Chapter 8
Preliminary Results

The final stage of the scale development process concerned the initial validation of the . . . scale(s). Validity deals with the extent to which a scale is measuring what it purports to measure. As Allison (1978) noted . . . for psychological traits, validity is a matter of degree rather than an all-or-nothing characteristic. Moreover, it must be evaluated over time and various situations, especially in the case of construct validity of a newly developed test (p.571). Keeping this in mind the analyses which follow can only be regarded as providing a beginning in the validation process for the proposed involvement scale (Bloch 1981 p.64)

The elicited measures . . . were subjected to an exploratory factor analysis procedure . . . Therefore, the exploratory . . . analysis results are presented merely as a first step. Later we will use confirmatory factor analysis to test hypotheses (Mittal & Lee 1989 p.44).

8. Introduction

Chapter 7 provided a discussion of the rationale and basis for structural equation modeling and procedures for estimating and evaluating the fit of the models using the two stage modeling process. This chapter presents the results and findings of the preliminary analyses. These analyses comprise stage 1 of the two stage analysis procedure outlined by Anderson and Gerbing (1988), Hair et al (1995) and Hulland, Chow and Lam (1996). This chapter presents only the exploratory analyses and as such does not present the full array of fit indices that were discussed in chapter 7.

The results are presented in incremental stages through the various factors that underpin the hypothesised models set out in chapter 5. This incremental method of presenting and

testing models should assist the reader in understanding the development of the complete model and the final models should be more sound.

8.1 Preliminary analyses

Before evaluation of the structural equation model could be undertaken, an assessment of the adequacy of the input data and the statistical assumptions underlying the estimation methods was undertaken. A number of univariate and multivariate statistics were useful in this regard. The initial screening of the data was accomplished via basic descriptive statistical analysis in SPSS. Frequencies, means, variance, standard deviations, skewness and kurtosis were computed for each item[1]. This was followed by exploratory factor analysis, Pearson correlations and Cronbach alpha estimates using SPSS to assess the data structure, inter-item correlations and reliabilities, the composite reliability was estimated using the Werts, Rock, Linn and Jöreskog (1978) R_{cc} formula discussed in chapter 7, followed by confirmatory factor analysis using AMOS.

The factor structure determined through the initial factor analysis using SPSS was confirmed through the subsequent SEM of each factor in AMOS. Goodness-of-fit indices (GFI), adjusted-goodness-of-fit (AGFI), root mean square residual (RMSR) and root mean square error of approximation (RMSEA) estimates for all the constructs being investigated and individual factor model estimates are also reported for each confirmed factor of the constructs. These preliminary analyses procedures allowed for evaluation of the soundness of each measurement indicator.

Initial concern was also directed to the convergent validity of the items within each scale and the discriminant validity between the scales measuring each construct. Several researchers have proposed heuristics for establishing the convergent and discriminant validity of constructs (Anderson & Gerbing 1988 and Bagozzi 1980). Other tests of convergent and discriminant validity involve examining the variance extracted for each construct. The variance extracted estimate represents the amount of trait variance in a measure relative to random measurement error. If the variance extracted is greater than or

[1] Means, standard deviations, variance, skewness, kurtosis and Pearson correlation estimates can be found in Volume II Appendix B.

equal to .05 evidence of convergent validity exists in this study (Fornell & Larcker 1981). Discriminant validity is established if the variance extracted is greater than the square of the parameter estimates between constructs.

The initial screening of the data for the 478 returned questionnaires resulted in 450 useable questionnaires being retained for further analysis. Table 8.1 below provides an overview of the demographic characteristics of the respondents.

Table 8.1 Respondents Profile

Variable	Number	
Gender	209 Males	241 Females
Mode of Study	66 On-campus Students	384 Off-campus students
Time devoted to Study	72 Full-time students	378 Part-time students
Level of Study	126 Undergraduate Students	324 Postgraduate students
Age	Range 18 to 76 years Average 36 years Median 35 years	

8.2 Preliminary results of initial analysis

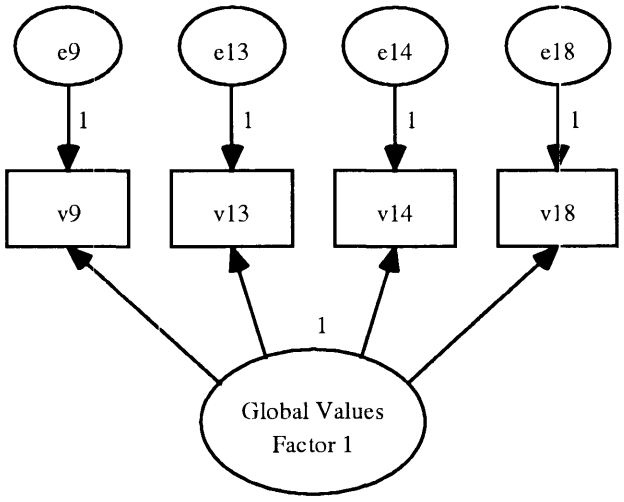
The following tables present the factor loadings, the reliability estimates using both Cronbach alpha coefficients, composite reliability (R_{cc}) of Werts, Rock, Linn and Jöreskog (1978) and the fit indices for the confirmed factor structures estimated in AMOS. The confirmatory factor results are presented via the chi-square statistic, the goodness of fit statistic, the adjusted goodness of fit statistic, the root mean square residual and the root mean square error of approximation. These results have been obtained by confirming the original factor structure obtained from the exploratory analysis in SPSS, using the structural equation program AMOS.

8.2.1 Global values (LOV)

Initial factor analysis of the global values component of the questionnaire indicated that global values was comprised of three factors. The following tables provide the factor loading, the reliability estimates and the fit indices for the factor structure using SEM. All parameter values shown in these tables are standardised estimates. Table 8.3 provides the factor loadings, reliabilities and fit indices of factor 1 of global values: Life Attainment.

Table 8.2 Preliminary Analysis Results for Global Values Factor 1

Factor Label/Name = Life Attainment



Factor Loadings	
var 9	.512
var 13	.644
var 14	.640
var 18	.576
Reliability	
Alpha	.73
R_{cc}	.77
Fit Indices	
GFI	.996
AGFI	.980
RMSR	.010
RMSEA	.000

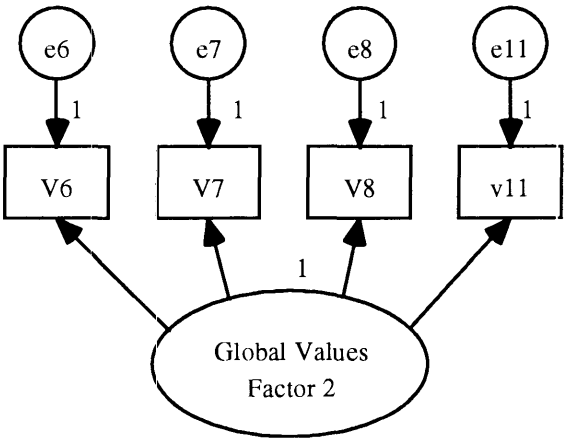
Factor analysis of global values revealed factor 1 as being constituted by 4 items.
Var 09 Self-fulfilment.
Var 13 Self-respect.
Var 14 A sense of accomplishment.
Var 18 Independent.

This factor represents more individual values, that are more inner-directed relating to position attainment in life. The internal reliability estimate was high. The results indicate a sound factor structure via factor analysis in SPSS using Alpha factoring with varimax rotation, internal reliability using Cronbach Alpha was .73 and the Werts, Rock, Linn and Jöreskog (1978) R_{cc} was good at .77. The fit of the factor via structural equation modeling which confirmed the factor structure with acceptable fit of the factor model on the fit indices displayed in Table 8.2.

Table 8.3 provides the factor loadings, reliabilities and fit indices for factor 2 of global values: Life Experiences and Belongingness.

Table 8.3 Preliminary Analysis Results for Global Values Factor 2

Factor Label/Name = Life Experiences and Belongingness



Factor Loadings	
var 6	.561
var 7	.417
var 8	.693
var 11	.635
Reliability	
Alpha	.70
R_{cc}	.78
Fit Indices	
GFI	1
AGFI	.999
RMSR	.003
RMSEA	.000

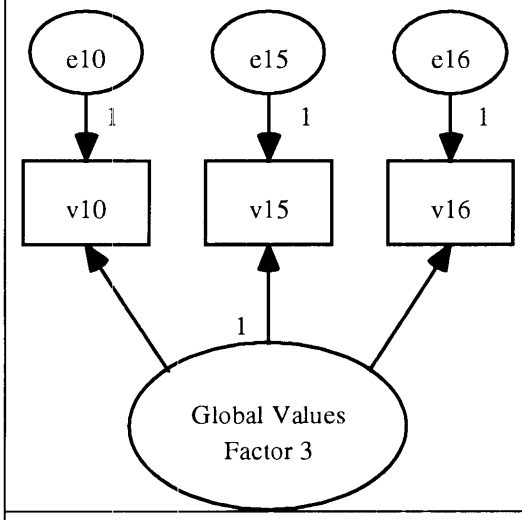
Factor analysis of global values revealed factor 2 as being constituted by 4 items.
Var 06 Sense of belonging.
Var 07 Excitement.
Var 08 Warm relationships.
Var 11 Fun and enjoyment.

This factor represents values relating to life experiences through relating to interpersonal values fulfilment. The internal reliability R_{cc} estimate was acceptable at .78 and Cronbach Alpha .70 indicating high internal reliability and consistency. The results indicated a sound factor structure via factor analysis in SPSS using Alpha factoring with varimax rotation. The fit of the factor via structural equation modeling which confirmed the factor structure via AMOS was acceptable on the key fit indices shown in Table 8.3.

Table 8.4 provides the factor loadings, reliabilities and fit indices for factor 3 of global values: Life Position Status.

Table 8.4 Preliminary Analysis Results for Global Values Factor 3

Factor Label/Name = Life Position Status



Factor Loadings	
var 10	.659
var 15	.677
var 16	.613
Reliability	
Alpha	.72
R_{cc}	.74
Fit Indices	
GFI	.994
AGFI	.943
RMSR	.023
RMSEA	.064

Factor analysis of global values revealed factor 3 as being constituted by 3 items.
Var 10 Being well respected.
Var 15 Influential.
Var 16 Preserving my public image.

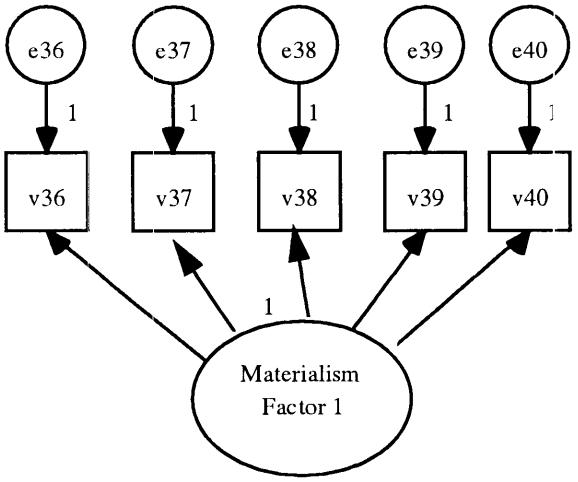
This factor represents values that are more outer-directed because they satisfy life position states through their fulfilment. The internal reliability R_{cc} estimate was acceptable at .74, indicating high internal reliability and consistency. The fit indices achieved via estimating a model of the 3 items in AMOS indicates that the model of factor 3 of global values had acceptable fit on the key indices as detailed in Table 8.4. The results indicate a sound factor structure via exploratory factor analysis in SPSS using principal components analysis with varimax rotation, and acceptable internal reliability using Cronbach Alpha .72.

8.2.2 Materialistic values

The following provides the results of the analysis of the materialistic values component of the instrument. Materialism contained three factors. Table 8.5 below provides factor 1 of the 3 factor structure of materialism, including the factor loadings, reliabilities and fit indices are reported for factor 1: Acquisition Centrality.

Table 8.5 Preliminary Analysis Results for Materialism Factor 1

Factor Label/Name = Acquisition Centrality



Factor Loadings	
var 38	.434
var 40	.468
var 36	.729
var 39	.458
var 37	.728
Reliability	
Alpha	.68
R_{cc}	.73
Fit Indices	
GFI	.996
AGFI	.982
RMSR	.040
RMSEA	.039

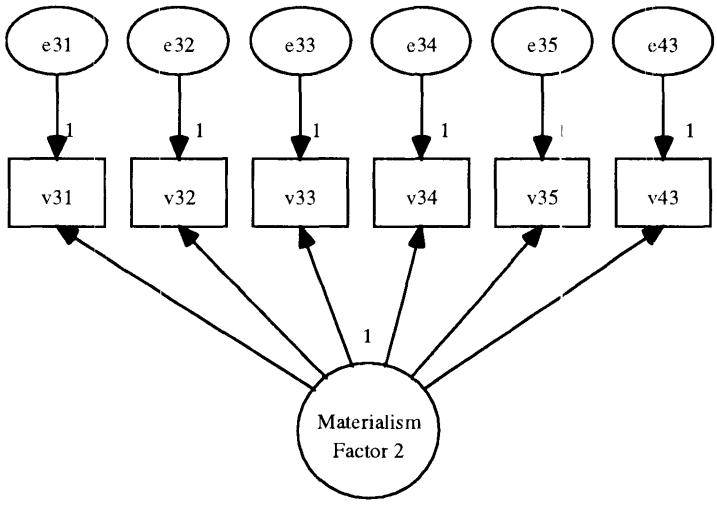
Factor analysis of materialistic values revealed factor 1 as being constituted by 5 items.
Var 36 I usually buy only the things I need
Var 37 I try to keep my life simple, as far as possessions are concerned.
Var 38 The things I own aren't all that important to me.
Var 39 Buying things gives me a lot of pleasure.
Var 40 I like a lot of luxury in my life.

This factor contains items that represent the extent to which one places possession acquisition at the center of one's life. The internal reliability R_{cc} estimate was acceptable at .73 and Cronbach Alpha was .68 indicating good internal reliability and consistency. The fit indices achieved via estimating a model of the 5 items in AMOS indicates that the model of factor 1 of materialistic values had acceptable fit on the key indices detailed in Table 8.5. The results indicate a sound factor structure via exploratory factor analysis in SPSS.

Table 8.6 provides the factor loadings, reliabilities and fit indices for factor 2 of materialism: Possessions as Defining Success.

Table 8.6 Preliminary Analysis Results for Materialism Factor 2

Factor Label/Name = Possession as Definir.g Success



Factor Loadings	
var 31	.733
var 32	.488
var 33	.568
var 34	.639
var 35	.518
var 43	.538
Reliability	
Alpha	.82
R_{cc}	.84
Fit Indices	
GFI	.992
AGFI	.977
RMSR	.039
RMSEA	.027

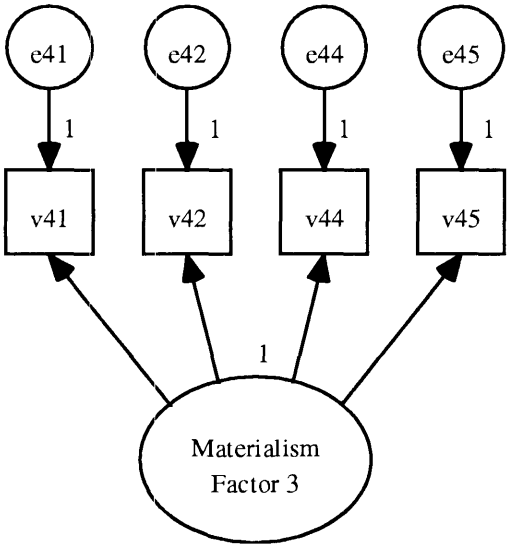
Factor analysis of materialistic values revealed factor 2 as being constituted by 6 items.
Var 31 I admire people who own expensive possessions (such as homes, cars and clothes).
Var 32 I don't place much emphasis on the amount of material possessions people own as a sign of success.
Var 33 The things I own say a lot about how well I'm doing in life.
Var 34 I like to own things that impress people.
Var 35 I don't pay much attention to the material objects people own.
Var 43 I like a lot of luxury in my life.

This factor contains items that represent the extent to which one uses possessions as indicators of success and achievement in life. The success and achievement factor is used in judging one's self and others through possessions. The results indicated a sound factor structure via factor analysis in SPSS using principal components analysis with varimax rotation, internal reliability using Cronbach Alpha was .82 and the Werts, Rock, Linn and Jöreskog (1978) R_{cc} was .84 indicating high internal reliability. The fit of the factor model via structural equation modeling which confirmed the factor structure via AMOS was acceptable on the key fit indices detailed in Table 8.6.

Table 8.7 below provides the factor loadings, reliabilities and fit indices for factor 3 of materialism: Acquisitions as the Pursuit of Happiness.

Table 8.7 Preliminary Analysis Results Materialism Factor 3

Factor Label/Name = Acquisition as the Pursuit of Happiness



Factor Loadings	
var 41	.519
var 42	.727
var 44	.747
var 45	.684
Reliability	
Alpha	.81
R_{cc}	.87
Fit Indices	
GFI	.997
AGFI	.966
RMSR	.032
RMSEA	.066

Factor analysis of materialistic values revealed factor 3 as being constituted by 4 items.
Var 41 I have all the things I really need to enjoy life.
Var 42 My life would be better if I owned certain things that I don't currently have.
Var 44 I'd be happier if I could afford to buy more things (possessions).
Var 45 It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.

This factor contains items that represent the belief that possessions are essential to satisfaction and well-being in life. The internal reliability R_{cc} estimate was acceptable at .87 and Cronbach Alpha was .81 indicating high internal reliability and consistency. The fit indices achieved via estimating the model of the 4 items in AMOS indicated that the model of factor 3 of materialistic values has acceptable fit on the key indices detailed in Table 8.7. The results indicated a sound factor structure via exploratory factor analysis in SPSS.

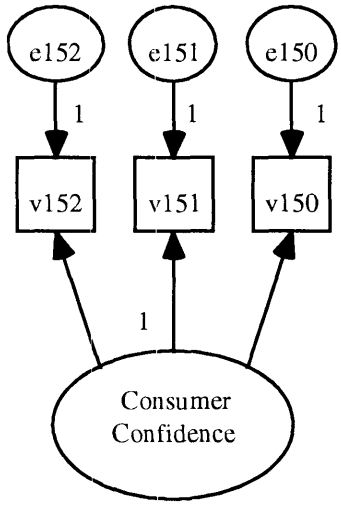
Richins and Dawson (1992) reported Cronbach alpha values ranging between .71 to .75 for centrality, .74 to .78 for success and .73 to 83 for happiness. The internal consistency achieved in this study is higher than those reported in studies by Richins and Dawson (1992).

8.2.3 Consumer confidence

Table 8.9 below provides the factor loadings, reliabilities and fit indices for the Consumer Confidence construct.

Table 8.8 Preliminary Analysis Results for Consumer Confidence

Factor Label/Name = Consumer Confidence



Factor Loadings	
var 150	.628
var 151	.955
var 152	.829
Reliability	
Alpha	.90
R_{cc}	.95
Fit Indices	
GFI	.986
AGFI	.857
RMSR	.086
RMSEA	.177

Factor analysis of confidence revealed a single factor constituted by 3 items.
Var 150 I am confident I would choose the right brand of Fashion Clothing.
Var 151 When considering Fashion Clothing for purchase I am confident that I would make the right decision.
Var 152 I have confidence in my ability to make the best choice concerning Fashion Clothing.

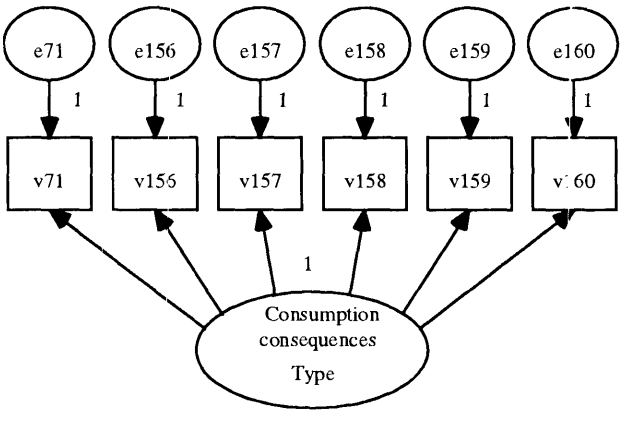
This construct contains items that represents a generalised confidence on the part of the consumer to make the right decision and the best choice concerning the product. The fit indices achieved via estimating the model of the 3 items in AMOS indicates that the model of consumer confidence had acceptable fit on the key indices detailed in Table 8.8. The results indicated a sound factor structure via exploratory factor analysis in SPSS using principal components analysis with varimax rotation, internal reliability using Cronbach Alpha was .90 and the Werts, Rock, Linn and Jöreskog (1978) R_{cc} was .95 indicating very good reliability.

8.2.4 Consumption consequences by type

Table 8.9 below provides the factor loadings, reliabilities and fit indices for the Consequences by Type construct.

Table 8.9 Preliminary Analysis Results for Consumption Consequences by Type

Factor Label/Name = Consumption Consequences by Type



Factor Loadings	
var 71	.6870
var 156	.796
var 157	.835
var 158	.877
var 159	.877
var 160	.878
Reliability	
Alpha	.93
R_{cc}	.93
Fit Indices	
GFI	.993
AGFI	.984
RMSR	.029
RMSEA	.015

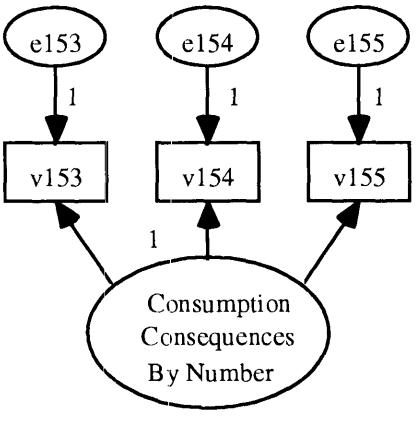
Factor analysis of consequences by type revealed a single factor constituted by 6 items.
Var 71 Fashion Clothing helps me attain the type of life I strive for.
Var 156 I get a great deal of self satisfaction from Fashion Clothing.
Var 157 Fashion Clothing shows other people who I really am.
Var 158 Fashion Clothing helps me be the type of person I want to be.
Var 159 Fashion Clothing is an important product to me because of the image I think people have of me.
Var 160 Fashion Clothing helps me express who I really am.

This construct contains items that represent the psychosocial consumption consequences associated with the purchase and consumption of the product by the consumer. The internal reliability R_{cc} estimate was .93 and Cronbach Alpha was .93 both indicating high internal reliability and consistency. The results indicated a sound factor structure via exploratory factor analysis in SPSS. The fit of the factor via structural equation modeling which confirmed the factor structure via AMOS had acceptable on the key fit indices detailed in Table 8.9.

8.2.5 Consumption consequences by number

Table 8.10 below provides the factor loadings, reliabilities and fit indices for the Number of Consequences construct.

Table 8.10 Preliminary Analysis Results for Consumption Consequences by Number

Factor Label/Name = Number of consumption consequences		
	**Factor Loadings**	
	var 153	.617
	var 154	.658
	var 155	.593
	Reliability	
	Alpha	.86
	R_{cc}	.84
	Fit Indices	
	GFI	.982
	AGFI	.945
	RMSR	.066
	RMSEA	.055

Factor analysis of consequences by number revealed a single factor constituted by 3 items.
Var 153 I can think of positive consequences of owning and/or wearing Fashion Clothing.
Var 154 I can make connections between my life experiences, memories and Fashion Clothing.
Var 155 I receive important benefits from owning/wearing Fashion Clothing.

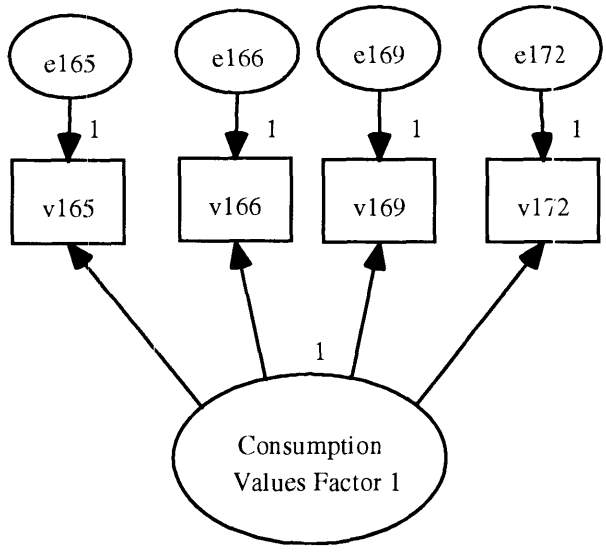
This factor contains items that represent the number of consumption consequences associated with purchasing and using the product by the consumer. The fit indices achieved via estimating the model of the 3 items in AMOS indicates that the model of the number of consumption consequences had acceptable fit on the key indices detailed in Table 8.10. The results indicated a sound factor structure via exploratory factor analysis, internal reliability using Cronbach Alpha was .86 and the Werts, Rock, Linn and Jöreskog (1978) R_{cc} was .84 indicating good internal consistency.

8.2.6 Consumption values

Analysis of consumption values revealed a three factor structure. Table 8.11 below provides the factor loadings, reliabilities and fit indices for factor 1 of the consumption values construct: Life Attainment through Consumption of Fashion Clothing.

Table 8.11 Preliminary Analysis Results for Consumption Values Factor 1

Factor Label/Name = Life attainment through consumption of fashion clothing



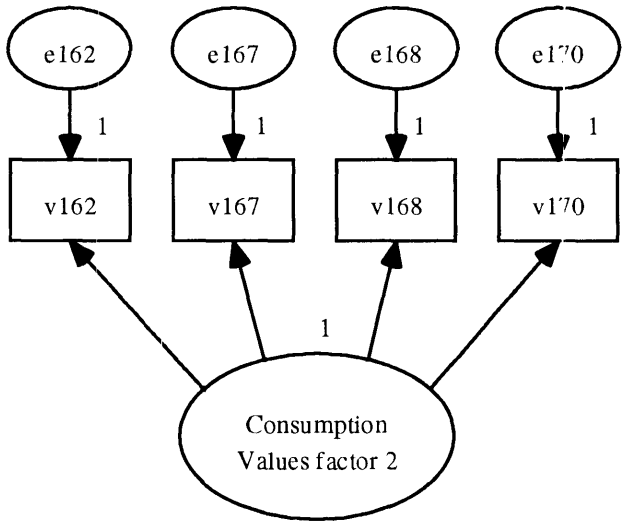
Factor Loadings	
var 165	.869
var 166	.897
var 169	.913
var 172	.887
Reliability	
Alpha	.94
R_{cc}	.94
Fit Indices	
GFI	.993
AGFI	.929
RMSR	.018
RMSEA	.111

Factor analysis of consumption values revealed factor 1 as being constituted by 4 items.
Var 165 Independent.
Var 166 Self-respect.
Var 169 A sense of accomplishment.
Var 172 Self-fulfilment.

This factor contains values that represents more individual values that are more inner-directed, relating to position attainment in life through the consumption of the product. The internal reliability R_{cc} estimate was .94 and Cronbach Alpha .94 indicating high internal reliability and consistency. The fit indices achieved via estimating the model of the 4 items in AMOS indicates that the model Life attainment through consumption of fashion clothing had acceptable fit on the key indices detailed in Table 8.11. The results indicate a sound factor structure via exploratory factor analysis in SPSS.

Table 8.12 below provides the factor loadings, reliabilities and fit indices for factor 2 of consumption values: Experiences and Belongingness through Consumption of Fashion Clothing.

Table 8.12 Preliminary Analysis Results for Consumption Values Factor 2

Factor Label/Name = Experiences and Belongingness through Consumption of Fashion Clothing		
	**Factor Loadings**	
	var 162	.849
	var 167	.858
	var 168	.789
	var 170	.888
	Reliability	
	Alpha	.91
	R_{cc}	.92
	Fit Indices	
	GFI	1
	AGFI	.997
	RMSR	.005
	RMSEA	.000

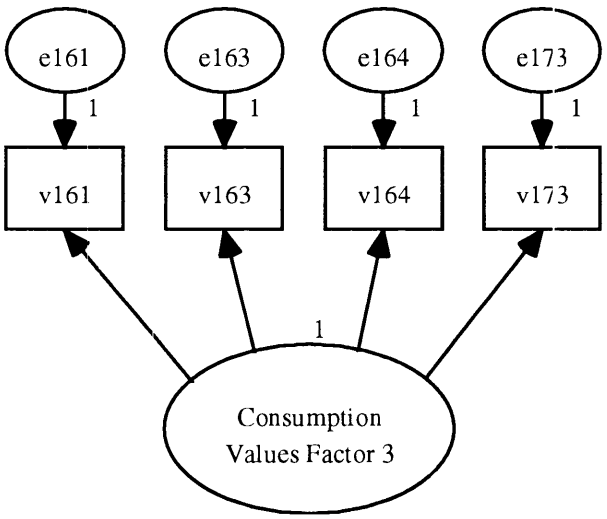
Factor analysis of consumption values revealed factor 2 as being constituted by 4 items.
Var 162 Fun and enjoyment.
Var 167 A sense of belonging.
Var 168 Excitement.
Var 170 Warm relationship with others.

This factor contains values that represent life experiences through relating to interpersonal values fulfilment through the consumption of the product. The fit indices achieved via estimating a model of the 4 items in AMOS indicates that the model of factor 2 of consumption values had acceptable fit on the key indices detailed in Table 8.12. The results indicate a sound factor structure via factor analysis in SPSS, internal reliability using Cronbach Alpha was .91 and R_{cc} .92 very high indicating good internal consistency.

Table 8.13 below provides the factor loadings, reliabilities and fit indices for factor 3 of consumption values construct: Life Position through Consumption of Fashion Clothing.

Table 8.13 Preliminary Analysis Results for Consumption Values Factor 3

Factor Label/Name = Life Position through Consumption of Fashion Clothing



Factor Loadings	
var 161	.899
var 163	.878
var 164	.787
var 173	.558
Reliability	
Alpha	.86
R_{cc}	.89
Fit Indices	
GFI	.999
AGFI	.988
RMSR	.015
RMSEA	.009

Factor analysis of consumption values revealed factor 3 as being constituted by 4 items.
Var 161 Being well respected.
Var 163 Preserving my public image.
Var 164 Influential.
Var 173 Security.

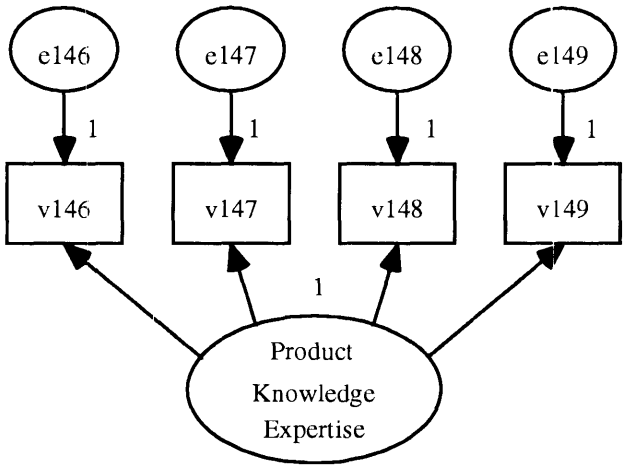
This factor contains values that represent outer-directed values that fulfill life position through their fulfilment by consuming the product. The internal reliability R_{cc} estimate was .89 and Cronbach Alpha was .86 indicating high internal reliability and consistency. The results indicated a sound factor structure via principal components factor analysis in SPSS. The fit of the factor model via structural equation modeling confirmed the factor structure with acceptable on the key fit indices detailed in Table 8.13.

8.2.7 Consumer product knowledge and expertise

Table 8.14 below provides the factor loadings, reliabilities and fit indices for the Product Knowledge/ Expertise construct.

Table 8.14 Preliminary Analysis Results for Product Knowledge/expertise

Factor Label/Name = Product Knowledge/ Expertise



Factor Loadings	
var 146	.895
var 147	.956
var 148	.887
var 149	.788
Reliability	
Alpha	.93
R_{cc}	.96
Fit Indices	
GFI	.999
AGFI	.987
RMSR	.017
RMSEA	.000

Factor analysis of product knowledge/expertise revealed a single factor constituted by 4 items.
Var 146 I am very familiar with Fashion Clothing.
Var 147 I feel I know a lot about Fashion Clothing.
Var 148 I am an experienced user of Fashion Clothing.
Var 149 I would classify myself as an expert on Fashion Clothing.

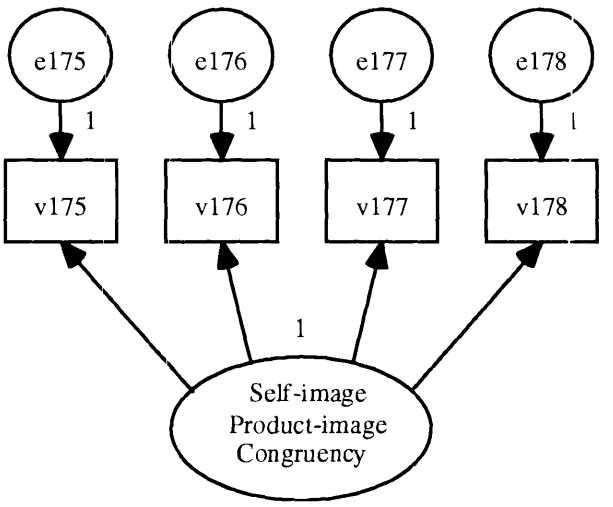
This construct contains items that represents the consumers' subjective product knowledge and experience related to the product. The results indicated a sound factor structure via factor analysis in SPSS, internal reliability using Cronbach Alpha was .93 and the Werts, Rock, Linn and Jöreskog (1978) R_{cc} estimate was .96 indicating very good internal consistency. The fit of the factor via structural equation modeling confirmed the factor structure via AMOS with acceptable fit on the key indices shown in Table 8.14.

8.2.8 Self-image product-image congruency

Table 8.15 below provides the factor loadings, reliabilities and fit indices for the Self-image Product-image congruency construct.

Table 8.15 Preliminary Analysis Results for Self-image Product-image Congruency

Factor Label/Name = Self-image Product-image Congruency



Factor Loadings	
var 178	.735
var 177	.728
var 176	.888
var 175	.856
Reliability	
Alpha	.88
R_{cc}	.88
Fit Indices	
GFI	.999
AGFI	.989
RMSR	.013
RMSEA	.000

Factor analysis of self-image/product-image congruency revealed a single factor constituted by 4 items.

Var 175 Fashion Clothing's image is very similar to the self-image I have.

Var 176 Fashion Clothing portrays an image very similar to the self-image I would ideally like to have or portray.

Var 177 The self-image I would ideally like to have or portray and the image Fashion Clothing portrays are not very similar.

Var 178 Fashion Clothing's image is consistent with how I think other people see me.

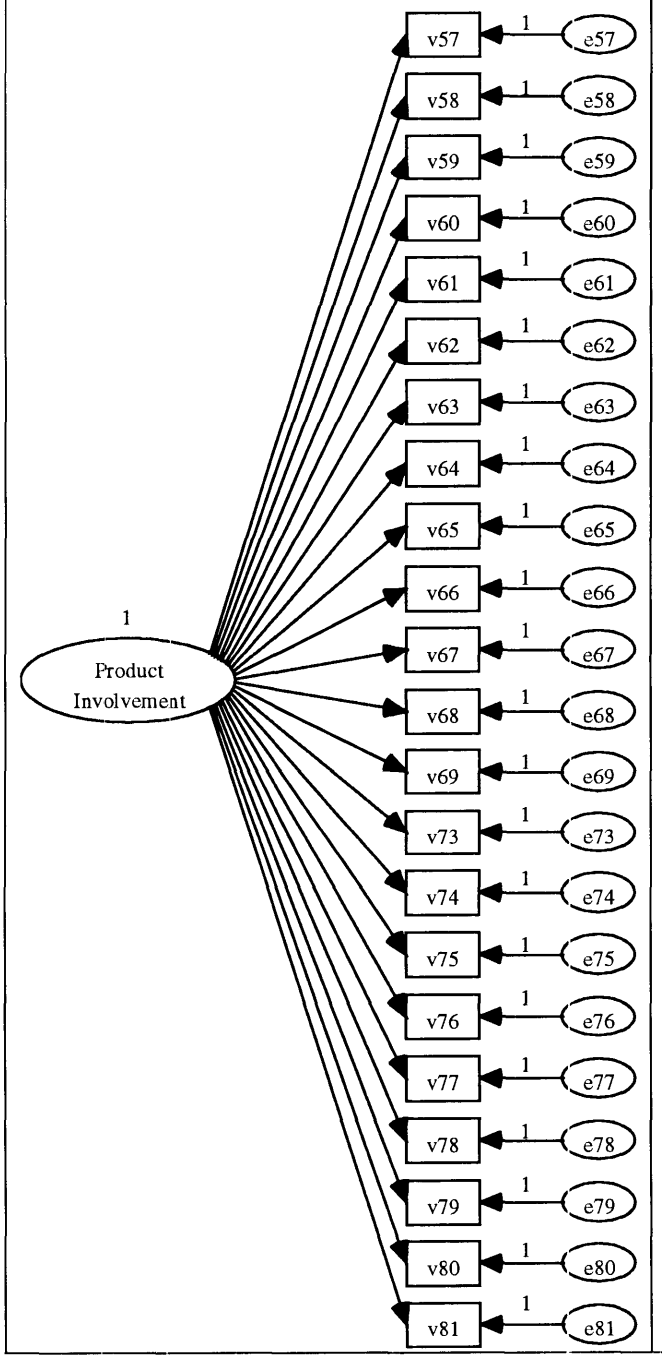
This construct contains items representing the global self-image, addressing the degree of congruency between the self-image of the consumer and the product-image. The results indicated a sound factor structure via factor analysis in SPSS, internal reliability using Cronbach Alpha was .88 and the R_{cc} estimate was .88 indicating good internal consistency. The fit of the factor via structural equation modeling in AMOS confirmed the factor structure with acceptable on the key fit indices as detailed in Table 8.15.

8.2.9 Product involvement

Table 8.16 below provides the factor loadings, reliabilities and fit indices for the Product Involvement construct.

Table 8.16 Preliminary Analysis Results for Product Involvement

Factor Label/Name = Product involvement



Factor Loadings	
var 57	.795
var 58	.861
var 59	.846
var 60	.839
var 61	.797
var 62	.699
var 63	.809
var 64	.879
var 65	.838
var 66	.848
var 67	.837
var 68	.727
var 69	.906
var 73	.905
var 74	.838
var 75	.819
var 76	.819
var 77	.847
var 78	.869
var 79	.724
var 80	.884
var 81	.894
Reliability	
Alpha	.98
R_{cc}	.98
Fit Indices	
GFI	.912
AGFI	.888
RMSR	.276
RMSEA	.069

Table 8.16 Continued

Factor analysis of product involvement reveals a single factor being constituted by 22 items.
Var 57 Fashion Clothing means a lot to me.
Var 58 Fashion Clothing is a significant part of my life.
Var 59 I have a very strong commitment to Fashion Clothing that would be difficult to break.
Var 60 I consider Fashion Clothing to be a central part of my life.
Var 61 I am often absorbed in Fashion Clothing.
Var 62 Fashion Clothing makes me feel good.
Var 63 I think about Fashion Clothing a lot.
Var 64 For me personally Fashion Clothing is an important product.
Var 65 Fashion Clothing is exciting to me.
Var 66 I am very interested in Fashion Clothing.
Var 67 Some individuals are completely involved with Fashion Clothing, attached to it, absorbed by it. For others Fashion Clothing is simply not that involving. How involved are you with Fashion Clothing?
Var 68 Fashion Clothing arouses strong emotions in me.
Var 69 Fashion Clothing is important to me.
Var 73 Fashion Clothing is an important part of my life.
Var 74 I have important needs Fashion Clothing satisfies.
Var 75 I would say Fashion Clothing is central to my identity as a person.
Var 76 I would say that I am often preoccupied with Fashion Clothing.
Var 77 I can really identify with Fashion Clothing.
Var 78 I am very much involved in/with Fashion Clothing.
Var 79 I find Fashion Clothing a fascinating product.
Var 80 I find Fashion Clothing a very relevant product in my life.
Var 81 I pay a lot of attention to Fashion Clothing.

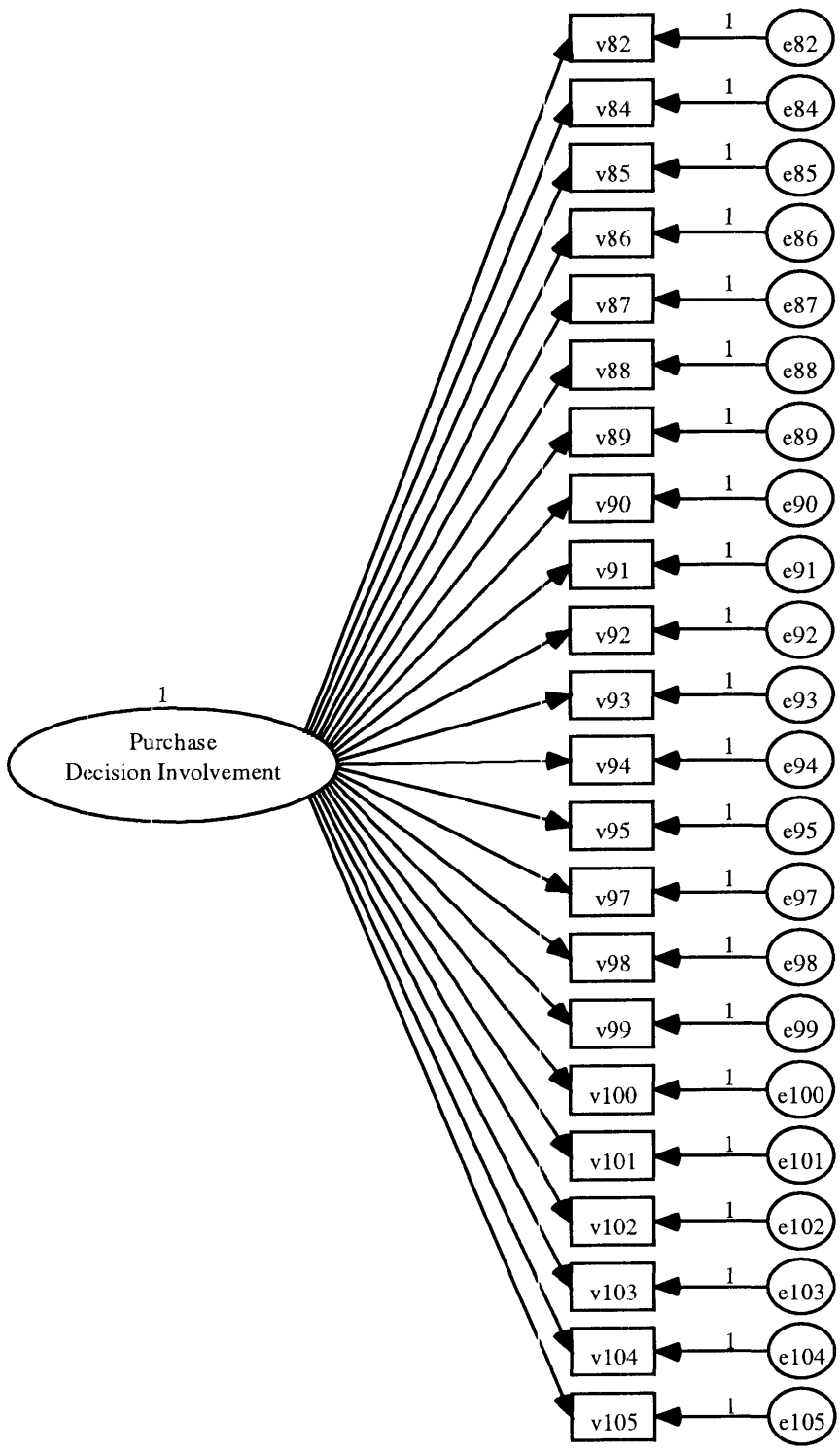
This construct contains items that represent the degree the consumer is involved in the product. The results indicated that the proposed factor structure derived out of the initial exploratory factor in SPSS was significant with loadings ranging from .69 to .90. The internal reliability R_{cc} estimate was .98 and Cronbach Alpha was .98 indicating high internal reliability and consistency. The fit indices achieved via estimating the model of the 22 items in AMOS indicated that the model of product involvement had acceptable fit on the key indices as detailed in Table 8.16.

8.2.10 Purchase decision involvement

Table 8.17 below provides the factor loadings, reliabilities and fit indices for the Purchase Decision Involvement construct.

Table 8.17 Preliminary Analysis Results for Purchase Decision Involvement

Factor Label/Name = Purchase Decision Involvement



Factor Loadings	
var 82	.779
var 84	.756
var 85	.786
var 86	.746
var 87	.842
var 88	.764
var 89	.779
var 90	.837
var 91	.811
var 92	.787
var 93	.736
var 94	.547
var 95	.578
var 97	.839
var 98	.624
var 99	.848
var 100	.819
var 101	.801
var 102	.873
var 103	.699
var 104	.817
var 105	.845
Reliability	
Alpha	.97
R_{cc}	.97
Fit Indices	
GFI	.884
AGFI	.851
RMSR	.518
RMSEA	.078

Table 8.17 Continued

Factor analysis of product involvement reveals a single factor being constituted by 22 items.
Var 82 Making purchase decisions for Fashion Clothing is significant to me.
Var 84 Some individuals become completely involved or engrossed in making purchase decisions for Fashion Clothing. For others purchase decisions for Fashion Clothing are not that involving. How involved do you feel in making purchase decisions for Fashion Clothing?
Var 85 Making purchase decisions for Fashion Clothing is of concern to me.
Var 86 Making purchase decisions for Fashion Clothing raises strong emotions in me.
Var 87 Making purchase decisions for Fashion Clothing is exciting to me.
Var 88 Making purchase decisions for Fashion Clothing is fun.
Var 89 Making purchase decisions for Fashion Clothing is beneficial to me.
Var 90 Making purchase decisions for Fashion Clothing is appealing to me.
Var 91 When making a decision to purchase Fashion Clothing I often become preoccupied in it.
Var 92 I think a lot about my choices when it comes to Fashion Clothing.
Var 93 I place great value in making the right decision when it comes to Fashion Clothing.
Var 94 I have a lot to lose if I make a purchase decision and choose the wrong brand of Fashion Clothing.
Var 95 When making a decision to buy Fashion Clothing my main concern is the image it has or portrays.
Var 97 Purchase decisions for Fashion Clothing are very important to me.
Var 98 Making a purchase decision for Fashion Clothing requires a lot of thought.
Var 99 I attach great importance to purchasing Fashion Clothing.
Var100 I like being involved in making purchases of Fashion Clothing.
Var101 Purchasing Fashion Clothing makes feel good.
Var102 The purchase of Fashion Clothing is important to me.
Var103 I like to go shopping to see what is new in Fashion Clothing.
Var104 Purchasing Fashion Clothing makes me feel happy.
Var105 Purchasing Fashion Clothing is significant to me.

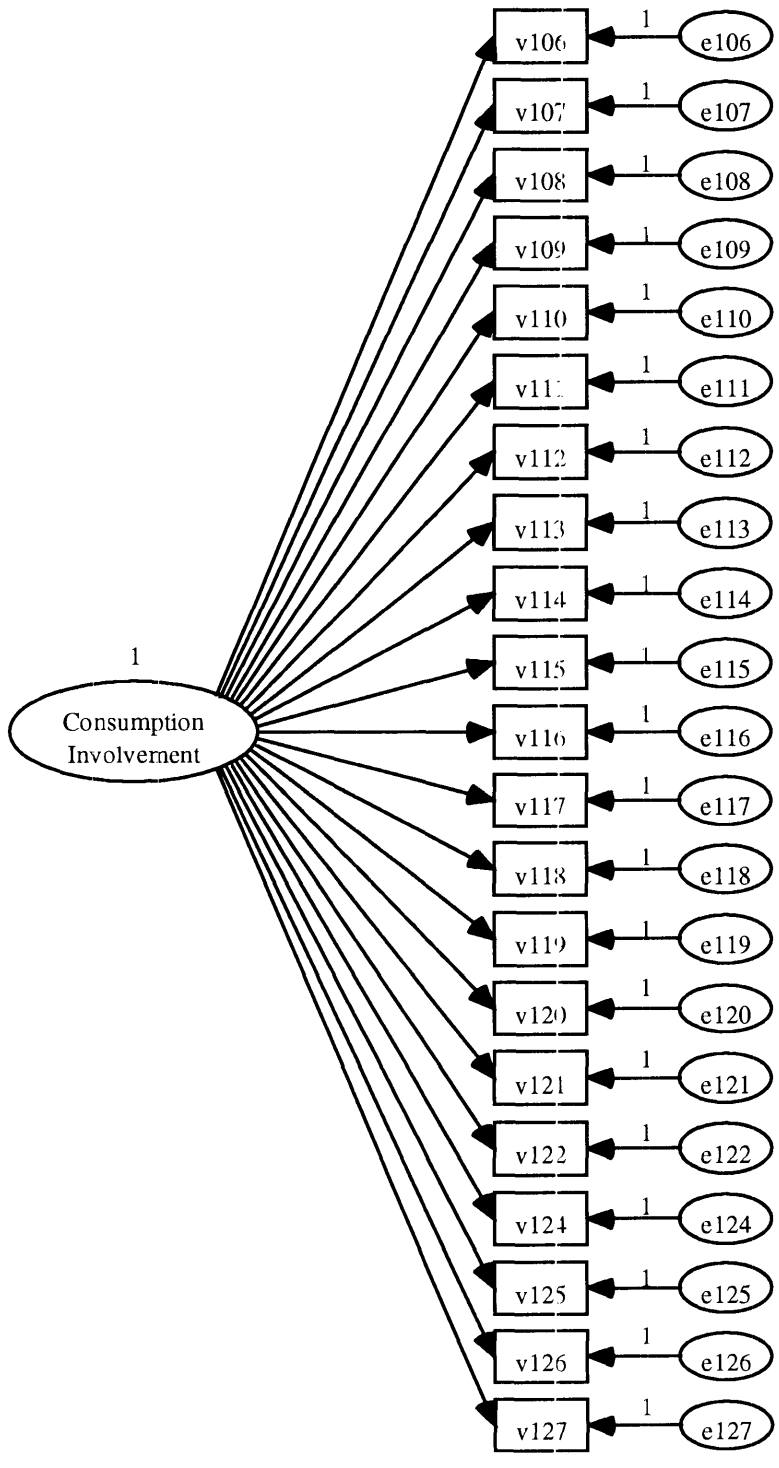
This construct contains items that represents the degree the consumer is involved in the purchase decision of the product. The results indicated that the proposed factor structure derived out of the initial exploratory factor using principal components analysis with varimax rotation in SPSS was sound with loadings ranging from .54 to .87. The factor was then confirmed using AMOS and had acceptable fit as indicated on the fit indices in Table 8.17. The internal reliability R_{cc} estimate was .97 and Cronbach Alpha was .97 indicating high internal reliability and consistency.

8.2.11 Consumption involvement

Table 8.18 below provides the factor loadings, reliabilities and fit indices for the Consumption Involvement construct.

Table 8.18 Preliminary Analysis Results for Consumption Involvement

Factor Label/Name = Consumption Involvement



Factor Loadings	
var 106	.809
var 107	.852
var 108	.809
var 109	.869
var 110	.858
var 111	.779
var 112	.808
var 113	.647
var 114	.849
var 115	.759
var 116	.849
var 117	.859
var 118	.636
var 119	.759
var 120	.755
var 121	.673
var 122	.726
var 124	.847
var 125	.849
var 126	.796
var 127	.615
Reliability	
Alpha	.97
R_{cc}	.96
Fit Indices	
GFI	.872
AGFI	.832
RMSR	.319
RMSEA	.073

Table 8.18 Continued

Factor analysis of product involvement reveals a single factor being constituted by 21 items.
Var 106 The feeling of self-fulfilment I get from wearing Fashion Clothing is significant.
Var 107 Wearing Fashion Clothing is exciting.
Var 108 Wearing Fashion Clothing is fun.
Var 109 Wearing Fashion Clothing gives me a lot of pleasure.
Var 110 I feel a sense of personal satisfaction when I wear Fashion Clothing.
Var 111 Wearing Fashion Clothing is one of the most satisfying and enjoyable things I do.
Var 112 I feel good when I wear Fashion Clothing.
Var 113 I am able to use significant skills that I have when I wear Fashion Clothing.
Var 114 Wearing Fashion Clothing makes me feel happy.
Var 115 Fashion Clothing is an interesting product to consume (wear).
Var 116 I am a keen wearer of Fashion Clothing.
Var 117 I really like wearing Fashion Clothing.
Var 118 Pleasure is all that matters to me when wearing Fashion Clothing.
Var 119 I like to think about wearing Fashion Clothing.
Var 120 Fashion Clothing is a fascinating product to consume (wear).
Var 121 I am really a perfectionist when it comes to wearing Fashion Clothing.
Var 122 I often become preoccupied with wearing Fashion Clothing.
Var 124 Wearing Fashion Clothing is important to me.
Var 125 Wearing Fashion Clothing means a lot to me.
Var 126 Wearing Fashion Clothing is a significant part of my life.
Var 127 When wearing Fashion Clothing its image is all that matters to me.

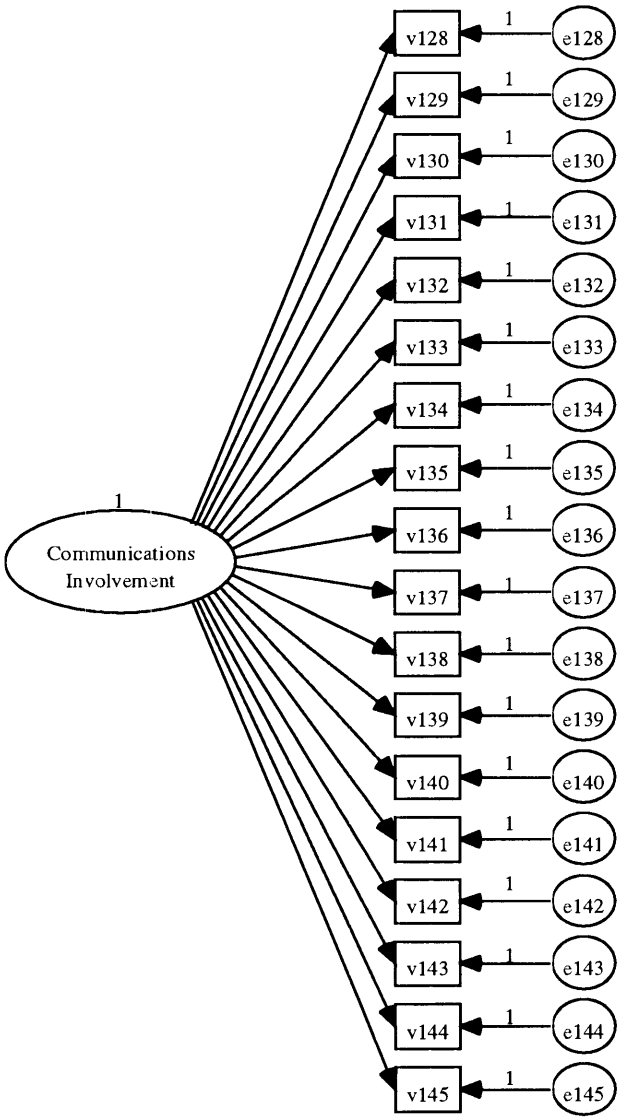
This construct contains items that represents the degree the consumer is involved in the consumption of the product. The internal reliability R_{cc} estimate was .96 and Cronbach Alpha was .97 indicating high internal reliability and consistency. The results indicated that the factor structure derived out of the initial exploratory factor analysis using SPSS was significant with loadings ranging from .64 to .86. The fit of the confirmed factor model via structural equation modeling confirmed the factor structure with acceptable fit on the key fit indices shown in Table 8.18.

8.2.12 Communications involvement

Table 8.19 below provides the factor loadings, reliabilities and fit indices for the Communications Involvement construct.

Table 8.19 Preliminary Analysis Results for Communication Involvement

Factor Label/Name = Communications Involvement



Factor Loadings	
var 128	.816
var 129	.719
var 130	.749
var 131	.868
var 132	.807
var 133	.774
var 134	.848
var 135	.636
var 136	.738
var 137	.823
var 138	.837
var 139	.796
var 140	.807
var 141	.869
var 142	.797
var 143	.768
var 144	.779
var 145	.609
Reliability	
Alpha	.97
R_{∞}	.96
Fit Indices	
GFI	.896
AGFI	.857
RMSR	.210
RMSEA	.066

Factor analysis of product involvement reveals a single factor being constituted by 18 items.
Var 128 Ads about Fashion Clothing are appealing to me.
Var 129 Ads about Fashion Clothing are of no concern to me.
Var 130 Ads about Fashion Clothing make me feel good.
Var 131 I am very interested in ads about Fashion Clothing.
Var 132 Ads about Fashion Clothing make me feel excited.
Var 133 I am curious about ads for Fashion Clothing.
Var 134 I pay a lot of attention to ads for Fashion Clothing.

Table 8.19 Continued

Var 135 Ads about Fashion Clothing are neat/ nifty/ cool.
Var 136 I think ads for Fashion Clothing are fascinating.
Var 137 Some individuals become completely involved, absorbed or engrossed in ads for Fashion Clothing. For others, ads for Fashion Clothing are simply not that involving. How involved do you feel in ads for Fashion Clothing ?
Var 138 Ads about Fashion Clothing are relevant to me.
Var 139 Ads for Fashion Clothing are beneficial to me.
Var 140 Ads about Fashion Clothing are important to me.
Var 141 Ads about Fashion Clothing are interesting to me.
Var 142 Some individuals are completely involved or absorbed by in any information about Fashion Clothing. For others information on Fashion Clothing is not at all involving. How involved are you in information about Fashion Clothing?
Var 143 Ads about Fashion Clothing are useful to me.
Var 144 I like to be informed and up to date about Fashion Clothing.
Var 145 I have little or no interest in ads for Fashion Clothing.

This construct contains items representing the degree the consumer is involved in advertising communications to do with the product. The results indicated that the proposed factor structure derived out of the initial exploratory factor analysis in SPSS with loadings ranging from .60 to .86 was good. The confirmed factor model had acceptable fit on the measures indicated in Table 8.19. The internal reliability R_{cc} estimate was .96 and Cronbach Alpha was .97 indicating high internal reliability and consistency.

8.3 Overview of preliminary stage 1 results

This chapter has been devoted to the preliminary assessment of the data. The results presented above indicate that the factor structures are sound, the measures have high internal consistency and the confirmed factor models all fit the data on the key fit indices used to evaluate the factor models. It is important before moving on to examine the full hypothesised structural models.

Bearden, Netemeyer and Mobley (1993) provide a set of criteria that have heuristic value in evaluating the psychometric rigor and properties of scales. These criteria are used here to examine the suitability and psychometric rigor of the instrument developed in this study. Table 8.20 list the key criteria of Bearden, Netemeyer and Mobley (1993) and also indicates the level achieved in this study.

Table 8.20 General Rating Criteria for Evaluating the Involvement Scales

Criterion	4.Exemplary	3.Extensive	2.Moderate	1.Minimal	0.None
Theoretical Development/ structure	**reflects several important works in the consumer behaviour field plus extensive face validity checks**	Either reviews several works or has extensive face validity	Reviews more than one source	Reviews one (no sources)	Ad hoc
Pilot testing/ item development	**more than 250 items in the initial pool, extensive pilot testing procedure**	100-250 items in initial pool; more than two pilot studies	50-100 items in initial pool; two pilot studies	Some items eliminated; one small pilot study	All initial items included; no pilot study
Means for some available norms	Means & SD's for several subsamples and total sample; extensive information for each item	**Means and SDs for total and some groups; some item information**	Means for some subgroups; information for some items	Means for total group only; information for 1-2 items	None; no item information
Sample of respondents	Random sample of nation/ community with response rate over 60%	Cross-sectional sample of nation/ community; random national sample of students	**Some representation of noncollege groups; random sample of college students**	Two or more college classes (some heterogeneity)	One classroom group (no heterogeneity
Inter-var correlation's	**Inter-item correlation average of .30 or better**	Inter-item correlation average of .20-.29	Inter-item correlation average of .10-.19	Inter-item correlations below .10	No inter-item analysis reported
Coefficient Alpha	**.80 or better**	.70-.79	.60-.69	<.59	Not reported
Factor Analysis	**Single factor from factor analysis**	Single factor from factor analysis	Single factor from factor analysis	Some items on same factors	No factor structure

(Source: Adapted from Bearden, Netemeyer and Mobley 1993)

Table 8.20 offers an overview of the level at which each criteria were met in this study. The level reached on each criteria is indicated in Table 8.20 by the **bolded sections** in the table. The table shows a satisfactory level has been achieved on each of the key criteria used to judge the adequacy of the measurement instrument developed and used in this study.

The results from the preliminary analyses of the instrument combines with the criteria proposed by Bearden et al (1995) indicate acceptance of the psychometric properties of the instrument and its rigor. This provides ample support to move to the next stage of the study involving the full scale estimation of the intermediate and full models.

8.3.1 Development of the congeneric model

Following the preliminary analyses it was possible to use the congeneric modeling theory detailed in chapter 7 to construct the congeneric model. The model was developed using the two stage process detailed in section 7.2.1 to 7.2.3 of chapter 7 and corresponds to the steps of Hair et al (1995) of step 3 (7.3.3 in chapter 7) of converting the path diagram into the structural equation model.

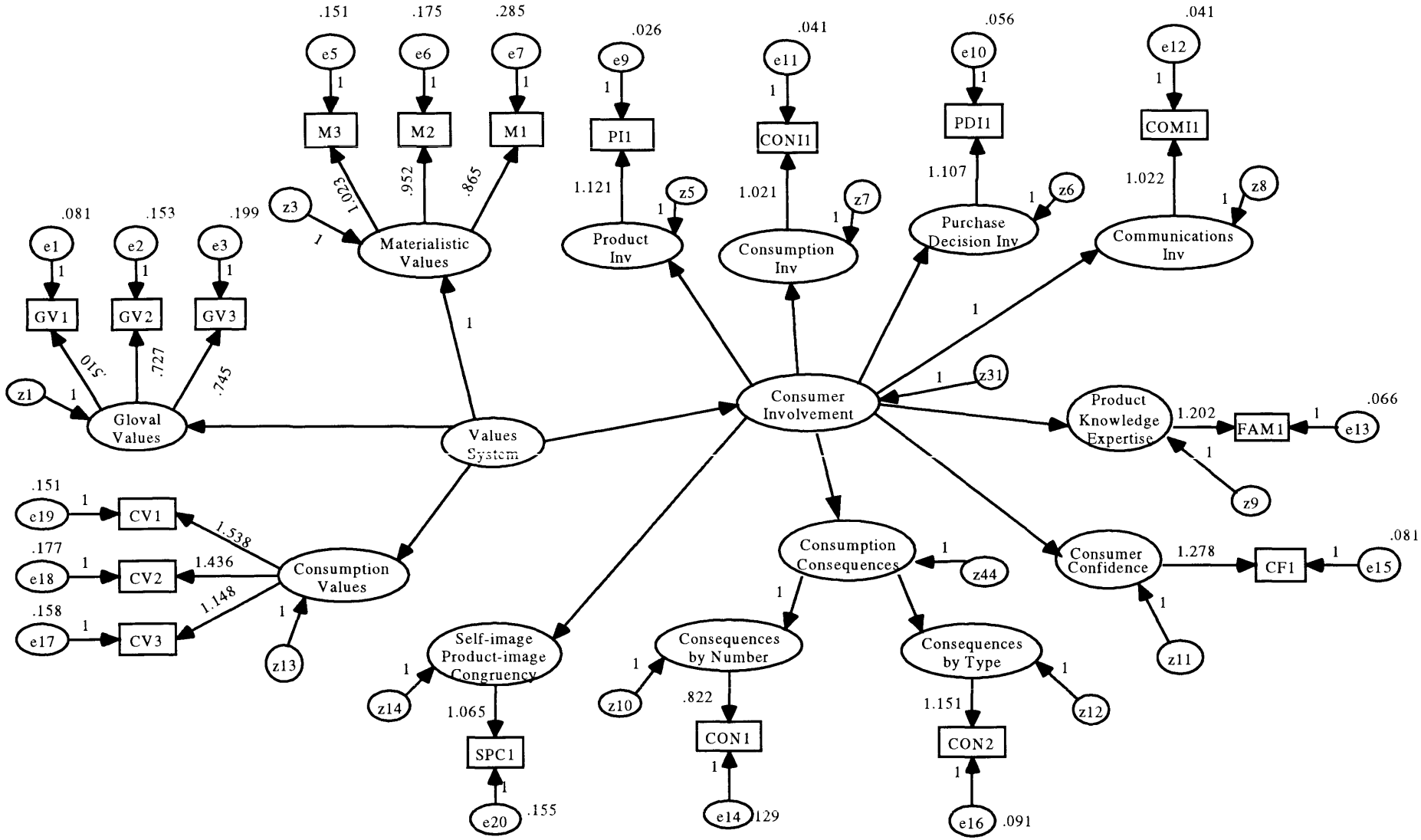
Table 8.21 displays the calculated error variance and regression coefficients for each composite factor score. The table also details the composite reliability using Werts, Rock, Linn and Jöreskog (1978) formula (R_{cc}), the variance and standard deviations for each factor of the constructs.

Table 8.21 Composite Error Variance and Regression Coefficients

Factor	R_{cc}	var σ_x^2	std dev σ_x	λ lambda	θ theta
Global Values factor 1 (GV1)	0.763	0.341	0.584	0.510	0.081
Global Values factor 2 (GV2)	0.776	0.682	0.826	0.727	0.153
Global Values factor 3 (GV3)	0.736	0.754	0.868	0.745	0.199
Materialistic Values factor 3 (M3)	0.874	1.197	1.094	1.023	0.151
Materialistic Values factor 2 (M2)	0.838	1.082	1.040	0.952	0.175
Materialistic Values factor 1 (M1)	0.724	1.034	1.017	0.865	0.285
Product Knowledge/expertise (FAM1)	0.956	1.511	1.229	1.202	0.066
Consequences by Number (CON1)	0.84	0.804	0.897	0.822	0.129
Consumer Confidence (CF1)	0.953	1.713	1.309	1.278	0.081
Consequences by Type (CON2)	0.936	1.415	1.190	1.151	0.091
Consumption Values factor 3 (CV3)	0.893	1.475	1.214	1.148	0.158
Consumption Values factor 2 (CV2)	0.921	2.24	1.497	1.436	0.177
Consumption Values factor 1 (CV1)	0.94	2.517	1.587	1.538	0.151
Self-image Product-image Congruency (SPC1)	0.88	1.29	1.136	1.065	0.155
Product Involvement (PI1)	0.98	1.283	1.133	1.121	0.026
Purchase Decision Involvement (PDI1)	0.956	1.281	1.132	1.107	0.056
Consumption Involvement (CONI1)	0.962	1.084	1.041	1.021	0.041
Communications Involvement (COMI1)	0.962	1.085	1.042	1.022	0.041

The regression coefficients and the error variances displayed in Table 8.21 were used to fix the paths in the structural equation model. The hypothesised full structural equation model Figure 8.1 shown below corresponds to the hypothesised model H8 Figure 5.8 in Chapter 5. All estimated error variances and regression coefficients are shown in Figure 8.1. This is the form of the full model to be estimated and is the result of the application of the congeneric modeling procedure discussed in chapter 7.

Figure 8.1 H8: Congeneric Structural Equation Model Developed to Test Hypothesised Model Figure 5. 8



Only the full model is shown for simplicity, the intermediate models are not shown in their full structural equation format. The error variance values and regression coefficient values that appear on the full model (Figure 8.1) were the same in the in all models estimated in chapter 9.

8.4 Conclusion to preliminary results

The preliminary results indicated robust factor structures, with very acceptable internal reliability and acceptable levels of fit on the indices used to judge the confirmed factor models. These preliminary results indicated that all constructs were being tapped by the measurement instrument developed here. The results indicated that factor structures and fit of the factor models were good and it was appropriate to proceed to estimating and testing the hypothesised models presented in chapter 5.

Chapter 9

Results of Hypothesised Intermediate and Full Models

The network defining the construct, and the derivation leading to the predicted observation, must be reasonably explicit so that validating evidence may be properly interpreted (Cronbach & Meehl 1955 p.300).

9. Introduction

Chapter 8 addressed the preliminary analyses of the data through descriptive statistical analyses such as means, variance, standard deviations, skewness and kurtosis followed by both exploratory and confirmatory factor analysis, Pearson correlation estimates and Cronbach alpha and composite reliability R_{cc} estimates. Chapter 8 completed stage 1 of the 2 stage process. This chapter will present tests of the hypothesised intermediate models (H1, H2, H3, H4, H5, H6 & H7) and full hypothesised model (H8) and the alternate model (H9) developed in chapter 5, via the estimates of the goodness-of-fit of the models and the parameter estimates. The model estimates were judged according to whether there was acceptable, marginal or unacceptable support for them and the parameters according to their strength.

9.1 Key data analysis of the main study

All models tested were based on the congeneric modeling procedure detailed in section 7.2.1 to 7.2.3 of chapter 7. The data and model structures were analysed with the AMOS structural equation modeling program. As indicated in chapter 8 the data had kurtosis and ADF was a suitable and defensible estimation procedure for such data as indicated in chapter 7 section 7.3.4. Therefore, the ADF fitting function (Browne 1982) was used to estimate parameters and test hypothesised models. Evaluation of fit was accomplished using the fit indices detailed in section 7.3.5.1 to 7.3.5.19 of chapter 7.

The analytical process adopted and presented in this chapter simultaneously estimated the measurement model and the structural paths of the hypothesised models. AMOS also allowed for the running of bootstrapping computations (Efron 1987. Bootstrapping is a

computationally intensive method which permits significance tests about parameter estimates even where a computational form for a standard error for a statistic does not exist. For a detailed discussion on this procedure the reader should refer to Hoyle (1995), Mooney and Duval (1993), Efron (1987) or section 7.3.5.20 to 7.3.5.23 of chapter 7.

9.2 Results for hypothesised intermediate models

This section presents the results pertaining to the hypothesised intermediate models (H1, H2, H3, H4, H5, H6 and H7 of Chapter 5). The results of the proposed model of the four types of involvement as related to consumer involvement is presented first, followed by the consumer values system model. Following presentation of the results for the involvement model and values system model, the intermediate models of relationships between consumer involvement and consumer values system, consumer involvement and product knowledge/expertise, consumer involvement and consumption consequences, consumer involvement and self-image/product-image congruency and consumer involvement and consumer confidence. All parameter values (path weights) indicated on the models are standardised estimates and all values shown above the factors represented by the rectangles in each model are the reliability estimates for the factor.

Figure 9.1 details the hypothesised model of the four types of involvement in relation to the second order construct of consumer involvement proposed in chapter 5 (H1: Figure 5.1). Table 9.1 details the results of the key fit indices used to judge the fit of this model.

Figure 9.1 H1: Model of Involvement Structure

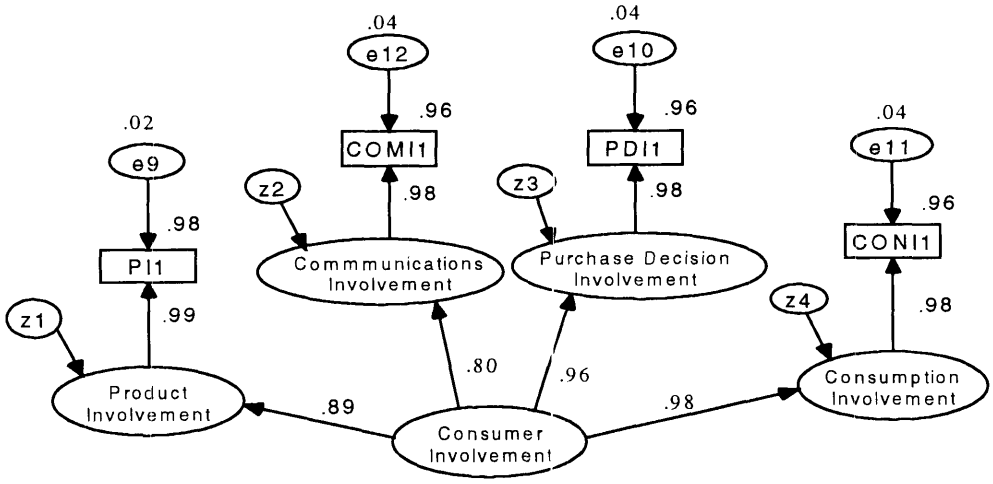


Table 9.1 Results of Intermediate Measures of Fit for Model of Consumer Involvement

Fit Indices	
$\chi 2$	1.908
df	2
χ^2/df	.954
GFI	.997
AGFI	.987
RMSR	.011
RMSEA	.001
NFI	.994
IFI	1.00
RFI	.981
CFI	1.00
TLI	1.00

The chi-square statistic for the hypothesised model was not significant χ^2 = 1.908 and the fit measures suggested a high degree of fit to the data with, GFI .997, AGFI .989, RMSR .011 and the RMSEA < .001 all indicated a very good fit. Also the NFI, IFI, RFI, CFI and TLI measures were all acceptable and the paths in the model were significant. Thus, there is good statistical support for the hypothesised model proposed in chapter 5 H 1: Figure 5.1. The indices indicated that the proposed model of the four types of involvement and the higher order construct of consumer involvement fit the data well. Product involvement, communications involvement, purchase decision involvement and consumption involvement are deemed acceptable to constitute a profile of consumer involvement.

Figure 9.2 details the hypothesised model of consumer's values system proposed in chapter 5, H2: Figure 5.2 and Table 9.2 provides the corresponding fit indices for the.

Figure 9.2 H2: Model of Consumer's Values System

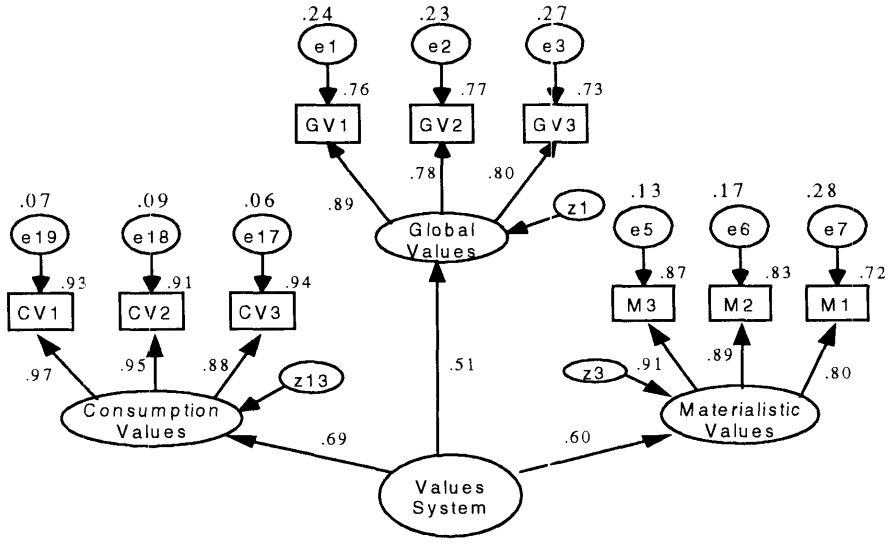


Table 9.2 Results of Intermediate Measures of Fit for Model of Consumer's Values System

Fit Indices	
χ^2	123.855
df	24
χ^2/df	5.161
GFI	.940
AGFI	.887
RMSR	.089
RMSEA	.096
NFI	.867
IFI	.890
RFI	.800
CFI	.888
TLI	.832

The fit indices indicated acceptable fit of the model to the data. Although the chi-square statistic for the hypothesised model was high, $\chi 2 = 123.855$, it is not significant at the traditional .05 level. The fit measures suggested a satisfactory fit to the data with GFI .940, AGFI of .887 and RMSR .089 and the NFI, RFI, CFI and TLI were all above the desired level and all path weights were significant.

The model indicated that the hypothesised consumer's values system was an appropriate conceptualisation of consumer values. The fit of the model indicates that the theoretical propositions about global values, materialistic values and consumption specific values appear to be a good representation of the construct called values system. As such the hypothesised model H2: Figure 5.2 of Chapter 5 was supported.

Figure 9.3 represents the hypothesised relationship between involvement and values system proposed in chapter 5 Figure 5.3. Table 9.3 provides the fit indices for the estimated model.

Figure 9.3 H3: Model of Involvement and Values System

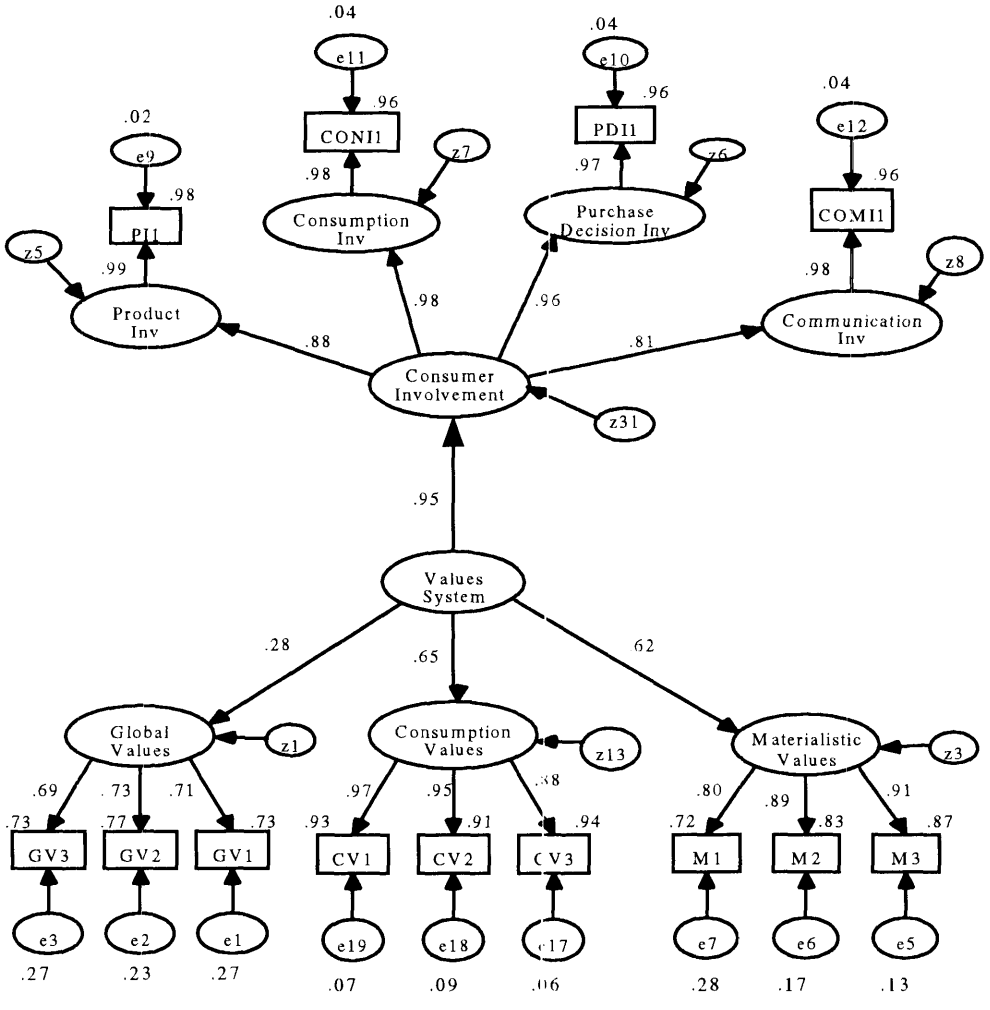


Table 9.3 Results of Intermediate Measures of Fit for Model of Consumer Involvement & Values System

Fit Indices	
χ^2	197.600
df	61
χ^2/df	3.239
GFI	.935
AGFI	.902
RMSR	.12
RMSEA	.071
NFI	.848
IFI	.890
RFI	.805
CFI	.888
TLI	.857

The results indicate that the model of consumer involvement and values system fit the data. The chi-square statistic for the hypothesised model was high, $\chi^2 = 197.600$ and showed moderate fit. However, Jöreskog and Sörbom (1984) have argued that χ^2 has sensitivity to sample size and departures from data normality and rarely are good χ^2 values reported in the literature. The other fit measures suggest an acceptable fit to the data with GFI .935, AGFI .902, RMSR .124 and RMSEA .071. Also the NFI, IFI, RFI, CFI and TLI were all acceptable.

Of course, overall fit (or lack there of) does not imply good or bad parameter estimates (Jöreskog & Sörbom 1984), which are of principal interest here. All path weights were good and error terms are low indicating support for the model. The fit of the model is acceptable and the hypothesised model H3: Figure 5.3 of chapter 5 was supported. The model indicates that there is a significant causal relationship between consumers value systems and their corresponding levels of involvement in an object.

Figure 9.4 details the model of the relationship between consumer involvement and knowledge/expertise proposed in Chapter 5 H4: Figure 5.4 and Table 9.4 provides the corresponding fit indices used to judge the fit of the model to the data.

Figure 9.4 H4: Model of Involvement & Product Knowledge/expertise

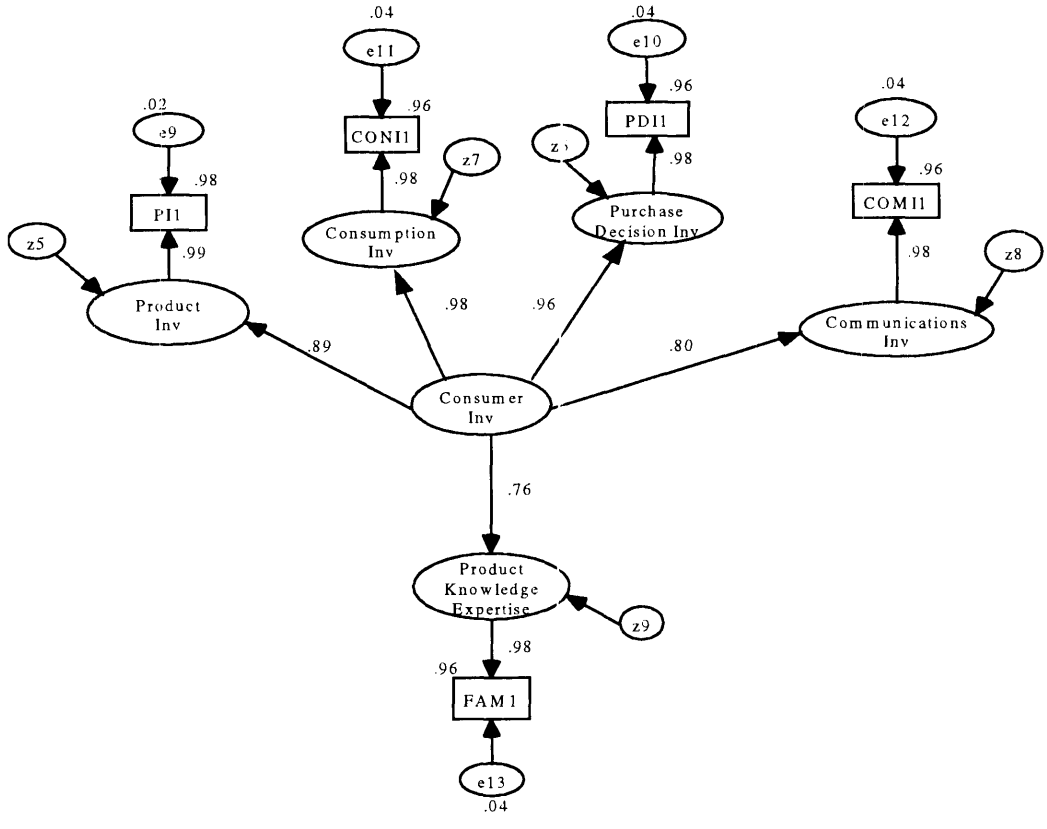


Table 9.4 Results of Intermediate Measures of Fit for Model of Consumer Involvement & Product Knowledge/expertise

Fit Indices	
χ^2	6.065
df	4
χ^2/df	1.516
GFI	.993
AGFI	.973
RMSR	.018
RMSEA	.034
NFI	.981
IFI	.994
RFI	.953
CFI	.993
TLI	.984

The results indicated that the model of consumer involvement and product knowledge/expertise fit the data. The chi-square statistic for the hypothesised model was not significant, $\chi^2 = 6.065$, and the fit measures suggest an acceptable fit to the data with GFI .993, AGFI .973, RMSR .018 and the RMSEA .034. The fit indices of NFI, IFI, RFI, CFI and TLI are all above the desired level and the strength of the causal path from involvement to product knowledge expertise was significant.

The hypothesised model H4: Figure 5.4 of Chapter 5 was supported. The theoretical proposition of the relationship between involvement and product knowledge has been supported by the fit of the model to the data and by the strength and direction of the path.

Figure 9.5 details the model of the relationship between consumer involvement and consumption consequences proposed in chapter 5 Figure 5.5. Table 9.5 provides the details of the fit indices used to judge the fit of the model to the data.

Figure 9.5 H5: Model of Involvement & Consumption Consequences

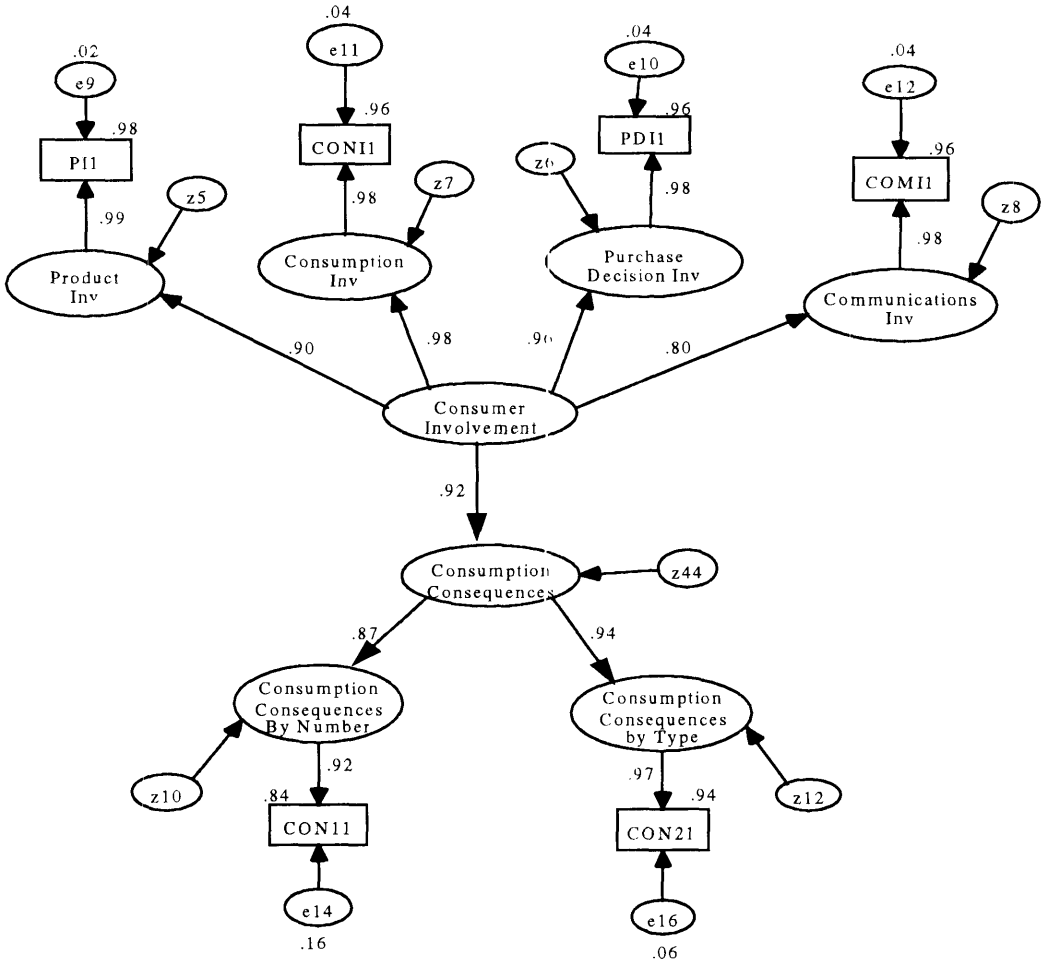


Table 9.5 Results of Intermediate Measures of Fit for Model of Consumer Involvement & Consequences

Fit Indices	
χ^2	7.455
df	8
χ^2/df	.932
GFI	.994
AGFI	.985
RMSR	.027
RMSEA	.000
NFI	.983
IFI	1.00
RFI	.986
CFI	1.00
TLI	1.00

The fit indices indicated that the proposed intermediate model relating involvement to consumption consequences as a second-order construct fit the data. The chi-square statistic for the hypothesised model was not significant, $\chi^2 = 7.455$ and the fit measures suggest a satisfactory fit to the data, GFI of .994, AGFI of .985, RMSR of .027 and RMSEA of .000. The NFI, IFI, RFI, CFI and TLI fit indices were all above the desired level. Further, the strength of the relationship between the constructs was high and in the hypothesised direction, further indicating support for the model. The hypothesised model, H4: Figure 5.5 of Chapter 5 was supported.

Figure 9.6 details the model of the hypothesised relationship between involvement and self-image product-image congruency proposed in chapter 5 H5: Figure 5.6 and Table 9.6 details the fit indices used to judge the fit of the model to the data.

Figure 9.6 H5: Model of Involvement & Self-image Product-image Congruency

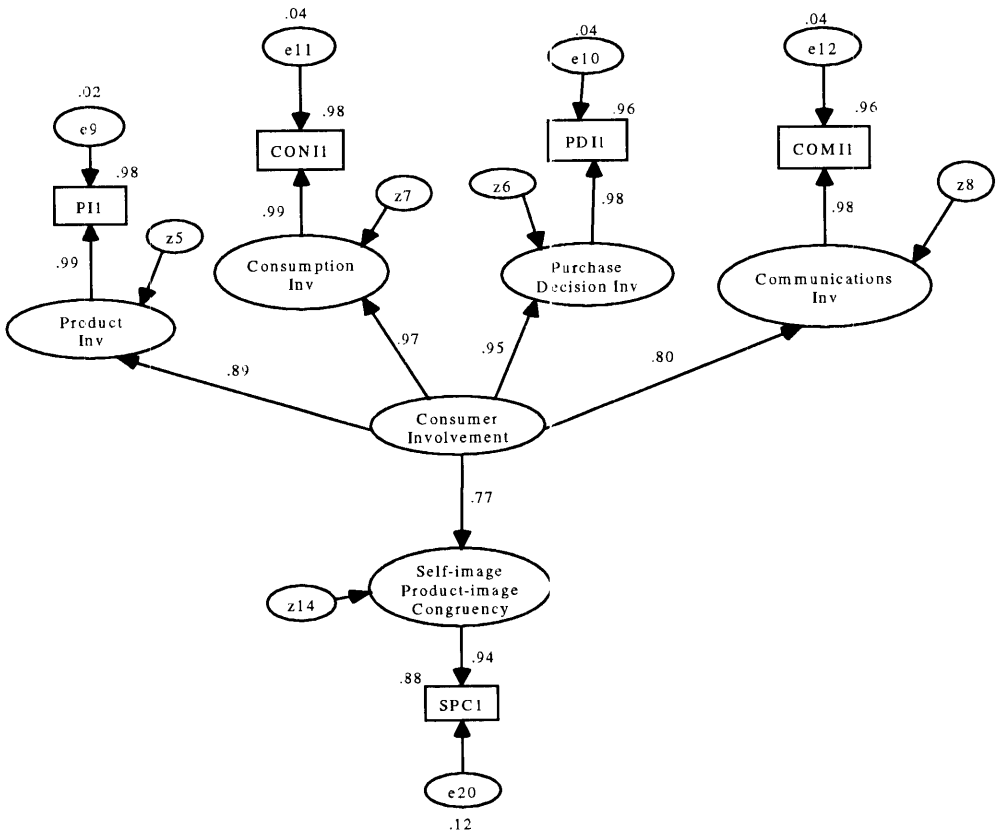


Table 9.6 Results of Intermediate Measures of Fit for Model of Consumer Involvement & Self-image Product-image Congruency

Fit Indices	
χ^2	5.773
df	5
χ^2/df	1.155
GFI	.994
AGFI	.983
RMSR	.016
RMSEA	.019
NFI	.982
IFI	.998
RFI	.964
CFI	.998
TLI	.995

The results indicated that the model of consumer involvement and self-image product-image congruency fit the data. The chi-square statistic for the hypothesised model was not significant,χ^2 = 5.773, the fit measures suggest an acceptable fit to the data with GFI .994, AGFI .983, RMSR .016 and RMSEA .019. Also, the NFI, IFI, CFI and TLI estimates were all above the desired level. The strength of the causal relationship was high from involvement to self-image product-image congruency was significant, indicating the model represents the relationship between the construct accurately. The fit indices indicated acceptable fit of the model and the hypothesised model H5: Figure 5.6 of Chapter 5 was supported.

Figure 9.7 details the hypothesised model of the relationship between involvement and consumer confidence proposed in chapter 5 Figure 5.7. Table 9.7 details the fit indices used to judge the fit of the model to the data.

Figure 9.7 H6: Model of Involvement & Consumer Confidence

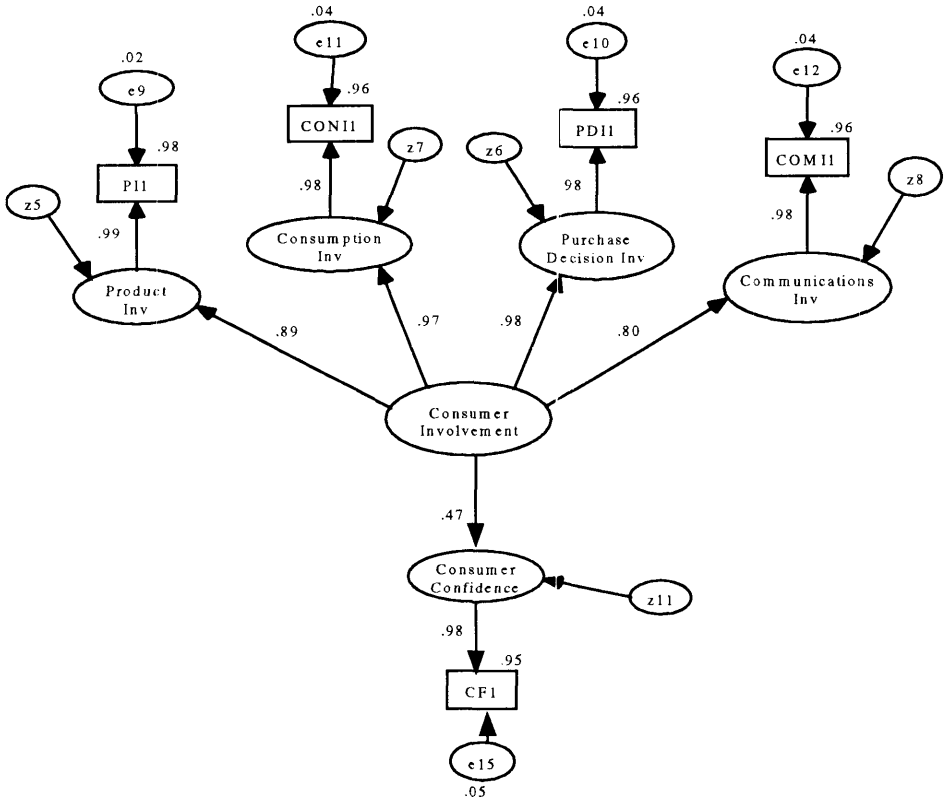


Table 9.7 Results of Intermediate Measures of Fit for Model of Consumer Involvement & Confidence

Fit Indices	
χ^2	12.097
df	5
χ^2/df	2.419
GFI	.987
AGFI	.961
RMSR	.034
RMSEA	.056
NFI	.963
IFI	.978
RFI	.926
CFI	.978
TLI	.955

The results indicated that the model of consumer involvement and consumer confidence fit the data. The chi-square statistic for the hypothesised model was not significant, χ^2 = 12.097 and the fit measures suggest a satisfactory fit to the data with GFI of .987, AGFI of

.961, RMSR of .034 and RMSEA of .056. All other fit indices such as NFI, IFI, RFI, CFI and TLI were all acceptable and the path weights were good. The model of the relationship between involvement and consumer confidence fit the data well and the direction of the relationship was correctly specified with a strong path between the constructs. The hypothesised model H6: Figure 5.7 of Chapter 5 was supported.

9.2.1 Summary of results for intermediate models

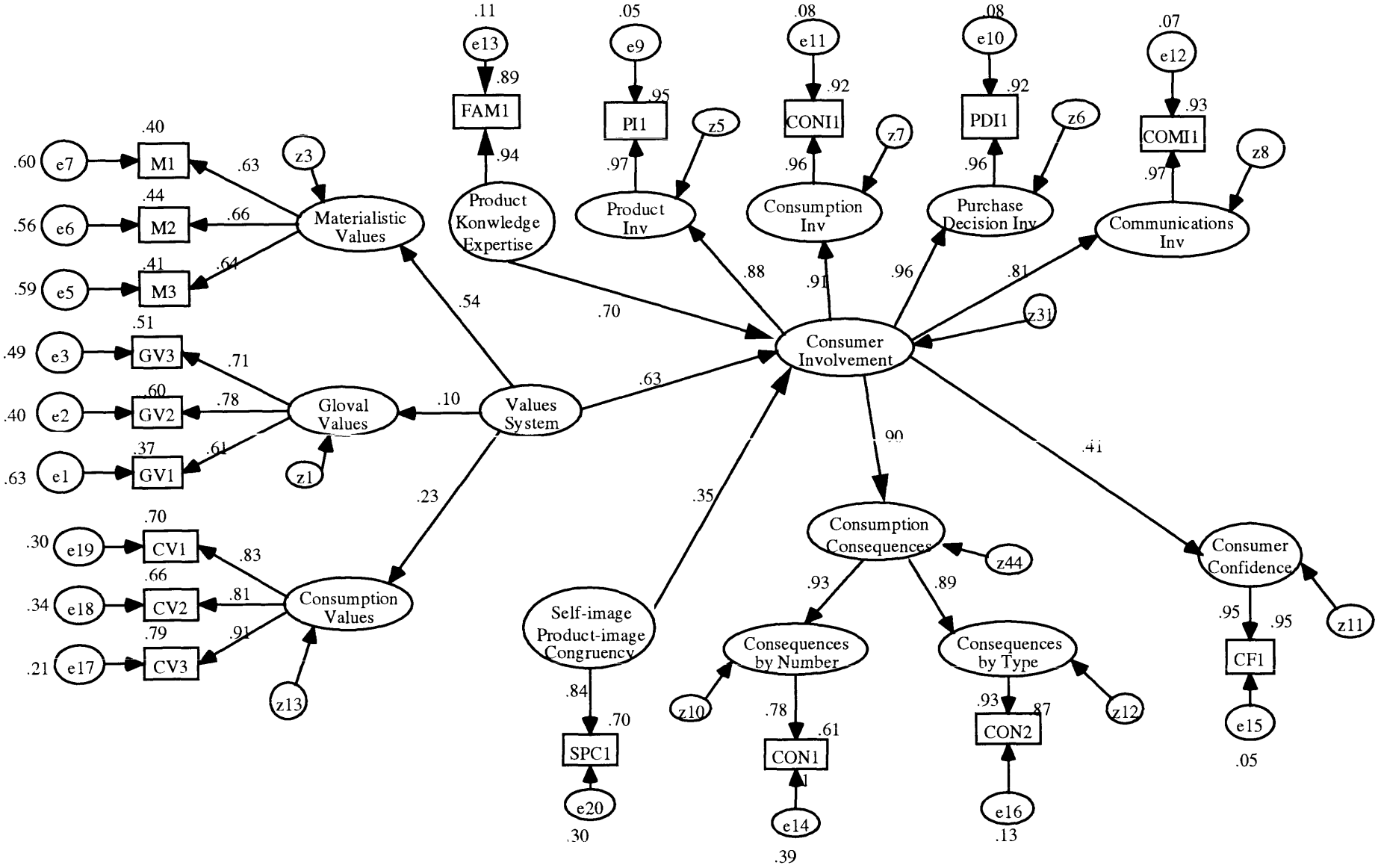
The previous sections have presented the results for hypothesised intermediate models regarding the separate relationships of the four types of involvement and consumer involvement as a second-order construct, consumer values system, product knowledge/expertise, consumer confidence, consumption consequences and self-image product-image congruency have been presented. The hypothesised intermediate models were all statistically supported. Fit indices for all intermediate models were judged to be acceptable on all evaluative fit measures. The residuals for the observed measures were uniformly low, suggesting that the measures represented reliable and reasonable indicators of the constructs in question. The following section (9.3) presents the results of the complete hypothesised model H8, the alternate model H9 and the independence model.

9.3 Results for hypothesised full model and competing alternate model and independence model

This section presents the results of full hypothesised model (see H8 Figure 5.8 of Chapter 5) and competing model (H9 Figure 5.9 of Chapter 5) proposed and the independence model. The alternate model is dealt with first in this section followed by the hypothesised model and the results of the independence model. All models in this section were estimated using asymptotic distribution free (ADF) estimation in AMOS and all models were based on the congeneric theory developed in chapter 7.

Figure 9.8 presents the model of the hypothesised alternate model proposed in chapter 5 H9: Figure 5.9. The path estimates are displayed on the model and the measures of fit are detailed in Table 9.8.

Figure 9.8 H9: Alternate Full Model of Involvement & Nomological Network



All parameter values are standardised estimates.

Table 9.8 Results for Alternate Model Fit Indices

Evaluation of Structural Model with Goodness-of-Fit Measures 18 indicators, 15 constructs proposed model: χ^2 = 880.100; df = 146; χ^2/df = 6.02 independence model: χ^2 = 2197.948; df = 153; χ^2/df = 14.366		
Goodness-of-Fit Measure	**Estimate**	**Evaluation**
Absolute Fit Measures		
Chi-square (χ^2)	**= 880.100**	Unacceptable
significance level:	**= .001**	Unacceptable
Noncentrality parameter (NCP)	**= 734.1**	Unacceptable
Scaled Noncentrality parameter (SNCP)	**= 1.63**	Unacceptable
Goodness-of-Fit index (GFI)	**= .808**	Unacceptable
Root mean square residual (RMSR)	**= .435**	Unacceptable
Root mean square error of approximation (RMSEA)	**= .114**	Unacceptable
Expected cross-validation index)ECVI)	**= 2.39**	Unacceptable
Incremental Fit Measures		
Tucker-Lewis index (TLI or NNFI)	**= .560**	Unacceptable
Normed-fit-index (NFI)	**= .600**	Unacceptable
Adjusted Goodness-of-fit index (AGFI)	**= .744**	Unacceptable
Parsimonious Fit Measures		
Parsimonious Goodness-of-Fit index (PGFI)	**= .605**	Unacceptable
Chi-square/degrees of freedom ratio: (χ^2/df)	**= 6.02**	Unacceptable
df	**= 146**	
Parsimonious normed fit index (PNFI)	**= .502**	Unacceptable
Akaike information criterion (AIC)	**= 966.100**	Unacceptable
Relative Fit Index (RFI)	**= .521**	Unacceptable
Incremental Fit Index (IFI)	**= .637**	Unacceptable
Comparative Fit Index (CFI)	**= .632**	Unacceptable

Absolute Fit Measures: AMOS provided absolute goodness-of-fit measures. These are shown in Table 9.8. The first measure was the likelihood ratio Chi-square statistic. The χ^2 value of 880.100 (with 146 degrees of freedom) is statistically significant at a level of .001 indicating significant differences exist. The fitted χ^2 shows that the alternate model fits the data better than the independence model. This statistic shows support for believing that the differences of the predicted and the actual matrices are significant, indicative of unacceptable fit of the data to the model.

Thus additional absolute measures of fit were employed . The GFI has a value of .808, which was moderate, but it was not adjusted for model parsimony. The root mean square residual (RMSR) indicated that the average residual covariance was .435, and deemed not acceptable given the strong variance/covariance in the original matrices. Finally, the

Noncentrality parameter (NCP) value of 734.1, and the Scaled Noncentrality parameter (SNCP) value of 1.63, and the RMSEA of .114 indicated poor absolute fit of the model. All the measure of absolute fit were not within acceptable levels, the incremental fit and parsimonious fit indices were needed to examine the model from other perspectives.

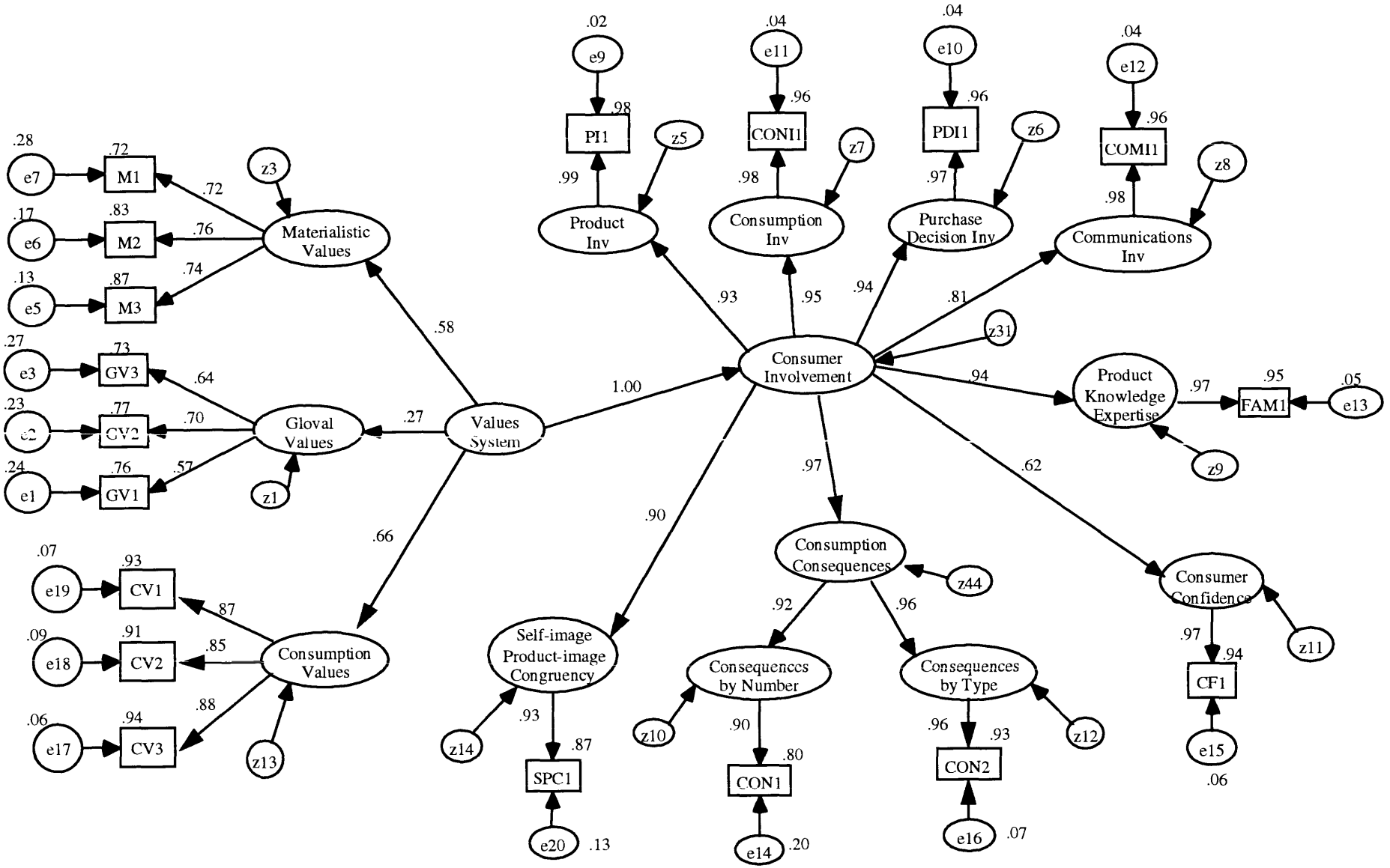
Incremental Fit Measures: The next goodness-of-fit measures assessed the incremental fit of the model to an independence model. The independence model calculated by AMOS had a χ^2 value of 2197.948 with 153 degrees of freedom. Using the χ^2 and degrees of freedom information, AMOS calculated the measures such as the Tucker-Lewis index (TLI), the Normed fit index (NFI) and the Adjusted Goodness-of-fit index (AGFI). All incremental fit measures in Table 9.8 did not exceed the desired level, further reducing support for the proposed alternate model H9.

Parsimonious Fit Measures: The final measures of overall model evaluation assessed the parsimony of the proposed model by evaluating the fit of the model versus the number of estimated coefficients (or conversely the degrees of freedom) needed to achieve that level of fit. The parsimonious measures of fit used in this study were the parsimonious goodness-of-fit (PGFI), the Chi-square/degrees of freedom ratio (χ2/df), the parsimonious normed fit index (PNFI), the Akaike information Criterion (AIC), the Incremental fit index (IFI), the Relative fit index (RFI) and the Comparative fit index (CFI). The PGFI of .605, χ^2/df of 6.02, PNFI of .502, AIC of 966.100, IFI of .637, RFI of .521, CFI of .632 all indicated poor parsimony of the model, thus providing further evidence for the unacceptability of the alternate model H9 of Chapter 5.

In summary, the various measures of overall model goodness-of-fit did not support the alternate model as an acceptable representation of the hypothesised constructs and their relationships and therefore, H9 Figure 5.9 is unsupported.

Figure 9.9 presents the full hypothesised model proposed in H8 Figure 5.8 of Chapter 5 and Table 9.9 details the corresponding fit measures used to judge the fit of the model to the data.

Figure 9.9 H8: Hypothesised Full Model of Involvement & Nomological Network



All parameter values are standardised estimates.

Table 9.9 Results for Hypothesised Full Model Fit Indices

AMOS Provided Structural Model Data: 18 indicator, 15 constructs proposed model: χ^2 = 426.4; df = 146; χ^2/df = 2.9 independence model: χ^2 = 2197.9; df = 153; χ^2/df = 14.366 **Evaluation of Structural Model with Goodness-of-Fit Measures**		
Goodness-of-Fit Measure	**Estimate**	**Evaluation**
Absolute Fit Measures		
Chi-square (χ^2)	**= 426.4**	Marginal
significance level:	**= .01**	Acceptable
Noncentrality parameter (NCP)	**=286.9**	Acceptable
Scaled Noncentrality parameter (SNCP)	**= .63**	Acceptable
Goodness-of-Fit index (GFI)	**= .917**	Acceptable
Root mean square residual (RMSR)	**= .1**	Acceptable
Root mean square error of approximation (RMSEA)	**= .07**	Acceptable
Expected cross-validation index (ECVI)	**= 1.4**	Acceptable
Incremental Fit Measures		
Tucker-Lewis index (TLI or NNFI)	**= .814**	Acceptable
Normed-fit-index (NFI)	**= .806**	Acceptable
Adjusted Goodness-of-fit index (AGFI)	**= .871**	Acceptable
Parsimonious Fit Measures		
Parsimonious Goodness-of-Fit index (PGFI)	**= .657**	Acceptable
Chi-square/degrees of freedom ratio (χ^2/df)	**= 2.9**	Acceptable
df	**= 146**	
Parsimonious normed fit index (PNFI)	**= .651**	Acceptable
Akaike information criterion (AIC)	**= 526**	Acceptable
Incremental Fit Index (IFI)	**= .854**	Acceptable
Relative Fit Index (RFI)	**= .758**	Acceptable
Comparative Fit Index (CFI)	**= .851**	Acceptable

Absolute Fit Measures: AMOS provided absolute goodness-of-fit measures. These are shown in Table 9.9. The first measure was the likelihood ratio Chi-square statistic. The χ^2 value of 426.4 (with 146 degrees of freedom) was high and had a statistical significance level of .01, indicating significant difference between the predicted and actual matrices. The fitted χ^2 shows that the hypothesised model fits the data substantially better than the independence model. Moreover, the sample size of 450 is above what is generally an acceptable range for causing sample size concern from statistical sensitivity (see section 7.3.5.2 for application of the measure). Jöreskog and Sörbom (1984) have argued that chi-square statistic has sensitivity to sample size and departures from data normality, and rarely are good chi-square values reported in the consumer behaviour literature.

Thus additional measures of fit were employed. The GFI had a value of .917, which is quite high, but it is not adjusted for model parsimony. The root mean square residual (RMSR) indicated that the average residual covariance was .1 and deemed acceptable given the strong variance/covariance in the original matrices. Finally, the Noncentrality parameter (NCP) value of 286, and the Scaled Noncentrality parameter (SNCP) value of .63, and the RMSEA of .07 indicated acceptable absolute fit of the model. While all the measure of absolute fit fell within acceptable levels, the incremental fit and parsimonious fit indices were needed to ensure acceptability of the model from other perspectives.

Incremental Fit Measures: The incremental fit indices assessed the fit of the model to an independence model. The independence model calculated by AMOS had a χ^2 value of 2197.948 with 153 degrees of freedom. Using the χ^2 and degrees of freedom information, AMOS calculated the measures such as the Tucker-Lewis index (TLI) of .814, the Normed fit index (NFI) of .803, and the Adjusted Goodness-of-fit index (AGFI) of .870. All incremental fit measures detailed in Table 9 9 exceeded the desired level, further supporting acceptance of the proposed model.

Parsimonious Fit Measures: The final measures of overall model assessed the parsimony of the proposed model by evaluating the fit of the model versus the number of estimated coefficients (or conversely the degrees of freedom) needed to achieve that level of fit. The parsimonious measures of fit used in this study were the parsimonious goodness-of-fit (PGFI), the Chi-square/degrees of freedom ratio (χ^2/df), the parsimonious normed fit index (PNFI), the Akaike information Criterion (AIC), the Incremental fit index (IFI), the Relative fit index (RFI) and the Comparative fit index (CFI). The PGFI of .657, χ2/df of 2.9, PNFI of .651, AIC of 522.9, IFI of .854, RFI of .758, CFI of .851 all indicated acceptable parsimony of the model, thus providing further support for the model.

Of course, overall fit does not imply significant or poor parameter estimates (Jöreskog and Sörbom 1984), which are of prime interest in the present research. All path coefficients displayed in the model Figure 9.9 were significant and error terms were small further indicating acceptance of the hypothesised model H9. Table 9.10 provides the results for the standardised path weights, lower and upper bound and p values for the paths between

the constructs. It shows all "p values" to be non significant and thus further supports the strength of the paths in the model.

Table 9.10 Standardised 'P' Values

Standardised (Beta) Weights	Lower Bound	Upper Bound	P Value
Consumer Involvement-Values System	0.999	1.000	0.007
Consequences- Consumer Involvement	0.923	1.009	0.020
Materialistic Values-Values System	. . .	0.709	0.067
Global values- Values System	. . .	0.447	0.107
Consumption Values-Values System	. . .	0.759	0.176
Consumption Involvement-Consumer Involvement	. . .	0.967	0.127
Product Involvement-Consumer Involvement	. . .	0.943	0.456
Purchase decision Involvement-Consumer Inv	. . .	0.958	0.177
Communications Involvement-Consumer Inv	. . .	0.865	0.059
Self-Product Congruency-Consumer Involvement	. . .	0.953	0.113
Knowledge/expertise-Consumer Involvement	0.883	0.999	0.005
Confidence-Consumer Involvement	. . .	0.750	0.059
Consequences by type-Consequences	0.835	0.990	0.044
Consequences by number-Consequences	. . .	0.987	0.150
PI1-Product Involvement	0.983	0.990	0.003
PDI1-Purchase Decision Involvement	0.965	0.977	0.025
ConI1- Consumption Involvement	0.973	0.981	0.009
ComI1-Communications Involvement	0.973	. . .	0.001
Fam1-Product Knowledge expertise	0.968	0.978	0.002
Con1-Consumption Consequences by type	0.957	0.969	0.007
M1- Materialistic values	0.632	0.848	0.005
M2- Materialistic values	0.657	0.877	0.006
M3- Materialistic values	0.631	0.814	0.005
GV1- Global values	0.402	0.675	0.019
GV2-Global values	0.587	0.833	0.002
GV3-Global values	0.463	0.794	0.011
CV3-Consumption values	0.793	0.954	0.030
CV2-Consumption values	0.770	0.911	0.028
CV1-Consumption values	0.796	0.920	0.046
SPC1- Self-image Product-image Congruency	0.926	. . .	0.000
CON1-Consumption Consequences by Number	0.834	0.922	0.007
CF1-Consumer Confidence	0.955	0.976	0.010

In summary, the various measures of overall model goodness-of-fit and the strength of paths provided sufficient support to deem the results, indicative of an acceptable representation of the hypothesised constructs and their relationships[1]. Thus, the alternate model representation is rejected in favour of the full hypothesised model H8.

[1] Supplementary summary AMOS output of results can be found in Volume II Appendix C

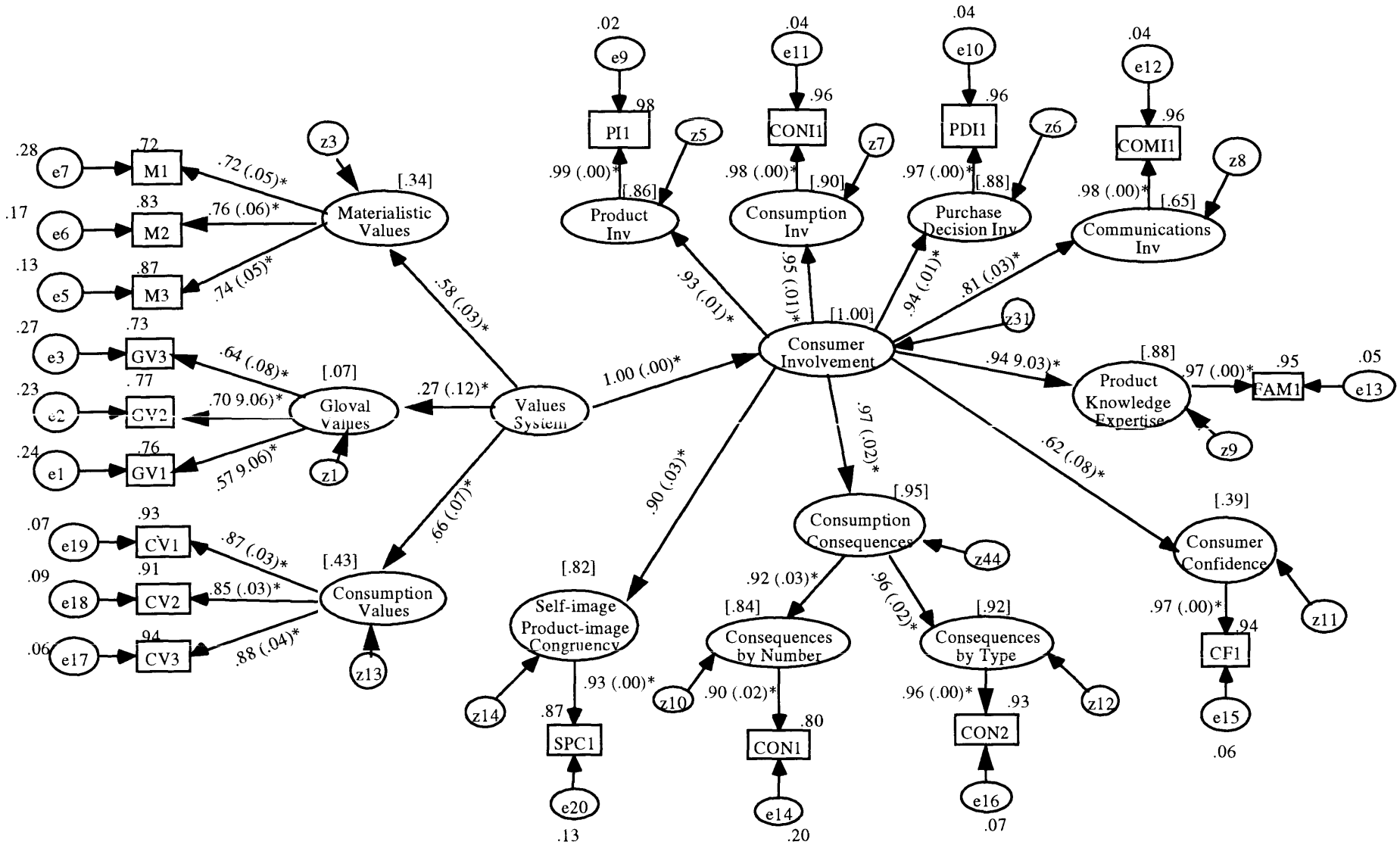
9.3.1 Discussion of hypothesised model H8 figure 5.8 of chapter 5

As indicated earlier, the best fitting model would be re-estimated using the bootstrapping procedures discussed in chapter 7 section 7.3.5.20 to 7.3.5.24. Bootstrapping procedures were used to examine the strength of paths and determine if the hypothesis that the model was correct and supportable with significant confidence. Figure 9.9 (H9) was re-estimated using AMOS's bootstrap procedure, bias corrected confidence intervals (Efron 1982) were calculated and the Bollen and Stine (1992) hypothesis of the correctness of the model was also estimated. Confidence intervals were set at 95% for all parameter estimates. The AMOS bootstrap procedure estimates standard errors for parameter estimates using the bootstrap algorithm of Efron (1982). The accuracy of bootstrap estimates of standard errors increases with sample size and with the number of bootstrap samples requested.

The objective of the Bollen and Stine (1992) is to ascertain the probability that the discrepancy function would be as large as it actually turned out to be in the current sample, under the hypothesis that the proposed model developed and tested is correct. In this procedure, a transformation of the sample data is carried out so as to make the proposed model fit the transformed data precisely. Bootstrap samples are drawn from the transformed sample data. The distribution of the discrepancy function across the bootstrap samples is then taken as an estimate of its distribution under the hypothesis that the proposed model here is correct.

The rationale for re-estimating the best fitting model was two fold. First, it seemed counter-productive to re-estimate a poor fitting model and secondly, because bootstrapping is time and computationally intensive, it also seemed counter-productive and fruitless to re-estimate an unacceptable model.

Figure 9. 10 Bootstrapped Model of H8



All parameter values are standardised estimates. All values in parentheses ( ) are p values and all values in brackets [ ] are R^2 variance explained values. All statistical significant paths are indicated by the symbol *

The Bollen-Stine procedure provided a test of the hypothesis that the model in Figure 9.10 was correct . The Bollen-Stine bootstrap p= 0.05, indicated that the data did not depart significantly from the hypothesised model at any conventional level of significance. All critical ratios for variance/covariance parameter values are significantly greater than +2 indicating critical ratios are large and therefore significantly different from zero. The re-estimated model using bootstrapped procedures (Efron 1982) indicated that all paths coefficients fell outside of an interval centered on 0 ± 2 x bootstrapped standard error and all were statistically significant (0 ± 2 standard errors approximates a 95% confidence interval).

Bootstrapping also computes confidence intervals for estimated paths of latent constructs and standard errors (S.E). The following tables provides the results of confidence intervals and standard error estimates of the hypothesised model H8 Figure 5.8 of Chapter 5 using the bootstrap procedures detailed in chapter 7. These Tables correspond to the results reported in Figure 9.10.

Estimates of standard errors were obtained for parameters using the bootstrap algorithm of Efron (1982) in AMOS. Table 9.11, Table 9.12 and Table 9.13 relate specifically to the bootstrapped hypothesised model H8 Figure 5.8 of Chapter 5 and Figure 9.10 above. Table 9.11 provides the bootstrapped bias corrected confidence interval estimates.

Table 9.11 Bootstrapped Bias Corrected Confidence Intervals for Latent Constructs

Standardised (Beta) Weights	Lower Bound	Upper Bound	P Value
Consumer Involvement-Values System	1.243	2.432	0.009
Consumption Consequences- Consumer Involvement	0.861	1.402	0.007
Materialistic Values-Values System	. . .	. . .	. . .
Global values- Values System	. . .	0.618	0.085
Consumption Values-Values System	0.794	1.945	0.028
Consumption Involvement-Consumer Involvement	1.055	1.388	0.014
Product Involvement-Consumer Involvement	0.980	1.418	0.005
Purchase decision Involvement-Consumer Involvement	0.993	1.301	0.039
Communications Involvement-Consumer Involvement	. . .	. . .	. . .
Self-image Product-image Congruency-Consumer Inv	1.020	1.430	0.007
Product Knowledge/expertise-Consumer Involvement	0.990	1.410	0.002
Consumer Confidence-Consumer Involvement	0.483	1.015	0.030
Consequences by Type- Consumption Consequences	. . .	. . .	. . .
Consequences by Number-Consumption Consequences	0.915	1.363	0.026

The 'p' value in Table 9.11 reveals indirectly how small the confidence level would have to be to yield a confidence interval that includes the value of zero. A value of 'p' in Table 9.11 in the "p value" column indicates that a 100(1-p)% confidence interval would have to have one of its end points at zero. In this study a 'p' value can be used to test the hypothesis that an estimate has a population value of zero.

Table 9.11 indicates that 'p' values range from .002 to .085. In other words, a confidence interval at any conventional confidence level such as .95 or .99, would not include zero, and rejection at any conventional significance level the hypothesis that the variance/covariance is zero in the population would be rejected. All "p values" are non significant, indicating further support for the hypothesised model and the strength of the paths between the latent constructs in the model are significant. Of interest are the statistical significance of R^2 values. The variance explained by each exogenous construct depicted in Figure 9.10 on each endogenous construct in the figure was high.

The patterns of results for the more rigorous bootstrapped beta weights and the standard calculation of beta weights shows support for the hypothesised relationships depicted in the model that details the theory. Table 9.12 provides the results of the bootstrapped beta weights and standard errors (S.E) for the hypothesised model Figure 5.8 of chapter 5 and corresponding Figure 9.10.

Table 9.12 Bootstrapped Standardised Beta Weights for Latent Constructs of the Hypothesised Model

Standardised (Beta) Weights	Beta weight	(S.E)
Consumer Involvement-Values System	1.000*	0.000
Consumption Consequences- Consumer Involvement	0.973*	0.021
Materialistic Values-Values System	0.583*	0.081
Global values- Values System	0.267*	0.123
Consumption Values-Values System	0.658*	0.073
Consumption Involvement-Consumer Involvement	0.949*	0.014
Product Involvement-Consumer Involvement	0.925*	0.017
Purchase decision Involvement-Consumer Inv	0.939*	0.015
Communications Involvement-Consumer Inv	0.808*	0.037
Self-Product Congruency-Consumer Involvement	0.904*	0.034
Product Knowledge/expertise-Consumer Inv	0.938*	0.030
Consumer Confidence-Consumer Involvement	0.624*	0.082
Consequences by Type- Consumption Consequences	0.959*	0.020
Consequences by number-Consumption Consequences	0.918*	0.039
PI1-Product Involvement	0.988*	0.002
PDI1-Purchase Decision Involvement	0.973*	0.003
ConI1- Consumption Involvement	0.978*	0.002
ComI1-Communications Involvement	0.977*	0.002
Fam1-Product Knowledge expertise	0.973*	0.003
CON1-Consequences by Type	0.964*	0.003
M1- Materialistic values	0.738*	0.057
M2- Materialistic values	0.763*	0.060
M3- Materialistic values	0.722*	0.051
GV1- Global values	0.571*	0.065
GV2-Global values	0.699*	0.066
GV3-Global values	0.640*	0.084
CV3-Consumption values	0.880*	0.042
CV2-Consumption values	0.847*	0.035
CV1-Consumption values	0.869*	0.032
SPC1- Self-image Product-image Congruency	0.934*	0.006
CON1-Consequences by Number	0.895*	0.022
CF1-Consumer Confidence	0.969*	0.006

Statistically significant beta weights are indicated by the symbol * Table 9.12. The results indicate all path weights are statistically significant. Beta weight standard errors (S.E) are very small indicating support for the model. The beta weights and standard error results above in Table 9.12 indicate that they do not approach zero, indicating all paths are statistically significant and causal relationships in the model are strong.

Table 9.13 provides a histogram output of the bootstrapped distribution for the hypothesised model. It displays the asymptotic distribution free (ADF) discrepancy for the

implied moments versus the population and the ADF discrepancy for implied moments versus the sample.

Table 9.13 Bootstrap Distributions for the Hypothesised Full Model

ADF Discrepancy (implied vs population) N = 2000 Mean = 627.898 S.E = 3.445	528.782	*
	545.888	**
	562.994	*****
	580.099	**********
	597.205	******
	614.311	*******
	631.417	***************
	648.523	**********
	665.629	****
	682.735	***
	699.840	**
	716.946	**
	734.052	**
	751.158	*
	768.264	*

ADF Discrepancy (implied vs sample) N = 2000 Mean = 784.712 S.E = 6.786	591.675	***
	627.831	*****
	663.987	********
	700.142	**********
	736.298	**********
	772.454	**********
	808.609	**********
	844.765	**********
	880.921	**********
	917.077	****
	953.232	**
	989.388	***
	1025.544	**
	1061.699	
	1097.855	*

The average of the ADF discrepancy over 2000 bootstrapped samples for the implied versus the population is 627.898 with a standard error 3.445. The average of the ADF discrepancy over 2000 bootstrapped samples for the implied versus the sample is 784.712 with a standard error of 6.786 and a positive skew to the data.

Parameter estimates are of principal interest in the present research because of the strength of the relationship are derived through the path coefficients in the hypothesised model. As shown in Figure 9.10 all indicator coefficients are statistically significant, with very high p values and error terms are small. All R^2 (variances) are high (except for global values)

indicating that the variances explained by the exogenous constructs on the endogenous construct is high. The model and the strength of the causal relationships in it indicate that values system was a significant predictor of involvement. Further involvement was a significant predictor of product knowledge, consumer confidence, consumption consequences and self-image product-image congruency.

The results indicated that the theoretical propositions developed in chapters 3 and 4 and formally stated in the full hypothesised model H8 were supported. The model indicated that there was a strong causal relationship from values system to consumer involvement. It also indicated that there was a strong causal relationship from consumer involvement to knowledge/expertise, from consumer involvement to consumer confidence, from consumer involvement to consumption consequences and from consumer involvement to self-image product-image congruency. The patterns of results presented in Figure 9.10, Table 9.11, Table 9.12 and Table 9.13 provides evidence to support the hypothesised model and the strength and direction of the relationship depicted in the model..

The fit statistics were acceptable and the standard errors for path coefficients supported the significance and direction of the proposed association between the constructs. In each case, the fit statistics of the accepted models supported the proposition that the indicators validly contributed to the underlying latent constructs being estimated. Further, the measures of the scale reliability for all domains presented in chapter 8 using Werts, Rock, Linn and Jöreskog (1978) R_{cc} and Cronbach alpha were high. This further suggested that all indicators are reliable measures of the underlying latent constructs. This is particularly so for involvement with reliability measures obtained of approximately .97 to .98. The hypothesised model achieved a GFI of .917, AGFI of .871 and an RMSEA of .07 indicating good fit of the proposed model to the data.

9.4 Discussion of results

To purify the initial measures and test for the internal consistency of the scales, a combination of exploratory and confirmatory factor analysis and item-total correlations and internal reliability estimates were computed. Based on these results, some poorly

performing items were dropped. This was followed by estimation of the structural equation models using asymptotic distribution free estimation (Browne 1982).

The models were fitted to data in an attempt to understand underlying processes between the antecedent values system construct, consumer involvement and the consequences of being involved (product knowledge, consumer confidence, consumption consequences and self-image product-image congruency). To be useful, the models had to be parsimonious and clearly understood and grounded in theory (Bagozzi 1980 and Jöreskog & Sörbom 1988). Models with superfluous parameters that assume meaningless values were to be clearly avoided. On the other hand, models were required to appropriately fit the data. Importantly, the fit of the model could usually be improved by increasing the number of parameters, leading to the temptation to include meaningless parameters that were employed only to give an impression of goodness of fit (Bagozzi 1980 and Jöreskog & Sörbom 1988). There, thus was a conflict between the two desirable characteristics of a model, namely interpretability and goodness-of-fit. These two issues were considered equal in importance in evaluating the models developed for this study. The models developed and tested were parsimonious and the addition of meaningless paths was strongly avoided.

Congeneric models were developed and fitted for all intermediate models (H1, H2, H3, H4, H5, H6 & H7) and then a congeneric model was fitted for both the Hypothesised full (H8) and hypothesised alternate model (H9). The fit statistics were all acceptable for the hypothesised intermediate models H1 to H7 and full hypothesised model H8, supporting the theoretical propositions that were used to develop the models. The alternate model H9 and the independence models did not fit the data and were deemed unacceptable.

9.4.1 Nomological validity

In summary, given that the domain of the constructs has been specified, a set of items relevant to the breadth of the domain of involvement has been generated, the items have been refined and the retained items have been shown to be internally consistent, a significant step was to see how well the measure of involvement related to measures of other constructs to which the construct was argued to be theoretically related. That is, did involvement behave as expected in the theoretical network and did the theory as developed

in chapters 3 and 4 and incrementally modeled in Chapter 5 Figure 5.8 fit the data. The diagram showing the relationship among the set of constructs was referred to as the nomological net and determining if the construct behaved as expected with respect to the other constructs in the theory established its nomological validity (Bearden, Netemeyer & Mobley 1995 and Cronbach & Meehl 1955). While the reliability and discriminant and convergent validities ensure the soundness of the research procedures employed, nomological validation ensured that what is being researched will play a role in the building of knowledge in the domain of interest. Essentially, nomological validity required the building of a network around a construct to link the construct with other variables in the area of interest. The strength of the paths in the hypothesised model indicated that significant nomological validity had been achieved.

The empirical results showed acceptable nomological validity for the developed conceptualisation and measurement of involvement and related constructs. That is, because the theoretically proposed relationships between involvement, consumers product knowledge, consumer confidence, consumption consequences, self-image product-image congruency and values system were supported, a satisfactory level of support was found for nomological validity in this study.

9.4.2 Conclusion

The theory and models developed in this study were formulated in terms of latent or hypothetical constructs that were not directly observable or measurable. As a method for testing the theory developed in chapters 3 and 4 computation of the latent constructs from a larger set of observed or measured variables were undertaken. This computation process helped examine and understand the latent constructs that underlie consumers purchase and consumption processes related to the constructs of consumer values system, consumer involvement, product knowledge, consumer confidence, consumption consequences and self-image product-image congruency. The structural equation modeling (SEM) undertaken is a sophisticated analytical approach that attempts to minimize unreliability and account for measurement error in the measurement and modeling of latent construct used in this study. This theory testing process was accomplished by simultaneously estimating the

measurement properties of latent constructs and structural relationships among latent constructs in the structural equation models presented in this chapter.

This chapter presented the results for the models presented in chapter 5. Specifically, this chapters detailed the use of congeneric modeling theory to test the theory proposed here. The congeneric measurement models were developed as a means of data reduction in order to obtain a manageable number of valid, more reliable, composite factors or variables which can be used to analyse the proposed models, through the fixing of the composite factor regression coefficients and measurement error variances in the proposed models using congeneric modeling theory.

Chapter 7 discussed the arguments raised by researchers for the adoption of a two-stage modeling process. In the results presented above the measurement model was first estimated in a similar manner to that of conventional factor analysis, and then "fixed" in the second stage (Anderson & Gerbing; 1988; Hair, Anderson, Tatham & Black 1995; Kenny 1979; Manaresi & Uncles 1996 and Williams & Hazer 1986) when the structural model was estimated has proven a valid method to test the theory developed in this study. The results indicate that accurate representation of the reliability of the measured variables is best accomplished in the two stages used here. This process also avoided interaction of the measurement and structural models in the initial assessment of the data. Importantly while the measurement and structural models cannot be evaluated in complete isolation, the possibility of the potential for within-construct versus between-construct effects was considered to be important as it may result in interpretational confounding (Burt 1976 and Hair, Anderson, Tatham & Black 1995). The method of estimating and fitting models in the two stages avoided this problem.

The fitted congeneric models allowed a large number of equivalent observed variables or items to be reduced to a smaller number of composite scores, thus reducing the number of variables in the structural equation models. Also, the results indicated that the congeneric measurement models allowed for differences in the degree to which each individual measure (item) contributed to the overall composite scale thus providing a more realistic representation of the data. The fit statistic for the congeneric models also proved useful as a quasi-test of validity, the indicator variables contributing to the overall measurement of

the manifest or composite variables all represented the same generic true scores, meaning they must all be valid measures of the underlying latent constructs in the models.

The composite factor congeneric model was the simplest form of a measurement model and represented the regression of a set of observed indicators on a single latent construct. The results indicate the value of the structural equation models developed and presented here lies in their ability to simultaneously use the structural and measurement models in the analysis. In order to ensure the procedures were correctly specified in this study a process similar to that outlined by Hair et al (1995) was followed.

Model evaluation is one of the most controversial and difficult issues connected with Structural Equation Modeling (SEM). Baumgartner and Homburg (1996), Mulaik, James, Van Alstine, Bennett, Lind and Stilwell (1989), MacCallum (1990), Steiger (1990) and Bollen and Long (1993) presented a number of recommendations and methods for evaluating models that were used to evaluate the results in this chapter. The measures discussed in chapter 7 were used throughout the presentation of the results in this chapter. Based on the rationale provided in chapter 7 for constructing the models and evaluating their fit to the data it is argued here that strong support is found for the hypothesised models. The presentation of the results in this chapter has taken the view that:

> *By combining and confronting theory with data (Fornell 1982), and by forcing researchers to be explicit about both their measurement and theoretical assumptions (Bagozzi 1980; Bagozzi 1984), causal models can yield new insights (Hulland, Chow & Lam 1996 p.196). . .*