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Refining and Validating a Family Communication Measure Using Exploratory and Confirmatory Factor Analysis

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Abstract

Using a combination of exploratory and confirmatory factor analytic approaches, this research replicates a family communication measure, which consists of two dimensions, namely socio-oriented and concept-oriented family communication. The measures are commonly used in consumer socialization research and are replicated in an eastern cultural background. Initially, an exploratory factor analysis (N=956) evaluated two solutions, ranging from 1 to 2 factors. Next, a confirmatory factor analyses, using the sample (N=956), examined the two-factor model identified by the exploratory factor analysis. A number of indices were used to evaluate model fit, and these indices demonstrated that the model identified in the exploratory analysis had the most adequate fit. A confirmatory factor analysis of the factor structure of the adapted family communication scale was conducted to assess whether the scale's purported 2 factors emerged. The findings of alternative model comparison converge with the results obtained from factor analysis, which demonstrated that family communication constructs performed better when modelled as a disaggregated two-factor structure. Overall, the required reliability and validity assessment demonstrated strong support for satisfactory convergent validity and discriminant validity and proved to fit the data even better. These analyses serve as a valuable tool for both instructors and researchers to assess communication that takes place at home in consumer socialization research.

Keywords: Family Communication Measure, Exploratory Factor Analysis, Confirmatory Factor Analysis

Introduction

Family influences on consumer socialization seem to proceed more through subtle social interaction than purposive educational efforts by parents (Ward, 1974). Given the more subtle nature of family influences, researchers have turned their attention to general patterns of family communication as a way to understand how the family influences the development of various consumer values, skills and decision making. Most influential have been the typology of family communication patterns-including laissez-faire, protective, pluralistic and consensual families (e.g., Moore and Moschis, 1981; Moschis and Moore, 1979b; Moschis,

Prahasto and Mitchell, 1986) and parental socialization types-including authoritarian, rigid controlling, organized effective, indulgent, and neglecting parents (e.g., Carlson, Grossbart and Stuenkel, 1992) and has been incorporated into empirical research (e.g., Palan and Wilkes, 1997). These typologies have provided a useful overview of the family communication environment.

Then again, Levine et al. (2006) explained that in practice, many researchers believed that a particular instrument used for a study should not be factor analyze “validated,” “standardized,” or “published” scales, arguing that if the scale is subjected to factor analysis and items are dropped, then findings are based on different measures, and cross-study comparisons are not possible. That is, some believe that the practice of assessing a measurement model inhibits valid cross-study conclusions (Levine et al., 2006). Levine et al. (2006) explained that the extent to which a scale remains valid across applications is an issue of measurement invariance (or lack thereof), which means that a measure retains its factor structure across different applications and samples.

The extent to which a scale has invariance across researchers, time, settings, and participants is best thought of as an empirical question (Levine et al., 2006). Recent investigations of measurement invariance show that previously validated measures often do not generalize across populations (e.g. Byrne and Watkins, 2003; Hui and Triandis, 1989; Lubke, et al., 2003; Wichert, Dolan, and Hessen, 2005).

One readily identifiable source of difference in communication research is attributable to subtle changes in item wording from study to study. Minor changes in item wording are made to fit the needs of a specific research project (Levine et al., 2006). The purpose of this study is to validate a family communication instrument commonly used in consumer socialization research in an eastern cultural background.

A Review: Research on Family Communication Measure in Consumer Socialization Research

The degree of influence that a child has in purchasing is directly related to patterns of interaction and communication within the family (Carlson and Grossbart, 1988; Carlson, Grossbart and Stuenkel, 1992; Rose, 1999). Research on family communication, has linked the type or quality of communication to a variety of parental practices and consumer competencies in children. Family communication provides a foundation for children's approach to interacting with the marketplace (Moschis, 1985), is inextricably linked to parental approaches to child-rearing (Carlson and Grossbart, 1988; Rose, 1999), and influences the development of children's consumer skills, knowledge, and attitudes (Moschis, 1985).

Research in this area, has generally utilized a single respondent, with early research primarily focusing on adolescents (Moschis, Prahasto and Mitchell, 1986) and later research examining the perceptions of mothers of younger children, under the age of 10 (Rose, Bush and Kahle, 1998).

According to Moschis (1985), extensive research evidence has led researchers to assume that family communication patterns help guide the individual in coping with various situations s/he encounters outside the immediate family context-for instance, situations in relation to public affairs issues and mass media use. Evidence further suggests that the influence of family communication, as generalized to other situations, persists well into adulthood; it appears to become part of the developing individual's personality that he carries outside the home.

The domain of family communication includes the *content*, the *frequency*, and the *nature of family member interactions* (Palan and Wilkes, 1997). The origins of family communication research in marketing can be traced to a study conducted in *political socialization* (McLeod and Chaffee, 1972), which utilized two dimensions from Newcomb's (1953) general model of effective communication. The first dimension, *socio-orientation*, captures vertical communication which is indicative of hierarchical patterns of interaction and establishes deference among family members (McLeod and Chaffee, 1972). This type of interaction has also resulted in controlling and monitoring children's consumption-related activities (Moschis, 1985). The second dimension, *concept-orientation*, actively solicits the child's input in discussions, evaluates issues from different perspectives, and focuses on providing an environment that stimulates the child to develop his/her own views (McLeod and Chaffee, 1972). This type of communication results in earlier and increased experience and learning of different consumer skills and orientations among children (Moschis, 1985).

Several studies of consumer socialization have utilized these dimensions to create a four-category typology of family communication (e.g., Carlson, Grossbart and Walsh, 1990; Moschis and Moore, 1979a; Rose, Bush and Kahle, 1998). Pluralistic parents (low socio-orientation, high concept-orientation) encourage their children to engage in overt communication and discussions. This communication pattern results in children that possess independent perspectives and become skilled consumers. Consensual parents (high socio-orientation, high concept-orientation) encourage children to formulate independent ideas, but maintain a hierarchy of power within the family and control and monitor their children's consumption environment. Laissez-faire parents (low socio-orientation, low concept-orientation) can be characterized as having low levels of parent-child communication in general. Children in this type of environment are more influenced by external socialization agents such as the media and peers. Finally, protective parents (high socio-orientation, low concept-orientation) emphasize obedience. They promote vertical relationships with their children, focus less on issue-oriented communication, and tightly control and monitor their children's consumption (Moschis, 1985).

According to Moschis (1985) evidence suggests that "the influence of family communication, as generalized to other situations, persists well into adulthood; it appears to become part of the developing individual's personality that he carries outside the home" (Chaffee, McLeod and Atkins, 1971, p. 331). Besides, the link between materialism and family communication, family communication patterns have repeatedly been linked to other aspects of consumer socialization.

Measuring the Family Communication Construct

Family communication was operationally defined as overt interaction between parents and the child concerning goods and services (Churchill and Moschis, 1979). Two dimensions of family communication patterns were examined, socio-orientation and concept orientation.

Measuring the Socio-Oriented Family Communication Construct

In Moschis and Churchill (1978) study, family communication about consumption and overt interaction between parent and adolescent about goods and services were examined. The study employed a 5-point Likert scale with (1) "Very often" to (5) "Never." Items measuring socio-oriented family communication included for example "You'll know better when you grow up." In the study the reliability coefficient of the scale was .64.

Churchill and Moschis (1979) investigated family influences in terms of mediating socialization processes on adolescents' consumer skill acquisition. The reliability coefficient alpha of socio-oriented family communication scale was .67 above the .50 to .60 reliability coefficients often recommended for constructs in the early stages of research (Nunnally, 1967, p. 226). The high internal consistency among general and specific items further suggests that the general family communication structures also apply the communication structures specifically related to consumption matters; and it provides validity for the revised items.

Moschis and Moore (1979a) investigated family influences in terms of mediating socialization processes on adolescents' consumer skill acquisition. The reliability coefficient alpha of the socio-oriented family communication scale was .67, above the .50 to .60 reliability coefficients often recommended for constructs in the early stages of research (Nunnally, 1967, p. 226). The high internal consistency among general and specific items further suggests that the general family communication structures also apply the communication structures specifically related to consumption matters; and it provides validity for the revised items.

Moschis and Moore (1982) study examined the short-term and longer-term effects of television advertising on the development of specific consumption-related orientations in four areas: consumer role perceptions, normative consumer activities, materialistic values, and sex-role perceptions. In the study, family communication about consumption was operationally defined as overt interaction between parent and adolescent concerning goods and services (e.g., Moschis and Churchill 1978; Ward and Wackman 1971). It was measured by summing responses to six items. A typical item was "My parents and I talk about buying things," with responses measured on a five-point "very often" (5) to "never" (1) scale.

Moschis, Moore and Smith (1983) conducted a study to extend previous research on the communication processes in consumer socialization to include modeling, reinforcement and social interaction. Its purpose was to determine the relative importance of such learning mechanisms as well as ascertain the role of family communication in the development of consumer learning. Most of the revised items were validated in a previous consumer socialization study, which compared the new measures to previous items based on internal consistency (coefficient alpha). Reliability and validity checks were also performed for the present study. The alpha coefficients of reliability for socio-oriented family communication were .71, above the minimum recommended level of .50 (Nunnally, 1967). "High" and "Low" groups on each dimension were constructed by splitting each of the two scales at the median, yielding the usual fourfold typology.

Moschis, Prahasto and Mitchell (1986) examined the influences of family communications on the development of consumption-related behaviour patterns. It presented additional data which suggested that family communication patterns may be important in shaping the consumer behaviour of young people. Cronbach's alphas for concept-orientation and socio-orientation of family communication structure, physical and achievement vanity, possession success, and acquisition centrality of the materialism scale were all between .45 and .82. Nunnally (1978) suggested that a Cronbach's alpha coefficient greater than .7 shows internal consistency and reasonable reliability. However, if it is below .35, it is not suitable for measurement.

Moschis, Prahasto and Mitchell (1986) presented the results of a study designed to test the effects of television advertising and interpersonal communications on the teenager's consumer behavior. In the study, socio-oriented family communication structure was measured in line with previous research (e.g. Moschis and Moore, 1978b) by asking

adolescents to indicate how often certain types of parent-child communications occur; six items were designed to measure socio-oriented family communication structure. The reliability coefficients of the scale were .72.

Flouri (2000) have proposed an integrated model of consumer materialism. In the study, teenagers had to indicate the degree to which they 'agree to disagree' with 6 items (Chaffee, McLeod and Atkins, 1971) that measure the degree to which their family stresses socio-orientation. Family communication structure was a two-dimensional pattern of parent child communication. The general dimension of communication structure helped guide the child in his cognitive mapping of situation he encounters outside the immediate family context. The first kind of relation was socio-oriented. Child in this context was encouraged to maintain harmonious personal relations, avoid controversy and repress his feelings on extra personal topics. To measure socio-orientation the study used 6 items of family communication structure. Example included "I urge my child to give in on arguments rather than risk antagonizing others," and "I say that discussions are better if you keep them pleasant".

Rose, Bush and Kahle (1998) have examined family communication patterns and general attitudes toward television advertising among mothers of children three to eight years of age in the United States and Japan. Mothers were sampled in the study because they were generally the dominant influence in socialization (Carlson and Grossbart, 1988). Maternal attitudes provided not only a measure of parental practices, but more important, a direct measure of parental attitudes toward advertising. Mothers of children three to eight years of age were sampled. In the study, family communication patterns were examined. Socio-orientation dimension of family communication was examined. It consisted of five items measuring the degree to which parents expected children to defer to parental standards of consumption (Moschis, Moore and Smith, 1983). Those items had been used extensively in previous research (e.g., Carlson and Grossbart, 1988; Carlson, Grossbart and Stuenkel, 1992; Moschis and Churchill, 1978) and were measured on a 5-point scale (very seldom to very often). Reliability levels were assessed in both countries, with a $\alpha = .70$ and a $\alpha = .68$ in the United States and Japan, for socio-orientation family communication.

In the present study, socio-oriented family communication structure was measured in line with previous research (Moschis and Moore, 1979b). It consisted of items measuring the degree to which parents request children to conform to parental standards of consumption. The traditional items for measuring the two general parent-child communication structures were included communication directly related to consumer matters, with responses measured on a 5-point Likert scale ranging from (1) 'Very often' to (5) 'Never' scale. Socio-oriented communication was measured with seven items in which parents sometimes say or do in their family conversations while their children were growing up. Respondents were asked to think back to the time when they were younger and tell how frequently their parents said or did these things and indicate the extent to which they agree or disagree with the statements.

Measuring the Concept-oriented Family Communication Construct

Concept-oriented family communication structure was measured in line with previous research Moschis, Moore and Smith (1983) and Moschis and Moore (1979b). The original scale measuring concept-oriented communication by Moschis, Moore and Smith (1983) who consisted of six items measuring the degree to which parents requested children to conform to parental standards of consumption. These items were modified and adapted for this study.

Concept-oriented communication was measured with six items in which parents sometimes say or do in their family conversations while their children were growing up.

In previous studies, Churchill and Moschis (1979) investigated family influences in terms of mediating socialization processes on adolescents' consumer skill acquisition. The reliability coefficient alpha of concept-oriented family communication scale was .71, above the .50 to .60 reliability coefficients often recommended for constructs in the early stages of research (Nunnally, 1967, p. 226). The high internal consistency among general and specific items further suggests that the general family communication structures also apply the communication structures specifically related to consumption matters; and it provides validity for the revised items.

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Moschis, Moore and Smith (1983) conducted a study to extend previous research on the communication processes in consumer socialization to include modeling, reinforcement and social interaction. Its purpose was to determine the relative importance of such learning mechanisms as well as ascertain the role of family communication in the development of consumer learning. Most of the revised items were validated in a previous consumer socialization study, which compared the new measures to previous items based on internal consistency (coefficient alpha). Reliability and validity checks were also performed for the present study. The alpha coefficients of reliability for concept oriented family communication were .54, above the minimum recommended level of .50 (Nunnally, 1967). "High" and "Low" groups on each dimension were constructed by splitting each of the two scales at the median, yielding the usual fourfold typology.

Moschis, Prahasto and Mitchell (1986) presented the results of a study designed to test the effects of television advertising and interpersonal communications on the teenager's consumer behavior. In the study, concept-oriented family communication structure was measured in line with previous research (e.g. Moschis and Moore, 1978b) by asking adolescents to indicate how often certain types of parent-child communications occur; six items were designed to measure concept-oriented family communication structure. The reliability coefficients of the scale were .51.

Flouri (2000) have proposed an integrated model of consumer materialism. In the study, teenagers had to indicate the degree to which they 'agree to disagree' with 5 items (Chaffee, McLeod and Atkins, 1971) that measure the degree to which their family stresses concept-orientation communication patterns. Family communication structure was a two-dimensional pattern of parent child communication. The general dimension of communication structure helped guide the child in his cognitive mapping of situation he encounters outside the immediate family context. The second kind of relation was called concept-oriented, which stressed 'the child is stimulated to express his ideas, he is exposed to controversy and encouraged to join it. To measure concept-oriented, the study used 5 items of this communicator environment. Example included "I encourage my child to

challenge my ideas and beliefs,” and “I ask my child’s opinion when family is discussing something”.

Rose, Bush and Khale (1998) have examined family communication patterns and general attitudes toward television advertising among mothers of children three to eight years of age in the United States and Japan. Mothers were sampled in the study because they were generally the dominant influence in socialization (Carlson and Grossbart, 1988). Maternal attitudes provided not only a measure of parental practices, but more important, a direct measure of parental attitudes toward advertising. Mothers of children three to eight years of age were sampled. In the study, concept-oriented dimension of family communication was examined. Concept-orientation measured the extent to which parents encourage their children to develop their own consumption preferences. It consisted of five items from Moschis, Moore, and Smith's (1983) concept-orientation scale and three items from Ward, Wackman and Wartella's (1977) family communication scale. Those scales had loaded on a single dimension in previous research (Carlson and Grossbart, 1988) and were conceptually similar. The items had been used extensively in previous research (e.g., Carlson and Grossbart, 1988; Carlson, Grossbart and Stuenkel, 1992; Moschis and Churchill, 1978) and were measured on a 5-point scale (very seldom to very often). Reliability levels were assessed in both countries, with $\alpha = .77$ in United States and $\alpha = .76$ in Japan for concept-oriented communication.

Methodology of Research

Sample and Procedures

A survey was conducted in the Klang Valley in Malaysia between January to March 2011. The target population were college students in public and private institution of higher learning. College students were chosen because generally they represent the future of a country as with a good education, they will become middle-class professionals at least. The questionnaire was given to 1,200 randomly selected university and college students. Of which, 956 completed questionnaires were usable for the data analysis.

For the present study, we modified the statements with responses measured on a 5-point Likert scale ranging from (1) ‘Strongly disagree’ to (5) ‘Strongly agree’. The reason for modification was to standardize the scale for the various sections of the questionnaire and to encourage consistency in responses. Table 1.1. provides both original items and items which were modified and adapted for measuring socio-oriented family communication dimension.

For the purpose of this present study, respondents were asked to think back to the time when they were younger and tell how frequently their parents said or did these things and indicate the extent to which they agree or disagree with the statements. For the purpose of the present study, we adopted a five-item measure to form concept oriented family communication scale. The original scale response were recorded on a 5-point Likert scale ranging from (1) ‘Very’ to (5) ‘Never’ whereas we have modified the scale and responses were recorded on a 5-point Likert scale ranging from (1) ‘Strongly disagree’ to (5) ‘Strongly agree’.

Table 1.1. Items adapted for measuring socio-oriented family communication dimension

No	Original Items	No	Modified and Adapted Items
	<i>Moschis and Moore (1979b)</i> 5-point Likert scale ranging from 1 ' <u>very often</u> ' to 5 ' <u>Never</u> '		<i>Moschis and Moore (1979b)</i> 5-Point Likert scale ranging from 1 ' <u>Strongly Disagree</u> ' to 5 ' <u>Strongly Agree</u> '
1.	(Parent) say that the best way to stay out of trouble is to stay away from it.	1.	My parents often use to say that the best way to stay out of trouble is to stay away from it.
2.	(Parent) say his idea are correct and (child) shouldn't question them	2.	My parents often use to say that their ideas are correct and I shouldn't question them.
3.	(Parent) answers (child) arguments with saying something like "You'll know better when you grow up."	3.	My parents often use to answer my arguments with saying something like "You'll know better when you grow up?"
4.	(Parent) says (child) should give in when he argues rather than risk making people angry.	4.	My parents often use to say that I should give in when he/she argues rather than risk making people angry.
5.	(Parent) tells (child) what things he should or shouldn't buy.	5.	My parents often use to tell me what things I should or shouldn't buy.
6.	(Parent) wants to know what (child) does with his money.	6.	My parents often wanted to know what I do with my money.
7.	(Parent) complains when he does not like something (child) bought for himself.	7.	My parents often use to complain when they don't like something I bought for myself.

The reason for modification is to standardize the scale for the various sections of the questionnaire and to encourage consistency in responses. One item has also been adopted from the original scale measuring concept-oriented communication by Moschis and Moore (1979a) which originally consisted of seven items measuring the degree to which parents request children to conform to parental standards of consumption. The item was adopted to form the final concept-oriented family communication scale for this study. The original scale response were recorded on a 5-point Likert scale ranging from 1 'Very' to 5 'Never,' whereas we have modified the scale and responses are recorded on a 5-point Likert scale ranging from (1) 'Strongly disagree' to (5) 'Strongly agree' (see Table 1.2.). The reason for modification is to standardize the scale for the various sections of the questionnaire and to encourage consistency in responses.

Table 1.2. Items adapted for measuring concept-oriented family communication dimension

No.	Original Items	No.	Modified and Adapted Items
	<i>Moschis, Moore and Smith (1983) 5-point Likert scale ranging from 1 'very often' to 5 'Never'</i>		<i>Moschis, Moore and Smith (1983) 5-Point Likert scale ranging from 1 'Strongly Disagree' to 5 'Strongly Agree'</i>
1.	(Parents) ask (child) to help them buy things for the family.	1.	My parents often use to ask me to help them buy things for the family.
2.	(Parents) ask (child) what (child) thinks about things they buy for themselves.	2.	My parents often use to ask me what I think about things they buy for themselves.
3.	(Parents) say (child) should decide about things (child) should or shouldn't buy.	3.	My parents often use to tell me to decide about things I should or shouldn't buy.
4.	(Parents) say that buying things (child) likes is important even if others don't like them.	4.	
5.	(Parents) say (child) should decide himself how to spend his money.	5.	My parents often use to say that I should decide myself how to spend my money.
6.	(Parents) ask (child) for advice about buying things.	6.	My parents often use to ask me for advice about buying things.
	<i>Moschis and Moore (1979a)</i> <i>7-item measuring Concept-Oriented Family Communication Measures</i>		
1.	(Parent) says (child) should make his own decisions on things that affect him.		
2.	(Parent) emphasizes that every member of the family should have some say in family decisions.		
3.	Parent admits that children know more about some things than adults do.		
4.	Parent says that getting (child's) ideas across is important even if others don't like them.	7.	My parents often use to say that getting my ideas across is important even if others don't like them.
5.	Parent asks (child) what he thinks about things (parent) buys for himself.		
6.	Parent tells (child) he should decide about things he should or shouldn't buy.		
7.	Parent tells (child) what he does with his money.		

Table 1.2. above provides both original items and the items which were adapted for this study to measure concept-oriented family communication dimension.

To summarize, there are evidence that the items selected for the present study for socio-oriented and concept-oriented family communication have been used extensively in subsequent studies (e.g., Carlson, Grossbart and Stuenkel, 1992; Moschis and Churchill, 1978, Rose, Bush and Khale, 1998, Chan and Prendergast, 2007). The internal consistency for the items was established in previous consumer socialization research (Moschis and Moore, 1979a). In Moschis and Moore (1982) study, the reliability coefficient alpha for socio-oriented family communication was 0.62, where "High" and "Low" frequency groups were constructed by splitting the scale at the median.

As required for the sampling frame in Carlson, Grossbart and Stuenkel (1992) study, items used to detect socio and concept consumer communication orientation (Moschis and Moore, 1984) were slightly revised to facilitate mothers', rather than adolescents', responses. For example, the five-item socio index included, "I tell my child he/she is not allowed to buy certain things" and "I want to know what my child does with his/her money." Items reflecting the six-item concept measure included, "I tell my child to decide about things he/she should or shouldn't buy" and "I tell my child buying things he/she likes is important even if others don't like them." Five-point scales, ranging from strongly disagree (1) to strongly agree (5), were used, and item responses were summed for each index. The concept index had alpha and beta reliabilities of .70 and .57, respectively, whereas the socio scale attained an alpha of .50 and beta of .49. Alpha reliabilities for both scales using mothers compared favourably with those using adolescents (Moschis, Prahasto and Mitchell, 1986). Similarly, for the purpose of this present study, the original items presented in Table 1.1 and Table 1.2 to measure socio-oriented family communication and concept-oriented family communication respectively were slightly revised to facilitate young adults' responses rather than children, adolescents or mothers' responses.

In general the reliability levels of these two dimensions, that is, socio-oriented, and concept-oriented family communication performed well in the U.S and in different cultures. In the U.S and Japan, Rose, Bush and Khale (1998) reported an overall reliability of 0.70 and 0.68 for the U.S and Japan respectively, for socio-orientation, and 0.77 and 0.76 for concept-oriented communication respectively. In China, Chan and McNeal (2003), reported inter item reliability (Cronbach's alpha) of 0.71 for socio-oriented communication and 0.66 for concept-oriented communication respectively. Chan and Prendergast, (2007) studied young Chinese people to test a theoretical model looking at the effect of communication on materialistic values among 631 young people aged 15 to 24 in Hong Kong. The study reported inter-item reliability of 0.69 for socio-oriented family communication, and 0.60 for concept-oriented family communication.

Results

Respondent Characteristics

In this section, a general profile of the respondents is discussed. Table 1.3 presents the demographic characteristics of the respondents. Basically, of the 956 respondents who completed the questionnaire, 39.9% were males and 60.1% were females. In terms of age distribution, 63.6% of the samples were between the aged of 20-29 years old, followed by aged range of 19 years old and below (25.4%) and the remaining of the respondents 11% were aged 30 years old and above. The high percentage (63.6%) of respondents in the aged ranged

of 20 to 29 years old, was explained by the fact that the subjects for this study were young adult consumers, and was therefore the main target for response.

In terms of ethnic group, the majority of the sample consisted of Malay respondents (52.2%), followed by Chinese respondents (28.2%) and Indians (10.7%) and other ethnic groups formed (9.0%) of the sample. The respondent characteristics in terms of ethnicity were generally consistent with the Malaysian Population Census (Department of Statistics and Economic Planning Unit, 2008). Consistent with the race composition of Malaysia, in terms of religious faith, the majority of the respondents endorsed Islam (58.2%), followed by Buddhism, (20.4%), Christianity (10.2%), Hinduism (9.4%) and others (2.0%).

It was observed that more than two third of the responding sample were single (87.8%), while (11.3 %) were married. It was noted that there were 7 divorcees involved in the sample group. In terms of education, the majority of the respondent in the sample group possessed a professional qualification (56.9%), and (32.2%) possessed a college diploma while 10.6% have obtained their SPM certificate.

In addition to that, it was also observed from the sample that 65.8% of respondents were earning an income ranged of less than RM 1,000 which formed the largest category, followed by those earning between RM 2,000 to RM 3,999 formed 14.1% of the respondents. 13.5% of the sample group were earning an income in the ranged of between RM 1, 000 to RM 1, 999. One possible reason for such findings was due to the predominantly younger aged respondents who were still in the early stage of their career path.

Table 1.3. Respondent characteristics

Items		Frequency	Percentage (%)
Gender	Male	381	39.9
	Female	575	60.1
Age	below 19	243	25.4
	20-29	608	63.6
	above 30	105	11.0
Ethnicity	Malay	495	51.8
	Chinese	270	28.2
	Indians	102	10.7
	Others	89	9.3
Religion	Islam	556	58.2
	Buddhism	195	20.4
	Hinduism	90	9.4
	Christianity	96	10.0
	Others	19	2.0
Marital Status	Single	839	87.8
	Married	108	11.3
	Widow/Widower/Divorcee	7	0.7
Education^a	Primary School or Less	1	0.1
	PMR/SRP/LCE	3	0.3
	SPM/SPVM/MCE	101	10.6
	College Diploma	307	32.2
	Professional qualification/University degree	544	56.9
Monthly Gross Personal Income	Less than RM1,000	629	65.8
	RM1,000 to RM1,999	129	13.5
	RM2,000 to RM3,999	135	14.1
	RM4,000 to RM5,999	50	5.2
	RM6,000 to RM7,999	10	1.0
	RM8,000 to RM9,999	3	0.3

Note:^a PMR/SRP/LCE is equivalent to nine years of formal elementary and middle school education.

Exploratory Factor Analysis

In order to determine the underlying dimensions of the multi-item measurement scale, exploratory factor analysis was performed separately on the statements. The purpose for performing factor analysis was to determine whether the data could be condensed or summarised into smaller set of factors (Malhotra, 2004). The dimensions of the scales were examined by factor analysing the items using the principal components analysis with Varimax rotation. Minimum eigenvalues of 1.0 helped determined the number of factors or dimensions for each scale (Hair et al. 2006). Although factor loadings of 0.30 to 0.40 were considered acceptable, however, factor loadings greater than 0.50 was generally necessary for practical significance (Hair et al. 2006). Hence, the items for a factor were retained only when the absolute size of their factor loading was above 0.50.

Factor Analysis of Socio-oriented Family Communication Construct

Prior to confirmatory factor analysis, the 7-item socio-oriented family communication scale was factor analysed to identify the dimensionality. Similarly, principal component analysis with Varimax rotation method was used to assess the factor loadings of each item on different socio-oriented family communication factors. Table 1.4 presents the results of Kaiser-Meyer-Olkin (KMO), Bartlett’s test of sphericity and total variance explained. The Bartlett’s test of sphericity was significant ($\chi^2 = 1.0613$, $p = 0.000$) and the KMO value of 0.762 indicated that factor analysis was appropriate to be used for analysing the socio-oriented family communication factor (Hair et al. 2006).

The rotated factor matrix in Table 1.5 showed that two factors were identified to explain the underlying characteristics of socio-oriented family communication factor. Together, the two factors accounted to more than 50% of the variance in responses. Factor 1 included three items related to socio-oriented family communication with the factor loadings ranging from 0.752 to 0.830, accounting for 36.33 % of the total variance.

Table 1.4. Kaiser-Meyer-Olkin (KMO), Bartlett’s Test and total variance explained for socio-oriented family communication construct

Bartlett's Test of Sphericity			
Approx. Chi-Square= 1.061, d.f=21, p=0.000			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy=0.762			
EXTRACTION SUMS OF SQUARED LOADINGS			
Factor	Eigenvalue	Percentage of Variance	Cumulative Percentage of Variance
1	2.544		
2	1.205	36.339	36.339

Only factor loading 0.5 and above were taken into consideration. Factor 2 consisted of four items ranging from 0.645 to 0.679, explaining 17.217% of the total variance. Only two factors were extracted in the present study. Only factor loading 0.5 and above were taken into consideration.

Table 1.5. Rotated factor analysis for socio-oriented family communication constructs

Items	Component	
	1	2
SOCIO01: My parents often use to say that the best way to stay out of trouble is to stay away from it.	0.010	0.656
SOCIO02: My parents often use to say that their ideas are correct and I shouldn't question them.	0.147	0.679
SOCIO03: My parents often use to answer my arguments with saying something like "You'll know better when you grow up?"	0.180	0.662
SOCIO04: My parents often use to say that I should give in when he/she argues rather than risk making people angry	0.171	0.645
SOCIO05: My parents often use to tell me what things I should or shouldn't buy.	0.752	0.188
SOCIO06: My parents often wanted to know what I did with my money.	0.830	0.068
SOCIO07: My parents often use to complain when they didn't like something I bought for myself.	0.770	0.173
Eigenvalues	2.544	1.205
Total Variance Explained (%)	36.339	17.217
Cumulative Variance Explained (%)	36.339	53.555

Factor analysis of concept-oriented family communication construct

The 6-item concept-oriented family communication scale was factor analysed to identify the dimensionality. Similarly, principal component analysis with Varimax rotation method was used to assess the factor loadings of each item on different concept-oriented family communication factors. Table 1.6 presents the results of Kaiser-Meyer-Olkin (KMO), Bartlett's test of sphericity and total variance explained. The Bartlett's test of sphericity was significant ($\chi^2 = 771.813$, $p = 0.000$) and the KMO value of 0.736 indicated that factor analysis was appropriate to be used for analysing the concept-oriented family communication factor (Hair et al. 2006). Only factor loading 0.5 and above were taken into consideration.

Table 1.6. Kaiser-Meyer-Olkin (KMO), Bartlett's Test and total variance explained for concept-oriented family communication construct

Bartlett's Test of Sphericity				
Approx. Chi-Square= 771.813, d.f=15, p=0.000				
Kaiser-Meyer-Olkin Measure of Sampling Adequacy=0.736				
EXTRACTION SUMS OF SQUARED LOADINGS				
Factor	Eigenvalue	Percentage of Variance	Cumulative Variance	Percentage of
1	2.298	38.306		
2	1.007	16.775	38.306	

The rotated factor matrix in Table 1.7 showed that two factors were identified to explain the underlying characteristics of concept-oriented family communication factor. Together, the two factors accounted to more than 50% of the variance in responses. Factor 1 included three items related to concept-oriented family communication with the factor loadings ranging from 0.675 to 0.825, accounting for 38.306% of the total variance. Only factor loading 0.5 and above were taken into consideration. Factor 2 consisted of three items with the

loading ranging from 0.641 to 0.737, explaining 16.775% of the total variance. Only two factors were extracted in the present study.

Table 1.7. Rotated factor analysis for concept-oriented family communication construct

Items	Component	
	1	2
CON01: My parents often use to ask me to help them buy things for our family.	0.675	0.043
CON02: My parents often use to ask me what I think about things they buy for themselves.	0.825	0.125
CON03: My parents often use to ask me for advice about buying things.	0.685	0.320
CON04: My parents often use to tell me to decide about things I should or shouldn't buy.	0.260	0.641
CON05: My parents often use to say that getting my ideas across is important even if others don't like them.	0.151	0.737
CON06: My parents often use to say that I should decide myself how to spend my money.	0.021	0.732
Eigenvalues	2.298	1.007
Total Variance Explained (%)	38.306	16.775
Cumulative Variance Explained (%)	38.306	55.081

Item analysis and scale reliabilities

The internal consistency reliabilities of the scale were next assessed after the factor analyses. Cronbach's alpha coefficient which was the most popular indicator of internal consistency was employed in the present study to assess the reliabilities of measurement scales adopted (Malhotra, 2004). By convention, an acceptable level of coefficient alpha to retain an item in a scale is at least 0.50 (Churchill, 1979). The present study was based on Churchill (1979) recommendation when assessing the reliability of each scale. The reliability analysis and descriptive statistics for individual items of the socio-oriented family communication, and concept-oriented family communication measure are presented in Table 1.8.

Referring to Table 1.8, the mean scores for concept-oriented family communication items (M=3.16 to 3.80) were higher than the items for socio-oriented family communication (M = 2.78 to 3.63) items.

Generally, subjects of the present study had higher degree of agreement with the concept-oriented family communication statements in comparison with socio-oriented family communication. Overall, the scales displayed an acceptable degree of reliability with a Cronbach's alpha coefficient of 0.672, and 0.703 for concept-oriented family communication, and socio-oriented family communication respectively.

Socio-oriented family communication and concept-oriented family communication items have been used extensively in subsequent studies (e.g. Carlson, Sanford and Grossbart, 1988; Carlson, Grossbart and Stuenkel, 1992; Chan and Prendergast, 2007; Moschis and Churchill, 1978). The reliability levels of these two dimensions performed well in the U.S. and in different cultures. In the U.S and Japan, Rose, Bush and Khale (1998) reported an overall reliability of 0.70 and 0.68 for the U.S. and Japan respectively, for socio-orientation, and 0.77 and 0.76 for concept oriented communication respectively. In China, Chan and McNeal (2003), reported inter item reliability (Cronbach's alpha) of 0.71 for socio-oriented

communication and 0.66 for concept-oriented communication respectively. More recently in Hong Kong, Chan and Prendergast (2007) reported inter item reliability of 0.69 for socially-oriented family communication, and 0.60 for concept-oriented family communication.

A Summary Statistics for Family Communication Constructs

The proportional mean scores for each construct were computed by summing the items and dividing by its respective number of items. The mean scale scores and distributional statistics are presented in Table 1.9. Respondents felt medium to moderately high for socio-oriented family communication, and concept-oriented family communication.

Table 1.8. Descriptive statistics and reliability analysis of socio-oriented, and concept-oriented family communication measures

Scale Items	Mean	St. Dev.	Cronbach's Alpha
Socio-Oriented Family Communication			0.703
SOCIO01: My parents often use to say that the best way to stay out of trouble is to stay away from it.	3.63	1.19	
SOCIO02: My parents often use to say that their ideas are correct and I shouldn't question them.	2.78	1.16	
SOCIO03: My parents often use to answer my arguments with saying something like "You'll know better when you grow up?"	3.56	1.15	
SOCIO04: My parents often use to say that I should give in when he/she argues rather than risk making people angry	3.25	1.00	
SOCIO05: My parents often use to tell me what things I should or shouldn't buy.	3.44	1.16	
SOCIO06: My parents often wanted to know what I did with my money.	3.30	1.21	
SOCIO07: My parents often use to complain when they didn't like something I bought for myself.	3.15	1.17	
Concept-Oriented Family Communication			0.672
CON01: My parents often use to ask me to help them buy things for our family.	3.32	1.18	
CON02: My parents often use to ask me what I think about things they buy for themselves.	3.16	1.12	
CON03: My parents often use to ask me for advice about buying things.	3.27	1.14	
CON04: My parents often use to tell me to decide about things I should or shouldn't buy.	3.47	1.04	
CON05: My parents often use to say that getting my ideas across is important even if others don't like them.	3.28	0.99	
CON06: My parents often use to say that I should decide myself how to spend my money.	3.80	1.03	

Table 1.9. Summary descriptive and distributional statistics of main constructs

Constructs	Mean	Std.Dev.	Kurtosis	Skewness
Socio-Oriented Family Communication	19.47 (3.24)	4.35522	-.026	-.128
Concept-Oriented Family Communication	20.30 (3.38)	4.02412	.277	-.281

Notes: *Figures in parenthesis are proportional means; based on item score that range from 1 (strongly disagree) to 5 (strongly agree)*

Confirmatory Factor Analysis

Gerbing and Anderson (1987) highlighted the importance of unidimensionality in the scale development process. Gerbing and Anderson further argued that the traditional exploratory analyses (e.g., factor analysis) were not theory based analysis and hence they failed to assess unidimensionality directly. To overcome this limitation, confirmatory factor analysis (CFA) was employed for the assessment of measurement model fit and unidimensionality. This section covered important discussion relating to CFA which included identification issues, model specification and the testing of single versus multi-component measures employed for the study.

(a) Identification Issues

In SEM, identification was about whether there were enough pieces of information to identify a solution for a set of structural equations (Hair et al. 2006). It was important to determine the identification status of a hypothesised model by checking the number of degrees of freedom associated with the model (Byrne, 2001). As the sample size of the present study was sufficiently large (n=956), it was believed that the hypothesised model would converge and produce reliable results (Hair et al. 2006).

(b) Model Specification

For specification of the latent constructs, the loading for one of the indicator of each construct was fixed to 1.0 in the model to create a scale for the latent construct. This process was done automatically with the features in AMOS 16.0 software.

(c) Comparing the Disaggregated Multi-component Structure to a Traditional Unidimensional Measure

There were no debates regarding the conceptualization of family communication constructs on whether each of these predictors should be modelled as a single concept or a disaggregated multi-components structure. To date there were no recent studies that supported the disaggregated multi-components of family communication structure. In order to determine whether family communication was best represented as single concept or multi-component constructs, both exploratory factor analysis and confirmatory factor analysis were conducted. The exploratory factor analysis results indicated that socio-oriented family communication and concept-oriented family communication comprised of two distinct components. Subsequently, CFAs were employed to test and confirmed these findings as reported in the exploratory factor analyses. It was acknowledged that the hypothesized alternative models could not be compared using chi-square difference test if these models were not nested (Kelloway, 1995). However, comparison could still be made by looking at the normed χ^2/df value and other fit indices.

Following the exploratory factor analysis results, a disaggregated two-factor socio-oriented family communication measure was tested against a single socio-oriented family communication concept to reflect the global socio-oriented family communication construct (see Figure 1.1). Similar approach was used to test the concept-oriented family communication structure (see Figure 1.2). Consequently, if these tests indicated a significantly better χ^2 and model fit indices when modelled as two disaggregated concepts would suggest discriminant validity.

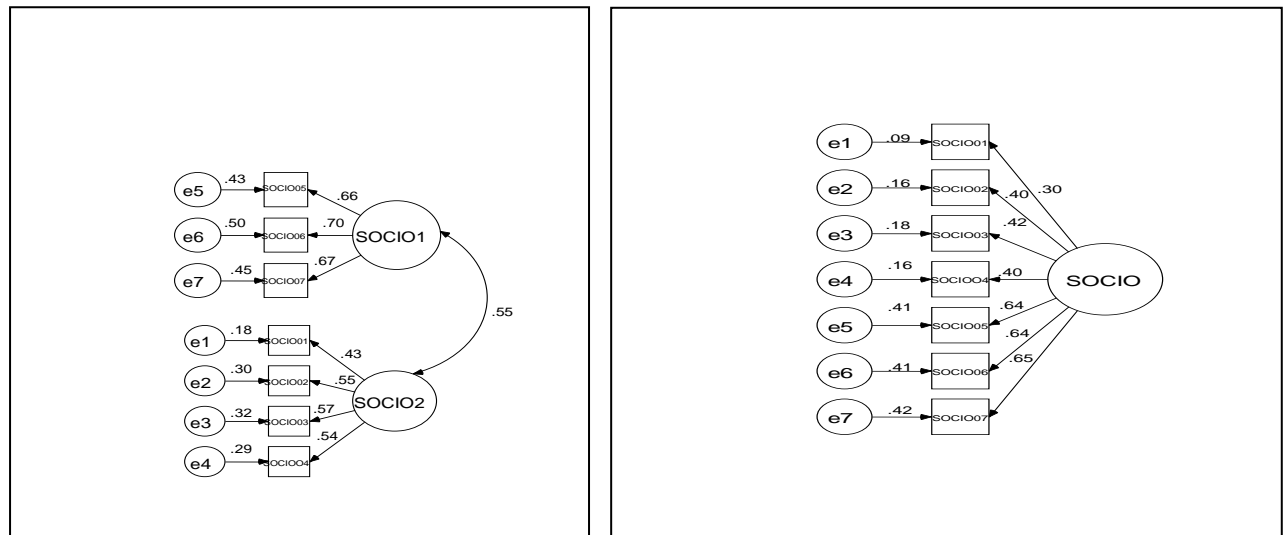


Figure 1.1. Disaggregated multi-components versus single socio-oriented family communication concept

Based on empirical findings obtained from factor analysis, socio-oriented family communication structure and concept-oriented family communication were best represented through disaggregated multi-component concepts.

Firstly, χ^2 goodness-of-fit (GOF) for single socio-oriented family communication was compared to χ^2 GOF for the disaggregated multi-components socio-oriented family communication model. It would offer support for the hypothesised disaggregated multi-components socio-oriented family communication structure if its χ^2 value was significantly lower than the single socio-oriented family communication concept. Results presented in Table 2.0 showed the disaggregated multi-components socio-oriented family communication model ($\chi^2 = 33.801$) achieved better fit compared to the single socio-oriented family communication concept ($\chi^2 = 198.337$). Further, the overall fit indices also indicated better model fit for the hypothesised multi-components socio-oriented family communication model. For instance, the fit indices of TLI and CFI indicated improvement of 0.233 and 0.157, respectively. Indeed, a difference between models in these fit indices of greater than 0.01 represents a very practical improvement to model fit (Widaman, 1985).

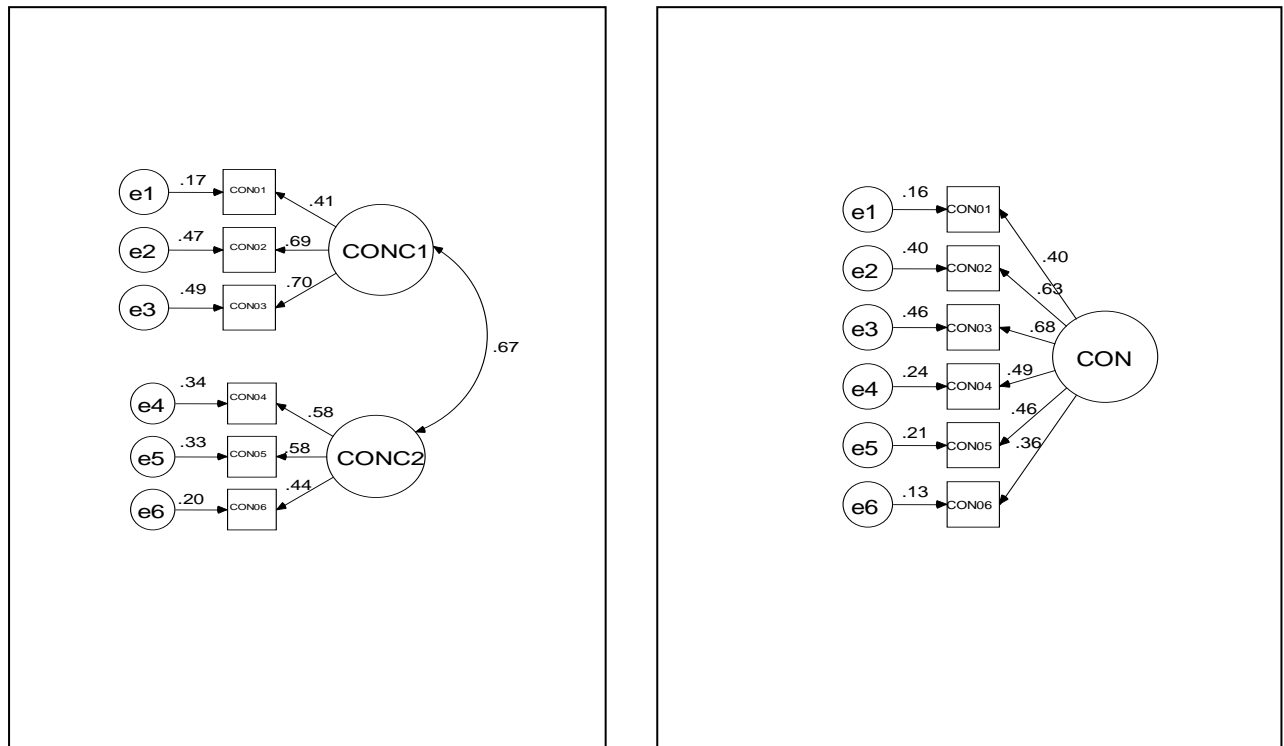


Figure 1.2. Disaggregated multi-components versus single concept-oriented family communication concept

Table 2.0. Alternative Model Testing Results

Alternative Model	χ^2	df	P	Ratio	GFI	TLI	CFI	RMSEA
Socio-oriented family communication								
Single concept	198.337	14	.000	.667	.933	.735	.823	.117
Two concept	33.801	13	.001	.619	.990	.968	.980	.041
Concept-oriented family Communication								
Single Concept	92.662	9	.000	.600	.966	.816	.890	.099
Two concept	28.665	8	.000	.533	.990	.949	.973	.052

Similarly, χ^2 GOF for single concept-oriented family communication was compared to χ^2 GOF for the disaggregated multi-components concept-oriented family communication model. The results showed that the hypothesised disaggregated multi-components concept-oriented family communication model ($\chi^2 = 28.665$) performed better than the single concept-oriented family communication model ($\chi^2 = 92.662$). The incremental fit measures also indicated great improvement to the hypothesised model (i.e., disaggregated multi-components concept-oriented family communication structure).

In conclusion, the findings of alternative model comparison converge with the results obtained from factor analysis, which demonstrated that socio and concept-oriented communication constructs performed better when modelled as a disaggregated two-factor structure. Based on the empirical findings as discussed, the researcher modelled socio and

concept-oriented family communication constructs as a disaggregated multi-components measure.

Construct Validity

There exists many ways to test construct validity in the literature. This study adopted Staub's (1988) measurement validation procedures to test construct validity in terms of convergent validity and discriminant validity. Prior to structural model testing, the construct validity and reliability were tested by checking the convergent validity, discriminant validity, and composite reliability of the data. The whole process of scale validation is delineated in the following sub-sections.

(a) Convergent validity

The measurement model specified how the observed indicators were related to unobserved constructs (Kline, 2005). Having fulfilled the goodness-of-fit indices assessment, the next step was to test convergent validity of the data. The convergent validity was assessed by checking the loading of each observed indicators on their underlying latent construct (Anderson and Gerbing, 1988). Table 2.1 presents the CFA results, which included the unstandardized and standardised factor loadings as well as the item reliability for each indicator.

Firstly, the factor loadings (i.e. the path estimate linking construct to indicator) were examined to identify potential problem with the CFA model. The standardised factor loading should be significantly linked to the latent construct and have at least loading estimate of 0.5 and ideally exceed 0.7 (Hair et al. 2006). Hence, insignificant loading with low loading estimate indicated potential measurement problem.

The CFA results (see Table 2.1) indicated that each factor loadings of the reflective indicators were statistically significant at 0.001 level. The factor loadings ranged from 0.390 (CON6) to 0.711 (SOCIO6). Following this, the squared multiple correlations (also called item reliability) in the CFA model was examined. Item reliability refers to the value that represented the extent to which an observed indicator's variance was explained by the underlying construct (Hair et al. 2006). The majority of the squared multiple correlations of indicators in the measurement model were lower than the acceptable level of 0.50 (Bollen, 1990).

Although the items did not meet the 0.50 cut-off, these items were retained considering that they were important indicators and the content validity associated with these items was high (Hair et al. 2006). This was also because other estimate such as factor loading, variance extracted and composite reliability remained satisfactory. Further, deleting these items would leave fewer items than three on some constructs that might lead to subsequent identification problem (Byrne, 2001).

Construct reliability and variance extracted measures

Other than fulfilling the factor loadings and item reliability criteria, the convergent validity assessment also included the measure of construct reliability and variance extracted. According to Fornell and Larcker (1981), variance extracted refers "to the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error". Further, Fornell and Larcker (1981) suggested that variance extracted to be a more conservative measure than construct reliability.

Additionally, two other criteria were assessed to ensure convergent validity: (1) construct reliability should be greater than 0.7 (Nunnally, 1978), and (2) variance extracted (VE) for a construct should be larger than 0.5 to suggest adequate convergent validity (Fornell and Larcker, 1981). Table 2.2 summarises the results of construct reliability and variance extracted for each construct.

In this study, the variance extracted values for the main constructs exceeded the cut-off of 0.50 recommended by Fornell and Larcker (1981). The measurement model was further assessed to determine the constructs reliability. The results displayed adequate reliability in that the reliability of each construct exceeded the 0.7 threshold (Nunnally, 1978) with the exception of “concept-oriented family communication” construct. The construct of “concept-oriented family communication” had the lowest alpha coefficient at 0.672. Nevertheless, the reliability for concept-oriented family communication was well exceeded the acceptable value of 0.60 for the social science research (Peter, 1979).

Generally, the present findings indicated that the constructs have achieved a range of fairly good to very good reliabilities among indicators to measure the latent constructs except for the “concept-oriented family communication” constructs. The construct reliabilities for the two dimensions socio-oriented and concept-oriented family communication in the present study were relatively similar to Rose, Bush and Khale (1998) findings in the United States and Japan, and Chan and McNeal (2003) findings in China. The two dimensions also performed slightly better than the recent study conducted by Chan and Prendergast (2007) in Hong Kong.

Table 2.1. Indicator loadings and item reliability (Revised Measurement Model)

Latent Construct	Items	Unstandardised factor loading	Standardised factor loading	Standard Error ^a	Critical Ratio ^b	Item Reliability
Socio-oriented family communication	SOCIO 1	1.057	.471	.111	9.494	.222
	SOCIO 2	1.147	.525	.114	10.078	.275
	SOCIO 3	1.209	.561	.116	10.394	.315
	SOCIO 4	1.000	.533	-	^c	.284
	SOCIO 5	.923	.630	.065	14.187	.397
	SOCIO 6	1.097	.711	.075	14.646	.505
	SOCIO 7	1.000	.667	-	-	.445
Concept-oriented family communication	CON1	.627	.421	.063	10.017	.178
	CON2	.971	.682	.075	12.924	.465
	CON3	1.000	.695	-	-	.483
	CON4	1.745	.676	.197	8.837	.457
	CON5	1.288	.522	.154	8.377	.272
	CON6	1.000	.390	-	-	.152

Fit indices: $\chi^2 = 907.624$, $\chi^2/df = 2.125$, GFI = 0.943, TLI = 0.926, CFI = 0.936, RMSEA = 0.034. Note: ^a S.E. is an estimate of the standard error of the covariance; ^b C.R. is the critical ratio obtained by dividing the estimate of the covariance by its standard error. A value exceeding 1.96 represented significance level of 0.05; ^c some critical ratios were not calculated because loading was set to 1 to fix construct variance; All item loadings in CFA model were significant at 0.001 level.

Table 2.2. Confirmatory factor analysis for convergent validity

Construct	No. of Items	Factor Loading	Construct Reliability	Variance Extracted
Socio-oriented family communication	7	0.471-0.711	0.703	0.535
Concept-oriented family communication	6	0.390-0.695	0.672	0.550

Taken together, the evidence supported the convergent validity of the measurement model. Although the composite reliability for “concept-oriented family communication” did not meet the recommended level, these values were just below the cut-off of 0.70. The variance extracted associated with the constructs was satisfactory and exceeded the recommended cut-off point of 0.50. In addition, the CFA model fits relatively well and most factor loading estimates were significant and exceeded 0.50. Hence, all the items were retained at this point and adequate evidence of convergent validity was provided.

(b) Discriminant validity

This section presents a common method of assessing discriminant validity. It is to be noted that, a more conservative approach for establishing discriminant validity was employed (Hair et al. 2006). As suggested by Fornell and Larcker (1981), discriminant validity was determined by the variance extracted value, namely whether or not it exceeded the squared inter-construct correlations associated with that construct. It was found that the variance extracted of each construct was all above its squared correlation with other constructs. Following Fornell and Larcker’s (1981) guidelines, it was evident that these results lent adequate evidence for discriminant validity of the present measurement model. Overall, the required reliability and validity assessment demonstrated strong support for satisfactory convergent validity and discriminant validity.

Conclusions

The purpose of this study was to validate a family communication instrument commonly used in consumer socialization research. Using a combination of exploratory and confirmatory factor analytic approaches, this research replicated a family communication measure. Initially, an exploratory factor analysis (N=956) evaluated two solutions, ranging from 1 to 2 factors. Next, a confirmatory factor analyses, using the sample (N=956), examined the two-factor model identified by the exploratory factor analysis.

The findings of alternative model comparison converge with the results obtained from factor analysis, which demonstrated that family communication constructs performed better when modelled as a disaggregated two-factor structure. The two-factor model of family communication structure was developed as a result of an extensive review of literature, with a sample of young adults consumers in order to test the factorial structure of the scale, and

a CFA to confirm the two-factor model and to provide further reliability evidence. Overall, the required reliability and validity assessment demonstrated strong support for satisfactory convergent validity and discriminant validity.

In addition, the results of the CFA also indicated that the two-factor model showed a good fit with high fit indices. The latent structure of family communication measure seems better represented by two factors for socio-oriented family communication with 7 items, and concept-oriented family communication with 6 items. These factors and items are essential to being successful in consumer socialization research and commonly suggested in the previous questionnaires.

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