

# **Adapting and Validating the SERPVAL Scale in Higher Education Service Experience**

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## **Abstract**

Drawing on Means-End Chain (MEC) theory, service information is retained and evaluated in the customers' cognitive at three levels of abstraction namely, Service Personal Values (the highest level); Service Value; and Service Quality (the lowest level). Although the lowest levels have been extensively investigated particularly through SERVQUAL model, there is a clear research gap at the highest level of abstraction. The limitation of investigating the highest level of abstraction is due to its individuality and complexity in comparison to the other levels. In 2005, Lages and Fernandes have developed the SERPVAL scale to measure the customers' cognitive based on their individual values in telecommunication service experience. However, the scale still needed further validation in other types of services including higher education to establish its generalizability. Thus, the main objective of this research is to validate the SERPVAL scale in higher education context. In this research, the postgraduate international students (PIS) at Malaysian research universities were selected as sample elements. The data was gathered through online survey. The online questionnaire was sent to PIS emails following the proportionate stratified sampling technique. The Confirmatory Factor Analysis (CFA) measurement model using AMOS 18.0 was performed to validate the SERPVAL scale. The findings reveals that SERPVAL scale achieved unidimensionality, validity and reliability which presented by the Cronbach Alpha>0.70; Construct Reliability (CR)>0.60; Average Variance Extracted (AVE)>0.50 and the fitness indexes have achieved the required levels. This research concluded that SERPVAL is an accurate scale to measure personal values in higher education context. The theoretical and managerial implications as well as the directions for future research are also discussed.

## **Keywords:**

Service experience, Means-end chains, service personal values, SERPVAL scale.

## **INTRODUCTION**

Recently, Malaysian higher education market has become more customer-oriented due to the growing numbers of international students (Sheu, 2011; Durvasula, Lysonski & Madhavi, 2011; Bhandari & Blumenthal, 2009). The international student is defined as an individual who is seeking an education outside their home country (Bhandari & Blumenthal, 2009). UNESCO (2006) has introduced the concept of 'internationally mobile students' that refers to individuals who leave their country of origin and travel to another country for the purpose of studying. In 2010, the data derived from the Malaysian Higher Education statistics indicated that more than 80,000 international students are pursuing their education in Malaysia. The Ministry of Higher Education also aims to accelerate the inflow of international students to 150,000 by 2015 and 200,000 by 2020. This figure is equivalent to generating MYR 600 billion. However, dealing with international students creates additional responsibilities and expectations to the universities. The international students may have a high demand towards service experience as compared to the local students (Yee, Hazlin & Moktar, 2013). In conjunction with this issue, the recent research reveals that the international students' experience towards Malaysian public universities service are only at moderate level (Rasli, Shekarchizadeh & Iqbal, 2012; Siang, 2012; Rajab, Abdul Rahman & Shaari, 2011; Jalali, Islam & Ku Ariffin, 2011; Shekarchizadeh, Rasli & Hon-Tat, 2011).

These researches have suggested that the evaluation of service experience should not only focus on service attributes but also concentrate on the students' personal values. Personal values such as self-reliance and stability in life can lead to a better understanding towards the customers' service experience (Chou, *et al.*, 2011; Long & Shiffman, 2000; Clarke & Micken, 2002).

Drawing on theoretical perspectives, the information of service experience is retained and evaluated in the customers' cognitive at three levels of abstraction namely, Service Personal Values (SPV); Service Value (SV); Service Quality (SQ). At the lowest level, the customers evaluate the service quality through the variety of attributes such as intangible and tangible (Gutman, 1991; Parasuraman *et al.*, 1988, 1991). At service value level, the customers evaluate the service experience as a tradeoff between perceptions of quality and sacrifices (Cronin *et al.*, 1997 and Zeithaml, 1988). At the highest level, service personal values are defined as beliefs or conceptions about end-goals or desirability (Rokeach, 1973). Although the lowest levels have been extensively investigated particularly through SERVQUAL model, there is a clear research gap at the highest level of abstraction. The researchers claim that the highest level of customers' cognitive structure is rarely explored because it is more individual and subjective in comparison to the other levels (Liu, Ma & Zhao, 2007; Thuy & Hau, 2010; Durvasula, Lysonski & Madhavi, 2011). In 2005, Lages and Fernandes took an opportunity to develop the indicators of personal values scale in mobile services sector, known as SERPVAL (service personal values). The SERPVAL scale measures the customers' service experience behind their individual values. However, the scale still needed further validation in higher education context to establish its generalizability. Furthermore, the SERPVAL scale will provide the specific indicators for service providers in higher education to evaluate the international students' values behind the service experience.

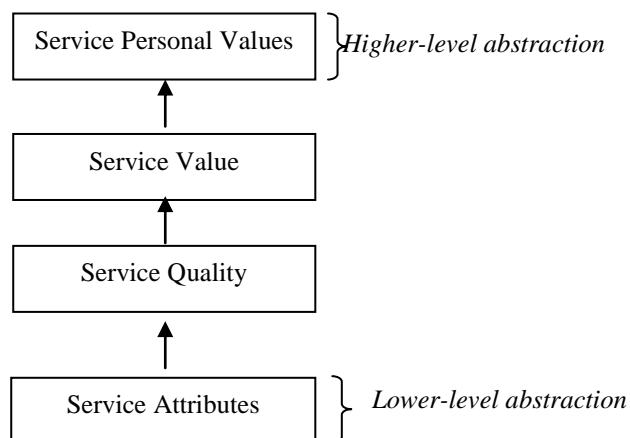
This empirical research paper is presented in four sections. The first section provides the review of relevant literature regarding the theory underpinning the service personal values, and the conceptualization and operationalization of service personal values. The research methodology is discussed in the second section that covers the topics such as the research instrument, sampling and data collection procedure and data analysis. The results of validation of SERPVAL through the CFA measurement model are presented in the third section. In the final section, the discussion will focus on the results, limitations as well as the directions for future research.

## LITERATURE REVIEW

### Theory underpinning the service personal values

The concept of customer experience becomes predominantly important in service research and gained enormous attention among researchers and practitioners (Helkkula, 2011; Gentile, Spiller & Noci, 2007; Meyer & Schwager, 2007; Thompson, 2006). Despite the growing attention towards customer experience, its definition is still ambiguous (Klaus, *et al.*, 2013). The concept of customer experience in service context is elusive to be captured. The customer experience implies three phases of individual interactions namely, cognitive, affective and behavioral responses (Walter, Edvardsson & Öström, 2010; Ng & Forbes, 2009; Verhoef, *et al.*, 2009; Edvardsson, Enquist & Johnston, 2005; Johnston & Clark, 2001; LaSalle & Britton, 2003; Schmitt, 1999). Among these phases, the customers' cognitive is the crucial phase of the service experience.

The means-end chain (MEC) is a classical theory to understand the customer's cognitive structure in product evaluation (Gutman, 1982). According to MEC, the customers organize the product information at various levels of abstraction starting at attribute level, quality level, value level, and to complex personal values level (Zeithaml, 1988; p. 6). The customers use different types of information at different levels of abstraction to evaluate the product usage. In 2005, Lages and Fernandes have adapted the MEC model from Ziethaml (1988) to understand the customers' cognitive structure in the service context. As shown in Figure 1, service information is retained in the customers' memory at four levels of abstraction. At the lowest level, service attributes refers to functional benefit or service attributes (Young & Feigin, 1975; Olson & Reynolds, 1983). At the second level of abstraction is service quality. The customers evaluate the service quality through variety of attributes such as intangible and tangible (Gutman, 1991; Parasuraman *et al.*, 1988, 1991). At the third level, service value is defined as a cognitive tradeoff between perceptions of quality and sacrifice (Cronin *et al.*, 1997 and Zeithaml, 1988). Finally, at the fourth level, service personal values are beliefs or conceptions about end-goals or desirability (Rokeach, 1973).



**Figure 1: The means-end chain model in service context**

(Source: Lages & Fernandes, 2005, p. 1563)

Although the lower three levels have been extensively investigated particularly through the SERVQUAL, SERVPERF and Grönroos model (Parasuraman *et al.*, 1985, 1988, 1991; Cronin & Taylor, 1994; Grönroos, 1984), there is a clear research gap at the highest level of abstraction (Lages & Fernandes, 2005; Liu, Ma & Zhao, 2007; Thuy & Hau, 2010; Durvasula, Lysonski & Madhavi, 2011). The limitation of investigating the highest level is probably due to its individuality and complexity in comparison to all the other three levels (Lages & Fernandes, 2005). Yet, the researchers rarely explore and examine the role of personal values in the service setting (Durvasula, Lysonski & Madhavi, 2011).

#### **Conceptualization and operationalization of Service Personal Values (SPV)**

A concept of values has been explored by the theorists across disciplines including psychology, sociology and anthropology (Schwartz, 1992). Values are defined by Rokeach (1973, p. 5) as 'an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence'. According to Rokeach, values are categorized into two types. First, object values are referred to the value of the object which was gained through a comparison with other objects. The object values have a significant meaning with the amount individuals paid for

when acquiring the object. Second, individual values are concerned with the values owned by individuals. Among these types of values, the individual or personal values such as self-reliance and stability in life can lead to a better understanding towards individual behavior (Chou, *et al.*, 2011; Long & Shiffman, 2000; Clarke & Micken, 2002).

The personal values have been extensively researched in product-based experience. However, it is rarely explored and examined in service experience (Lages & Fernandes, 2005). MEC model postulates that service personal values is the highest abstraction level and considered as a key element of customers' cognitive structure (Lages & Fernandes, 2005; Zeithaml, 1988). The process of buying a service begins with the recognition of the ultimate goal that customers wish to achieve in their lives such as a comfortable life. The importance of understanding personal values in the service context enables intimate relationships to be formed between customers and service providers (Liu, Ma & Zhao, 2007).

There are several established quantitative scales to operationalize personal values including Rokeach Value System (RVS), Values of Lifestyle (VALS) and Lists of Values (LOV). The RVS (Rokeach, 1973) operationalized personal values into two dimensions namely, instrumental values and terminal values. The instrumental values are associated with individual's mode of behavior. On the other hand, terminal values are concerned with individual end-states of existence. Mitchell (1983) proposed VALS scale which measures personal values based on the characteristics of customer psychology segmentation. VALS measures personal values according to nine life style items. The items include achievers, belongers, sustainers, survivors, i-am-me, emulators, experiential, societally conscious, and integrated. Kahle (1983) introduced the LOV scale. LOV views personal values as a cognitive presentation of universal human requirements which includes social interaction requirement and social institutional demands which is experienced by individuals. According to LOV scale, personal values are operationalized with nine single ruler items. The items cover a sense of belonging, warm relationships with others, being well-respected, fun and enjoyment of life, security, excitement, self-fulfillment, a sense of accomplishment, and self respect. Although aforementioned scales have been widely used and tested cross culturally (Arambewela & Hall, 2011), there is still a lack of scales that measure personal values behind services usages.

In 2005, Lages and Fernandes took an opportunity to develop the personal values scale in mobile services sector, known as SERPVAL (service personal values). According to Lages and Fernandes (2005, p. 1564), service personal values is defined as 'customer's overall assessment of the use of a service based on the perception of what is achieved in terms of his own personal values'. SERPVAL views that personal values deal with the end states of people existence or the ultimate goals that people wish to achieve in their lives. The operationalization of SERPVAL is categorized into three broad groups of individual values dimensions namely service personal values to peaceful life (SVPL), service values providing social recognition (SVSR), and service values to social integration (SVSI). Nevertheless, the scale still needed further validation in other types of service users across different countries to establish its generalizability (Lages & Fernandes, 2005; Liu, Ma & Zhao, 2007; Thuy & Hau, 2010; Durvasula, Lysonski & Madhavi, 2011).

## **METHODOLOGY**

### **Instrumentation**

An online questionnaire was utilized as the survey instrument. The questionnaire comprised of two sections. Section I contains twelve statements (indicators) regarding the

level of the PIS' agreement towards their service personal values experience in higher education. The adapted SERPVAL scale (Lages & Fernandes, 2005) was used to measure personal values through three broad groups of individual dimensions as follows:

1. *Service personal values to peaceful life (SVPL)*. SVPL dimension consists of four items (statements) assessing general individual values among PIS experience in higher education service including achieve more tranquility (SPV1), family security (SPV2), harmony and stability in life (SPV3), and pleasurable of life (SPV4).
2. *Service personal values to social recognition (SVSR)*. SVSR consists of five items assessing the extent to which the higher education assists the PIS in gaining respect from others (SPV5), feeling that the world is more agreeable (SPV6), achieve more social recognition (SPV7), achieve more status (SPV8), and achieve more stimulating and adventurous of life (SPV9).
3. *Service personal values to social Integration (SVSI)*. Social recognition allows an individual to avoid social disapproval. These outcomes provide a higher level of social integration for an individual. For SVSI dimension, the PIS were asked to rate three statements assessing the extent to which the higher education assists them achieve a higher integration with established groups (SPV10), better relationships (SPV11) and stronger relationships (SPV12).

The SERPVAL scale was measured using a likert scale. Section II contains 10 questions to gather information regarding the respondents' demographic profile and other information such as gender, age, marital status, and nationality.

A pilot test was conducted to ensure the reliability of the initial scales before being administrated for a full-scale survey. About 100 representative PIS at RU were selected as the sample elements. The Cronbach's alpha was employed to estimate the reliability of the initial scale. The results indicate that SERPVAL scale received satisfactory reliability with an alpha of 0.904 which is above the acceptable minimum Cronbach's alpha ( $\alpha > 0.70$ , Nunnally, 1978).

### **Sampling Technique and Data Collection**

This research involves postgraduate international students (PIS) at five Malaysian research universities including Universiti Malaya (UM), Universiti Sains Malaysia (USM), Universiti Kebangsaan Malaysia (UKM), Universiti Putra Malaysia (UPM) and Universiti Teknologi Malaysia (UTM). As reported by MoHE (2012), majority of international students who pursue their study in Malaysian public universities are at postgraduate level. Tham and Kam (2008) stated that only 5% of first-degree programs at Malaysian public universities are offered to international students whereas, the postgraduate programs are offered to both Malaysian and international students. This policy is set up to protect local needs and demand (Yee, Hazrin & Moktar, 2013). The required sample size for this research was 375 students. The sample size determination is based on several rules of thumb including the estimation method for sample size in Structural Equation Modeling (SEM) (Hair, *et al.*, 2010; Kline, 2011, Shah & Goldstein, 2006; MacCallum, Browne & Sugara, 1996), the sample size calculator ([www.surveysystem.com/sscalc.htm](http://www.surveysystem.com/sscalc.htm)), and table for determining sample size from a given population N (Krejcie & Morgan, 1970). This research employed the stratified sampling technique to select the research elements. Based on the sampling frame, the PIS at

each research university have been divided into three geographical region strata, namely Asia, Middle East and Africa.

The online survey was employed to gather data. The previous research reveals that an average of response rate for online survey is 33% (Nulty, 2008). The questionnaires were emailed three times from the initial sample size ( $375/x=33\%$ ). In order to achieve at least 33% of response rate, 1136 questionnaires were emailed to PIS at five research universities according to stratification characteristics. The data collection took place from November 2013 until the end of December 2013. A total of 381 usable responses were gathered and processed for inferential analysis. The descriptive statistics of the sample are listed in Table 1. The majority of respondents are male (57.5%) while 42.5% are female, and 159 are between 31 to 35 years old. About 58% of respondents are married. Most of respondents came from Middle East region (57.2%). About 26.2% of them are currently studying in UTM followed by UPM (25.5%), UM (19.2), UKM (15.5%), and USM (13.6%). Among 381 respondents, about 209 respondents are currently pursuing the PhD level.

**Table 1 Descriptive statistics of sample characteristics (N=381).**

Demographics	Frequency	Percentage (%)
Gender		
Male	219	57.5
Female	162	42.5
Age		
20-25 years	21	5.5
26-30 years	70	18.4
31-35 years	159	41.7
>36 years	131	34.4
Marital status		
Single	160	42
Married	221	58
Geographical region		
Asia	103	27
Middle East	218	57.2
Africa	60	15.8
Education level		
Master	172	45.1
Doctoral	209	54.9
Present University		
Universiti Malaya (UM)	73	19.2
Universiti Sains Malaysia (USM)	52	13.6
Universiti Kebangsaan Malaysia (UKM)	59	15.5
Universiti Putra Malaysia (UPM)	97	25.5
Universiti Teknologi Malaysia (UTM)	100	26.2

## DATA ANALYSIS

In this research, the data gathered was analyzed using the structural equation modeling (SEM) technique. SEM is a powerful statistical technique that consists of two main parts of analysis namely measurement model and structural model (Hair *et al.*, 2010; Kline, 2011; Zainudin, 2012). The measurement model demonstrates the relationships between response items (observed variables) and their underlying latent variables. On the other hand, the structural model demonstrates the correlational and causal dependencies among the measurement model based on the hypothesized inter relationships among them. The main objective of this research is to validate the SERPVAL scale in higher education context.

Thus, the data was analyzed using CFA measurement model technique to examine the unidimensionality, validity and reliability of SERPVAL scale.

## RESULTS

### Assessment of multivariate normality

In this research, the model developed was tested following Maximum Likelihood (ML) estimation using AMOS 18.0. Two conditions of ML including first, data should be normally distributed in conducting SEM analyses using AMOS and second, the scale of the observed variables should be continuous (Arbuckle, 2007, Byrne, 2010; Hair *et al*, 2010). Therefore, before the analyses of the data are carried out, it is crucial to check that this criterion has been met. Prerequisite to the assessment of multivariate normality is needed to check for skewness and kurtosis values in the data set. The cutoff point of skewness and kurtosis in assessing the multivariate normality are between  $\pm 2$  range and  $< 7$ , respectively (Byrne, 2010). As reported in AMOS output, all skewness and kurtosis values fall within the normally distribution range. Since the variables are continuous and the data is normal distributed, hence ML estimations are used to analyze the measurement model and structural model.

### CFA measurement model of SPV

In this research, SPV construct consists of three sub-constructs. The latent sub-constructs were measured using certain number of items including personal value to peaceful life (SVPL: 4 items); service value providing social recognition (SVSR: 5 items); service personal values to social recognitions (SVSI: 3 items). Figure 2 illustrates the first-order CFA for three sub-constructs of SPV with underlying items. The estimated correlations were SVPL<-->SVSR (0.88); SVPL<--> SVSI (0.72); SVSR<-->SVSI (0.87). The results of estimated correlations demonstrated that there is a large correlation between SPV sub-constructs with  $r > 0.50$  (Cohen, 1988). The high estimated correlation value indicates strong association between sub-constructs.

As shown in Figure 2, the fitness indexes have achieved the required level as follows  $\chi^2=127.887$ ;  $\chi^2/df=2.508$ ; TLI=0.953; CFI=0.964 and RMSEA=0.063. However, item SPVI was omitted due to a low factor loading as shown in Table 2 below.

**Table 2: The standardized factor loadings for SPV items on their respective sub-construct**

Item	Sub-Construct	Standardized Factor Loading	Item	Sub-construct	Standardized Factor Loading		
SPV4	<-->	SVPL	.802	SPV9	<-->	SVSR	.706
SPV3	<-->	SVPL	.813	SPV8	<-->	SVSR	.679
SPV2	<-->	SVPL	.695	SPV7	<-->	SVSR	.682
SPV1	<-->	SVPL	.594	SPV6	<-->	SVSR	.701
SPV12	<-->	SVSI	.823	SPV5	<-->	SVSR	.637
SPV11	<-->	SVSI	.823				
SPV10	<-->	SVSI	.688				

Figure 3 illustrates the re-specification of the first-order CFA of SPV model after omitting item SPV1. The fitness indexes have improved and achieved the required level as follows  $\chi^2=107.230$ ;  $\chi^2/df=2.615$ ; TLI=0.955; CFI=0.967 and RMSEA=0.065.

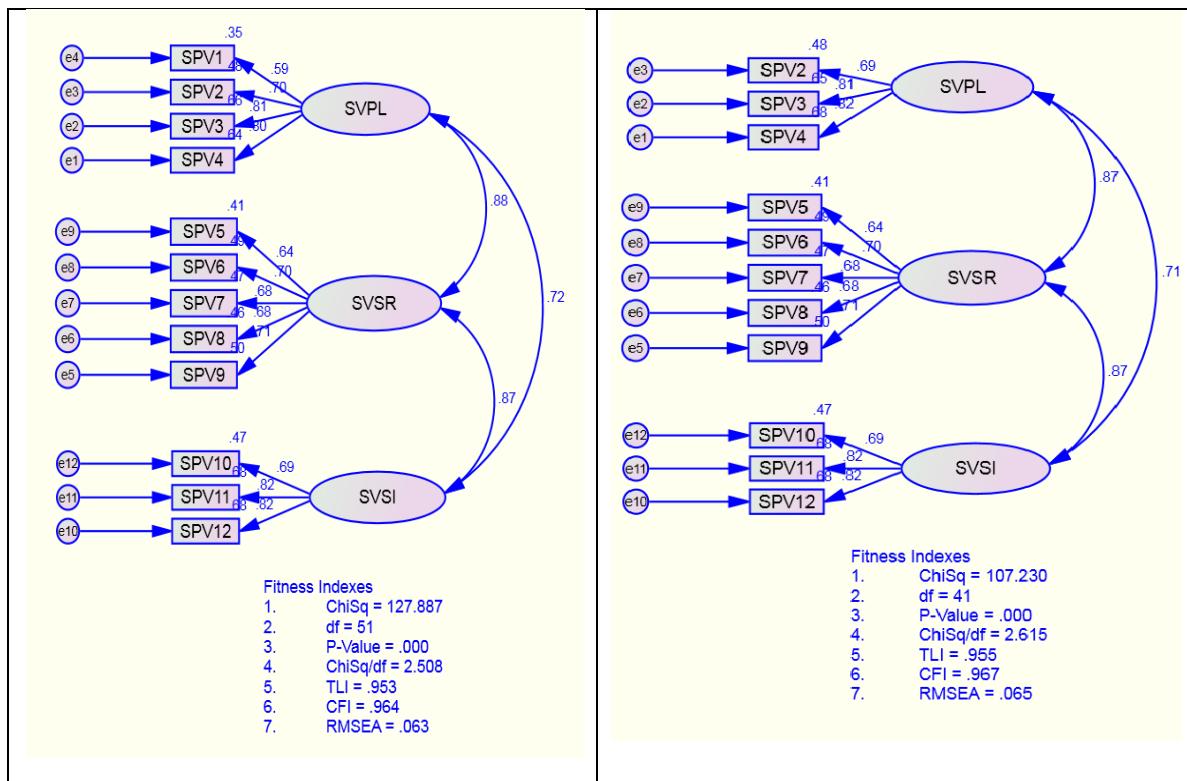


Figure 2: The first-order CFA for SPV

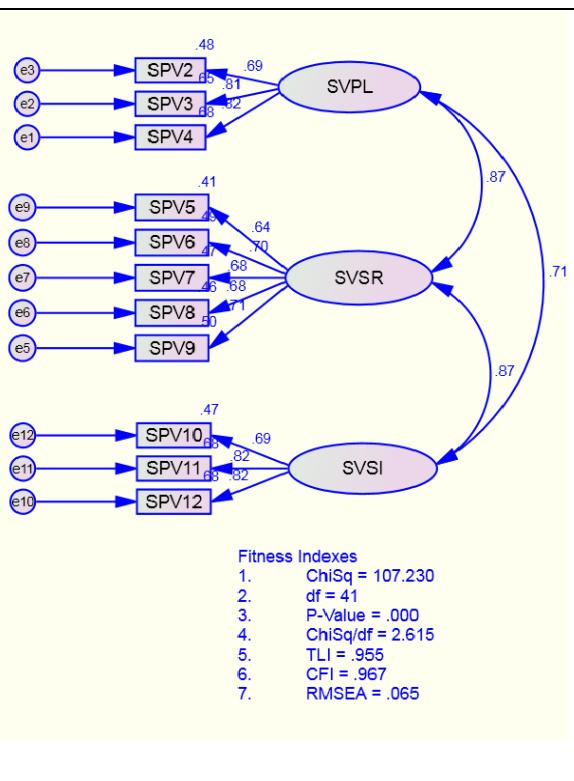
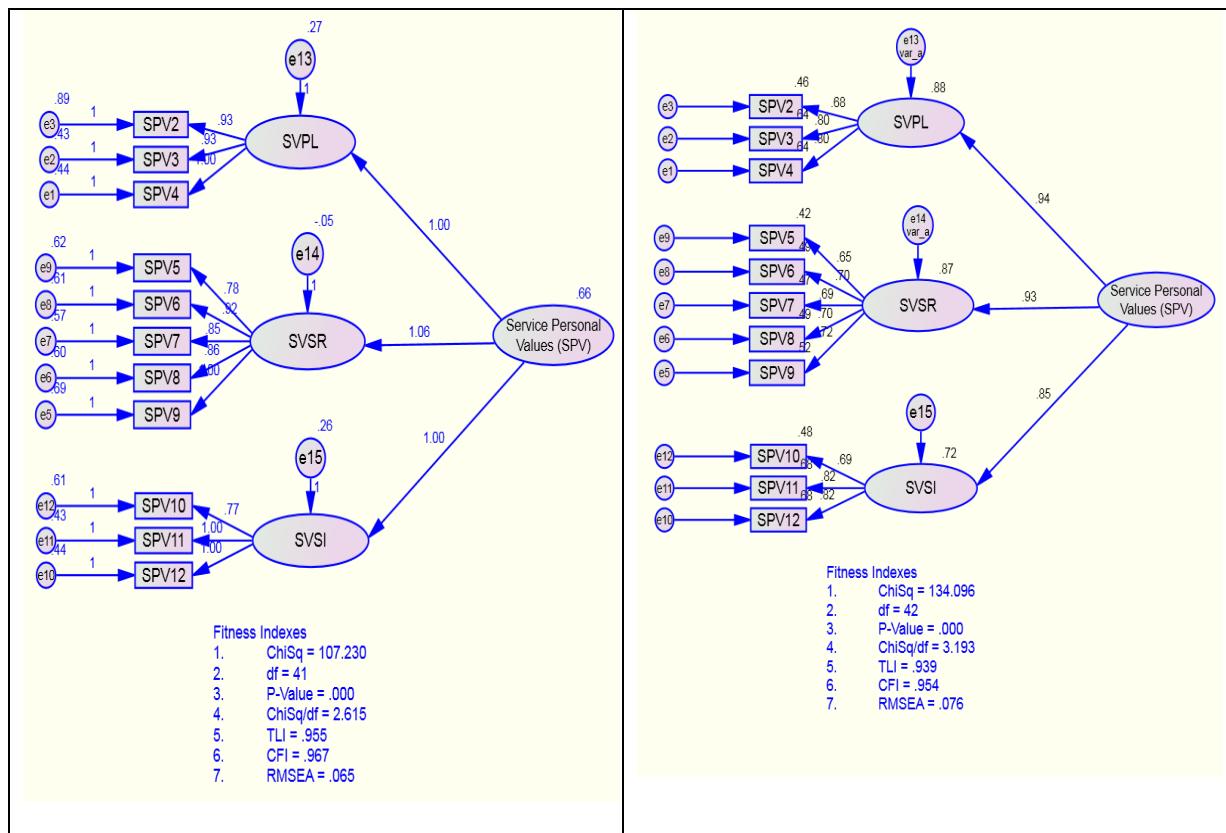


Figure 3: The first-order CFA for SPV after deleting SPV1

Next, the main construct namely, service personal values (SPV) was linked to all sub-constructs as shown in Figure 4. Although, all the fitness indexes have achieved the required level, there is a crucial issue that should be addressed. The issue was a negative variance associated error term e14 (-0.047) (see Figure 4). The result reported in the AMOS output file indicated that the solution is not admissible or widely known as the estimation of improper estimates (Coenders and Saris, 2000). This situation is a common occurrence with application of second-order CFA measurement model. As stated by Byrne (2010), higher order level of the measurement model will be over identified with one degree of freedom. Marsh, Byrne and Craven (1992) suggest an approach to resolve improper solutions that occur in CFA modeling of multitrait multimethod (MTMM) data which is to impose an equality constraint between parameters having similar estimates. Consequently, the second-order SPV measurement model has to be re-specified. In this case, the error variance e14 constrained equal to e13, which presented a positive value of approximately the same size (0.269). Figure 5 illustrates the re-specified SPV measurement model with the error variance for e14 constrained equal to e13.



**Figure 4 : The second-order CFA for SPV (Unstandardized Estimates)**

**Figure 5: The second-order CFA for SPV which error variance for e14 constrained equal to e13 (Standardized Estimates)**

The re-specified model yields a proper solution. The degree of freedom (df) was increased from 41 to 42. The standardized factor loadings in Table 3 for all sub-constructs were above 0.60. The fitness indexes of re-specification of SPV measurement model have achieved the required level as follows  $\chi^2=134.096$ ,  $\chi^2 / df = 3.193$ ; TLI=0.939; CFI=0.954 and RMSEA=0.079. Thus, at this stage, no further modification model is required.

**Table 3: The standardized factor loadings for each sub-construct of SPV**

Sub-constructs	Construct	Standardized Factor Loading
SVSR	<--- Service Personal Values (SPV)	.932
SVPL	<--- Service Personal Values (SPV)	.940
SVSI	<--- Service Personal Values (SPV)	.846

As shown in Table 4, the P-values indicate that SPV has significant effects on all sub-constructs. Therefore, the service personal values (SPV) consist of the three sub-constructs namely, SVSR; SVPL and SVSI.

**Table 4: The path analysis of SPV on its sub-constructs (the regression weights)**

Sub-constructs	Construct	Estimate	S.E	C.R	P
SVSR	<--- Service Personal Values (SPV)	.938	.075	12.526	***
SVPL	<--- Service Personal Values (SPV)	<b>1.000</b>		<b>Reference point</b>	
SVSI	<--- Service Personal Values (SPV)	.938	.072	13.020	***

\*\*\* Indicate highly significant at p-value <0.001

After the CFA of pooled measurement model was completed, the issues of validity and reliability need to be addressed. The followings are the requirement for validity and reliability:

1. The requirement for validity
  - a) Convergent Validity: AVE  $\geq 0.50$
  - b) Construct Validity: All Fitness indexes for the models meet the required level
2. The requirement for reliability:
  - a) Internal Reliability: Cronbach Alpha  $\geq 0.70$  (Nunnally, 1978)
  - b) Construct Reliability (CR): CR  $\geq 0.60$
  - c) Average Variance Extracted: AVE  $\geq 0.50$  using a formula is as follows:

$$AVE = \sum K^2 / n$$

$$CR = (\sum K)^2 / [(\sum K)^2 + (\sum 1 - K^2)]$$

Notes:  $K$  = factor loading of every item;  $n$  = number of items in a model  
*(Source: Zainudin, 2012)*

Table 5 reports the results of validity and reliability for the SPV measurement model. All the investigated constructs have achieved the required level of validity and reliability. This indicates the SPV construct are able to produce the consistent result and measure what it is intended to measure.

**Table 5: Validity and reliability results**

Construct	Item	Factor Loading	Cronbach Alpha (Above 0.70)	CR (Above 0.60)	AVE (Above 0.50)
Service Personal Values (SPV)	SVPL	0.893	0.911	0.937	0.831
	SVSR	0.964			
	SVSI	0.876			

## DISCUSSION AND CONCLUSION

In this research, SPV was operationalized using SERPVAL scale (Lages and Fernandes, 2005) which consists of three sub-constructs with their underlying items namely, personal value to peaceful life (SVPL: 4 items); service value providing social recognition (SVSR: 5 items); and service personal values to social recognitions (SVSI: 3 items). The estimation results for the first-order model for SPV shows that SPV1 item was dropped from the model due to the low factor loading. SPV1 measured the SVPL sub-construct which indicates that the educational service received by the PIS at the present university allows them to achieve more tranquility. After omitting SPV1 item and re-specifying the model, the first-order model with three sub-constructs came up with high model fitness indexes results ( $\chi^2=107.230$ ;  $\chi^2/df=2.615$ ; TLI=0.955; CFI=0.967 and RMSEA=0.065). Besides that, it is important to note that the first-order model for SVSI items reveals the highest factor loading. This result indicates that the focal points for PIS are to integrate more in the community they involved with. The university should be concerned with providing a higher level of social integration for the international students by building better and stronger relationships with

them. In addition to the first-order model analysis, the second-order model also demonstrated a good fit of the model to the data ( $\chi^2=134.096$ ,  $\chi^2/df=3.193$ ; TLI=0.939; CFI=0.954 and RMSEA=0.079). Although there is an issue related to negative error variance, the results of this improper solution demonstrated that the fit indexes have achieved required levels. The probability values of the second-order model indicated that SPV has a significant effect to all sub-constructs. Thus, the second-model proposed in this research has confirmed that SERPVAL scale consists of three sub-constructs. This means, the PIS evaluate the higher education service according to three basic sub-constructs of personal values. Furthermore, the results support theoretical views that SERPVAL is a higher-order model and has three basic sub-constructs as perceived by the international students in higher education (Lages & Fernandes, 2005; Durvasula, Lysonski & Madhavi, 2011).

Results of this research offer several implications for theorists and practitioners. For theoretical implications, this research will be able to enlarge the body of knowledge in service context by empirically validating the SERPVAL scale in higher education. This research also has important implications for the practitioners. Understanding the concepts and measurement of personal values will assist service providers in higher education with specific indicators to evaluate the international students' values behind the service experience. Furthermore, the SERPVAL indicators could be used as guidelines to implement effective strategies to manage students' evaluation towards the service experience. Besides the implications, this research also has a number of limitations that suggest future research. First, this research was conducted in Malaysian public universities with research status (RU). Consequently, the generalizability of the data to represent the international students in Malaysian public higher education institutions is somehow limited. Therefore, it is suggested that the future research should expand the scope of the research and larger sample size in other types of universities including Focus Universities and Comprehensive Universities. Second, this research involves the second-order level measurement model. The scale was validated through CFA measurement model using AMOS. The specific issue related to improper estimates (negative error variance) has been identified. Although this improper estimates do not appear as problematic in this study, it is recommended that future research should explore intensely on this issue to give a direction for new researchers who are investigating a higher-order level measurement model.

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