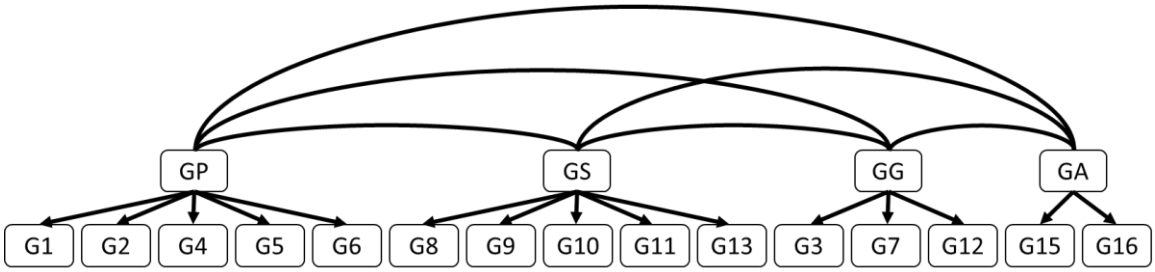

| Sub Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| FE→F1 | 0.85 | 0.02 | 40.16 |
| FE→F2 | 0.91 | 0.02 | 57.97 |
| FE→F3 | 0.79 | 0.03 | 30.46 |
| FS→F4 | 1.00 | 0.01 | 83.35 |
| FP→F5 | 0.87 | 0.02 | 43.17 |
| FP→F6 | 0.92 | 0.02 | 53.69 |
| FC→F8 | 0.77 | 0.03 | 29.79 |
| FC→F9 | 0.76 | 0.03 | 27.47 |
| FC→F10 | 0.86 | 0.02 | 47.82 |
| FC→F11 | 0.90 | 0.01 | 62.80 |
| FC→F12 | 0.91 | 0.01 | 67.93 |
| FC→F13 | 0.78 | 0.03 | 30.60 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| F1 | 0.29 | 0.04 | 8.04 |
| F2 | 0.16 | 0.03 | 5.72 |
| F3 | 0.38 | 0.04 | 9.22 |
| F4 | 0.01 | 0.02 | 0.26 |
| F5 | 0.24 | 0.04 | 6.93 |
| F6 | 0.15 | 0.03 | 4.62 |
| F8 | 0.40 | 0.04 | 10.01 |
| F9 | 0.43 | 0.04 | 10.29 |
| F10 | 0.26 | 0.03 | 8.57 |
| F11 | 0.20 | 0.03 | 7.75 |
| F12 | 0.18 | 0.02 | 7.48 |
| F13 | 0.39 | 0.04 | 9.92 |

| Factor to Sub Factors | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| S→FE | 0.90 | 0.02 | 39.30 |
| S→FS | 0.57 | 0.04 | 14.82 |
| S→FP | 0.90 | 0.02 | 38.03 |
| S→FC | 0.87 | 0.02 | 36.79 |

| Sub Factors | Estimated Errors | Std. | t-values |
|---|---|---|---|
| FE | 0.19 | 0.04 | 4.65 |
| FS | 0.67 | 0.04 | 15.20 |
| FP | 0.20 | 0.04 | 4.66 |
| FC | 0.25 | 0.04 | 6.12 |

- **Impression -** 1st-order CFA

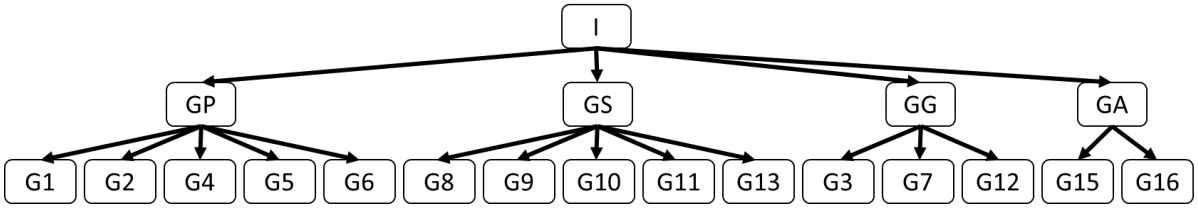



| Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| GP→G1 | 0.75 | 0.03 | 26.54 |
| GP→G2 | 0.82 | 0.02 | 36.58 |
| GG→G3 | 0.80 | 0.03 | 28.32 |
| GP→G4 | 0.83 | 0.02 | 39.98 |
| GP→G5 | 0.87 | 0.02 | 48.77 |
| GP→G6 | 0.87 | 0.02 | 51.97 |
| GG→G7 | 0.62 | 0.04 | 14.74 |
| GS→G8 | 0.85 | 0.02 | 44.11 |
| GS→G9 | 0.88 | 0.02 | 52.19 |
| GS→G10 | 0.78 | 0.03 | 29.92 |
| GS→G11 | 0.75 | 0.03 | 25.70 |
| GG→G12 | 0.84 | 0.03 | 32.60 |
| GS→G13 | 0.68 | 0.04 | 19.34 |
| GA→G15 | 0.90 | 0.02 | 42.53 |
| GA→G16 | 0.90 | 0.02 | 41.92 |

| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| G1 | 0.44 | 0.04 | 10.24 |
| G2 | 0.33 | 0.04 | 9.12 |
| G3 | 0.36 | 0.05 | 8.06 |
| G4 | 0.31 | 0.03 | 8.84 |
| G5 | 0.25 | 0.03 | 8.19 |
| G6 | 0.23 | 0.03 | 7.98 |
| G7 | 0.62 | 0.05 | 12.00 |
| G8 | 0.27 | 0.03 | 8.14 |
| G9 | 0.22 | 0.03 | 7.45 |
| G10 | 0.39 | 0.04 | 9.55 |
| G11 | 0.44 | 0.04 | 10.14 |
| G12 | 0.30 | 0.04 | 7.01 |
| G13 | 0.54 | 0.05 | 11.44 |
| G15 | 0.19 | 0.04 | 4.85 |
| G16 | 0.19 | 0.04 | 5.05 |

| between Factors | estimated corr coef. | Std. | t-value |
|---|---|---|---|
| GP-GS | 0.86 | 0.02 | 38.37 |
| GP-GG | 0.82 | 0.03 | 26.69 |
| GP-GA | 0.74 | 0.03 | 22.04 |
| GS-GG | 0.82 | 0.03 | 26.54 |
| GS-GA | 0.69 | 0.04 | 18.26 |
| GG-GA | 0.67 | 0.04 | 15.54 |

- **Impression -** 2nd-order CFA




| Sub Factors to Variables | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| GP→G1 | 0.75 | 0.03 | 26.50 |
| GP→G2 | 0.82 | 0.02 | 36.47 |
| GG→G3 | 0.81 | 0.03 | 29.06 |
| GP→G4 | 0.83 | 0.02 | 40.20 |
| GP→G5 | 0.87 | 0.02 | 48.83 |
| GP→G6 | 0.87 | 0.02 | 51.80 |
| GG→G7 | 0.62 | 0.04 | 14.73 |
| GS→G8 | 0.86 | 0.02 | 46.09 |
| GS→G9 | 0.89 | 0.02 | 54.81 |
| GS→G10 | 0.78 | 0.03 | 29.13 |
| GS→G11 | 0.74 | 0.03 | 24.98 |
| GG→G12 | 0.83 | 0.03 | 31.58 |
| GS→G13 | 0.67 | 0.04 | 18.95 |
| GA→G15 | 0.90 | 0.02 | 42.10 |
| GA→G16 | 0.90 | 0.02 | 42.23 |

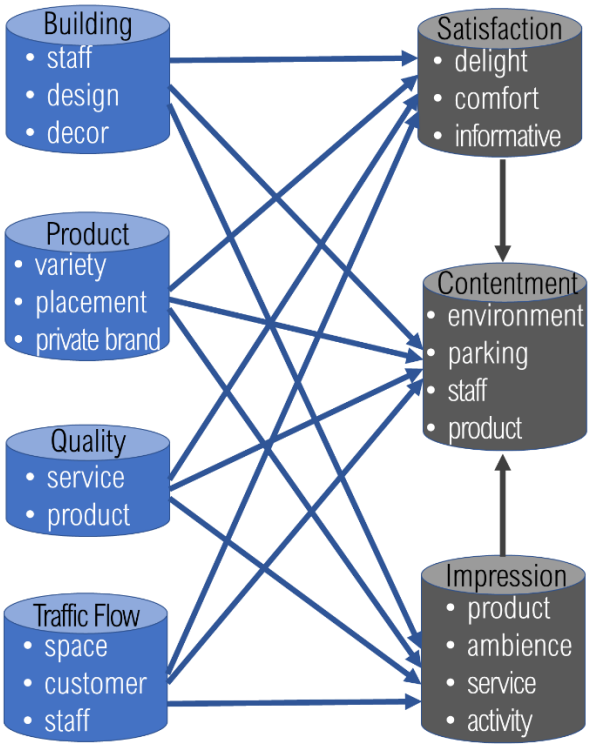
| Variables | Estimated Errors | Std. | t-values |
|---|---|---|---|
| G1 | 0.44 | 0.04 | 10.24 |
| G2 | 0.33 | 0.04 | 9.13 |
| G3 | 0.35 | 0.04 | 7.83 |
| G4 | 0.30 | 0.03 | 8.82 |
| G5 | 0.25 | 0.03 | 8.19 |
| G6 | 0.24 | 0.03 | 7.99 |
| G7 | 0.62 | 0.05 | 11.97 |
| G8 | 0.26 | 0.03 | 8.00 |
| G9 | 0.21 | 0.03 | 7.26 |
| G10 | 0.40 | 0.04 | 9.67 |
| G11 | 0.45 | 0.04 | 10.28 |
| G12 | 0.31 | 0.04 | 7.20 |
| G13 | 0.55 | 0.05 | 11.56 |
| G15 | 0.19 | 0.04 | 4.97 |
| G16 | 0.19 | 0.04 | 4.92 |

| Factor to Sub Factors | Estimated Loadings | Std. | t-values |
|---|---|---|---|
| I→GP | 0.94 | 0.02 | 54.35 |
| I→GS | 0.91 | 0.02 | 46.12 |
| I→GG | 0.88 | 0.03 | 33.15 |
| I→GA | 0.78 | 0.03 | 24.70 |

| Sub Factors | Estimated Errors | Std. | t-values |
|---|---|---|---|
| GP | 0.12 | 0.03 | 3.60 |
| GS | 0.17 | 0.04 | 4.89 |
| GG | 0.23 | 0.05 | 4.98 |
| GA | 0.40 | 0.05 | 8.14 |

## c. Structural Equation Modeling analysis

To begin , the most complex structure is built, where we assume endogenous variables are affected by all exogenous variables. As shown previously, where **Building**, **Product**, **Quality**, and **Traffic Flow** point to **Satisfaction**, **Contentment**, and **Impression**; among endogenous variables, **Satisfaction** and **Impression** both point to **Contentment**.




| latent variables | | | |
|---|---|---|---|
| exogenous | | endogenous | |
| Building (M) | staff (AS) | Satisfaction (F) | delight (CP) |
| | design (AD) | | comfort (CC) |
| | décor (AE) | | informative (CD) |
| Product (P) | variety (BC) | Contentment (S) | environment (FE) |
| | placement (BW) | | parking (FS) |
| | private brand (BP) | | staff (FP) |
| Quality (Q) | service (DS) | | product (FC) |
| | product (DP) | Impression (I) | product (GP) |
| Traffic Flow (T) | space (ES) | | ambience (GS) |
| | customer (EP) | | service (GG) |
| | staff (EB) | | activity (GA) |

Next,

i. structural equation modeling (SEM) analysis is performed. The indexes from the first output, i.e., ***GFI***, ***AGFI***, ***NFI***, and ***NNFI***, are served as baselines.

ii. links with significance below the threshold (self-defined, adjustable before reaching the final structure), and perform the analysis once more.

iii. If the indexes improve, repeat the process based on the latest structure, which includes removing few links, performing the analysis, and inspecting the indexes. On the other hand, repeat the process based on the previous structure if the indexes worsen or sustain.

The process stops if no significant improvement is observed, and the (locally) best fitted model is attained. In our experiments, the best fitted model is presented as below.

**Figure 2. SEM Structure**

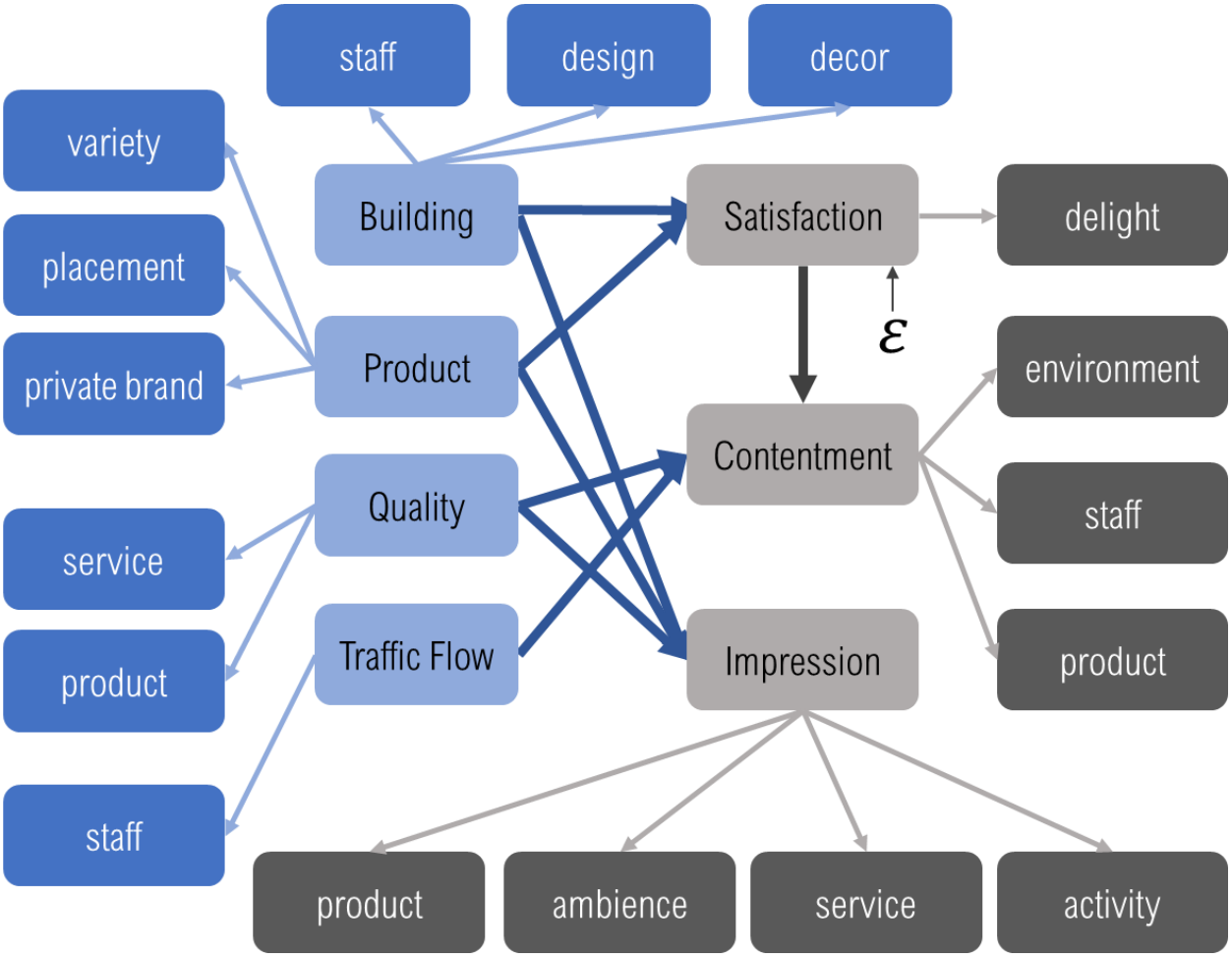


**Table 6. Analytical Outputs**

| **Exogenous** | SEM coef. | Std. | t-value |
|---|---|---|---|
| M→AS | 0.682 | 0.053 | 16.422 |
| M→AD | 0.775 | 0.046 | 21.601 |
| M→AE | 0.912 | 0.036 | 32.383 |
| P→BC | 0.758 | 0.048 | 18.604 |
| P→BW | 0.903 | 0.041 | 25.938 |
| P→BP | 0.658 | 0.054 | 14.441 |
| Q→DS | 0.724 | 0.048 | 17.453 |
| Q→DP | 0.744 | 0.046 | 18.432 |
| T→EB | 1.000 | 0.028 | 35.480 |

| **Endogenous** | SEM coef. | Std. | t-value |
|---|---|---|---|
| F→CP | 0.886 | 0.023 | 44.950 |
| S→FE | 0.813 | 0.037 | 27.046 |
| S→FP | 0.649 | 0.049 | 17.522 |
| S→FC | 0.734 | 0.042 | 22.168 |
| I→GP | 0.805 | 0.041 | 24.295 |
| I→GS | 0.824 | 0.039 | 25.517 |
| I→GG | 0.617 | 0.057 | 14.720 |
| I→GA | 0.568 | 0.061 | 12.833 |

| **SEM** | SEM coef. | Std. | t-value |
|---|---|---|---|
| M→F | 0.912 | 0.024 | 38.691 |
| P→F | 0.287 | 0.036 | 7.384 |
| Q→S | 0.784 | 0.022 | 24.854 |
| T→S | 0.331 | 0.020 | 10.374 |
| F→S | 0.636 | 0.026 | 19.241 |
| M→I | 0.394 | 0.030 | 10.509 |
| P→I | 0.489 | 0.026 | 13.967 |
| Q→I | 0.808 | 0.024 | 24.248 |

## Table 7. Steps for Model Fitting

| analytical output | 1st step | 2nd step | 3rd step | 4th step | 5th step |
|---|---|---|---|---|---|
| Fit Function | 7. 1819 | 6. 4412 | 5. 3857 | 4. 4317 | 4. 1243 |
| Goodness of Fit Index (GFI) | 0. 6272 | 0. 6323 | 0. 6476 | 0. 7008 | **0. 7013** |
| GFI Adjusted for Degrees of Freedom (AGFI) | 0. 4934 | 0. 4886 | 0. 5077 | 0. 57 | **0. 5605** |
| Root Mean Square Residual (RMR) | 0. 3763 | 0. 393 | 0. 4063 | 0. 3747 | 0. 3883 |
| Standardized Root Mean Square Residual (SRMR) | 0. 3763 | 0. 393 | 0. 4063 | 0. 3747 | 0. 3883 |
| Parsimonious GFI (Mulaik, 1989) | 0. 5077 | 0. 5025 | 0. 5151 | 0. 545 | 0. 5363 |
| Chi-Square | 2003. 7633 | 1797. 0898 | 1502. 6125 | 1236. 4352 | 1150. 6692 |
| Chi-Square DF | 170 | 151 | 136 | 119 | 104 |
| Pr > Chi-Square | <. 0001 | <. 0001 | <. 0001 | <. 0001 | <. 0001 |
| Independence Model Chi-Square | 5671. 6 | 5435. 6 | 5032. 4 | 4708. 8 | 4463. 2 |
| Independence Model Chi-Square DF | 210 | 190 | 171 | 153 | 136 |
| RMSEA Estimate | 0. 1966 | 0. 1977 | 0. 1898 | 0. 1835 | 0. 1899 |
| RMSEA 90% Lower Confidence Limit | 0. 189 | 0. 1895 | 0. 1812 | 0. 1743 | 0. 1801 |
| RMSEA 90% Upper Confidence Limit | 0. 2044 | 0. 2059 | 0. 1985 | 0. 1928 | 0. 1999 |
| ECVI Estimate | 7. 6567 | 6. 8985 | 5. 8027 | 4. 8317 | 4. 4997 |
| ECVI 90% Lower Confidence Limit | 7. 134 | 6. 4051 | 5. 3544 | 4. 4277 | 4. 1105 |
| ECVI 90% Upper Confidence Limit | 8. 2084 | 7. 4209 | 6. 2799 | 5. 2644 | 4. 9176 |
| Probability of Close Fit | 0 | 0 | 0 | 0 | 0 |
| Bentler's Comparative Fit Index | 0. 6642 | 0. 6862 | 0. 7189 | 0. 7547 | 0. 7581 |
| Normal Theory Reweighted LS Chi-Square | 1741. 4482 | 1622. 3784 | 1442. 0575 | 1072. 2522 | 1010. 2771 |
| Akaike's Information Criterion | 1663. 7633 | 1495. 0898 | 1230. 6125 | 998. 4352 | 942. 6692 |
| Bozdogan's (1987) CAIC | 875. 849 | 795. 2366 | 600. 2811 | 446. 8953 | 460. 651 |
| Schwarz's Bayesian Criterion | 1045. 849 | 946. 2366 | 736. 2811 | 565. 8953 | 564. 651 |
| McDonald's (1989) Centrality | 0. 0378 | 0. 0529 | 0. 0871 | 0. 136 | 0. 1543 |
| Bentler & Bonett's (1980) NNFI | 0. 5852 | 0. 6051 | 0. 6465 | 0. 6846 | **0. 6837** |
| Bentler & Bonett's (1980) NFI | 0. 6467 | 0. 6694 | 0. 7014 | 0. 7374 | **0. 7422** |
| James, Mulaik, & Brett (1982) Parsimonious NFI | 0. 5235 | 0. 532 | 0. 5578 | 0. 5735 | **0. 5676** |
| Z-Test of Wilson & Hilferty (1931) | 35. 3228 | 33. 486 | 30. 401 | 27. 3981 | 26. 6183 |
| Bollen (1986) Normed Index Rho1 (NFI) | 0. 5636 | 0. 584 | 0. 6246 | 0. 6624 | **0. 6629** |
| Bollen (1988) Non-normed Index Delta2 (NNFI) | 0. 6667 | 0. 6885 | 0. 7209 | 0. 7565 | **0. 7599** |
| Hoelter's (1983) Critical N | 30 | 30 | 32 | 34 | 33 |

Comparing to the initial model, removed links are:

- **Quality→Satisfaction**
- **Traffic Flow→Satisfaction**
- **Building→Contentment**
- **Product→Contentment**
- **Traffic Flow→Impression**

The deletions mainly result from the initial model assigning Satisfaction to **Contentment**. Through **Satisfaction**, **Building** and **Product** contribute to **Contentment**; the links from **Quality** and **Traffic Flow** to **Contentment** lead to higher *GFI* and *AGFI*. Furthermore, the link from **Traffic Flow** to **Impression** were removed. Also, **Impression** was not significantly related to **Satisfaction** and **Contentment**.

## IV. Summary

In the present work, we study the causal effects from *buildings* and *service* to *satisfaction*, *contentment* and *impression* for mass merchandisers. Based on the best fitted model, the discoveries are:

- On **Building**, well display, fine labeling of the product information, and proper lighting effect and music improve Contentment significantly.
- On **Product**, plentiful product types and rich variety of brands improve **Contentment**, especially for sufficient well-known, international brands resulting in sharp improvement. On the contrary, wide range of products with private brands has poor effects on **Contentment**.
- On **Quality**, staff service and quality of product have general effects on **Contentment**.
- On **Traffic Flow**, large indoor spaces and less crowdedness improve **Contentment** significantly.
- On **Building**, comparing to variety of product, environment has more effects on **Satisfaction**.
- Staff service and product quality generally effects the level of contentment, and ultimately define the impression of the merchandisers.

To sum up, staff service and product quality paly the most important roles in the level of Contentment and customer retention rate. Building, environment, and decor come next.

In the present work, individual comparisons of different mass merchandisers have not been made, and it is recommended that they can be disassembled and analyzed separately. Perhaps different retail stores will determine their contentment through different influencing factors; or different income will have different sensory effects. The above order is the direction that can be further analyzed.