

Running Head: Assessment of volunteerism in Chinese adolescents

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Exploration of the factorial structure of the Revised Personal Functions of the  
Volunteerism Scale for Chinese adolescents

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## Abstract

Participation in volunteer services can be regarded as an indicator of quality of life among adolescents. The Volunteer Functions Inventory (VFI) has long been used to assess the underlying motives of volunteers. Owing to conceptual, methodological and empirical limitations, the VFI could not be fully endorsed to understand Chinese adolescent volunteerism. Another scale was devised, called the Revised Personal Functions of the Volunteerism Scale (R-PFVS). This study focused on the exploration of the factorial structure of the R-PFVS. The R-PFVS was administered to a large sample of Chinese adolescents ( $N = 5,946$ ). Data were split into two halves: one for exploratory factor analysis and the other for confirmatory factor analysis. The scale showed good factorial validity. Seven factors were revealed, namely, well-being, learning, socializing, pro-social competence, altruistic concern, future plan, and civic responsibility functions. The factors were highly correlated with each other. A second-order factor model was established, and all seven factors were loaded on this higher-order abstract factor. The R-PFVS subscales and the overall scale demonstrated good internal consistency. The findings were compared with the VFI. The R-PFVS can be used in assessing the underlying motives behind volunteerism among Chinese adolescents and in studies on the quality of life.

For more than 10 years, the Volunteer Functions Inventory (VFI) has been used to assess the underlying motives of volunteers (Clary et al., 1998). Despite its popularity in the literature and wide use in social services (e.g., Clary et al., 1994; Kim, Zhang, & Connaughton, 2010; Omoto & Snyder, 1993, 1995; Wu, Lo, & Liu, 2009), this paper argues that its conceptual framework, the resulting empirical findings, and the instrument itself have some limitations; hence, it cannot be directly used to measure the volunteering motives of Chinese adolescents. Law (2008) had revised the VFI and added other items to form a new scale, producing the Revised Personal Functions of the Volunteerism Scale (R-PFVS). The R-PFVS can measure adolescents' underlying motives to volunteer more accurately. Following that study by Law (2008), this paper further explores the factorial structure of the R-PFVS.

Volunteer service refers to “an activity that is not undertaken for financial gain. It is undertaken out of one’s own free will. The activity is arranged by a formal agency. It brings benefits to the third party as well as to volunteers. The third party does not include family members, friends, and neighbors” (Law, 2008, p.6). Volunteerism and social development are closely related. One aim of community development is to facilitate cooperation in the community through volunteerism (Midgley & Livermore, 1998). Many services would not be possible without the participation of volunteers. Several social work values and ideals, notably social justice, service, dignity, and empowerment, are actualized through participation (Finn & Checkoway, 1998; Kahle & Westheimer, 1996). In addition, adolescent volunteerism is an integral part of positive youth development. Adolescents can attain social, emotional, cognitive, behavioral, and moral competence through service (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004; Pittman, Irby, & Ferber, 2001; Shek, 2007; Youniss, McLellan, & Mazer, 2001). Research shows that prosocial behavior, such as participation in volunteer service, is closely related to the emotional quality of life of adolescents (Sun & Shek, 2010). In fact, adolescents around the world are actively participating in volunteer services (Commission on Youth, 1998; Flanagan, Jonsson, & Botchera, 1999; Hodgkinson, 1995; Independent Sector, 2010). In Hong Kong, around 53.4 percent of adolescents have served the community for 12 months (Law & Shek, 2009a), and this is a significant figure. Most of the services are offered by the social work sector (Hong Kong Federation of Youth Groups, 2001; Liu, Holosko, & Lo, 2009). Examining volunteerism among adolescents is thus related to social development, youth development, and social services for the youth.

Given the importance of volunteer service participation by adolescents, one pertinent concern for youth workers and researchers is motivating adolescents to become volunteers (initiation) and sustaining their participation (continuation) (e.g., Chapman & Morley, 1999; Ellis, 2002; Marta, Rossi, & Boccacin, 1999; Rious & Penner, 2001; Snyder, Clary, & Stukas, 2000). The cognitive motivational approach (Kruglanski, 1996) suggests that our motives are the foundation of our behavior. Understanding motives can shed light on the practical implications of volunteerism. Cnaan and Goldberg-Glen (1991) proposed that people volunteer because of a combination of various motives, suggesting a unitary motive approach. On the other hand, Latting (1990) proposed that people volunteer because of self-centered and other-centered motives, suggesting a dual motive approach.

One seminal work on the exploration of underlying motives is the Volunteer Functions Inventory (VFI) (Clary et al., 1998). Functionalism asserts that a person volunteers because volunteering brings certain purposes or functions to him/her. Although services may be similar on the surface, different people volunteer with different underlying beliefs, purposes, or perceived functions (Katz, 1960; Smith, Bruner, & White, 1956). These functions are the motives behind participation. If we know the underlying functions (motives) of volunteers, then we will know the ways of attracting them into volunteering and to sustain their participation. VFI is a scale commonly used to assess the functions of volunteerism (Clary et al., 1998). The six functions of volunteers according to the VFI are (1) pro-social values function (volunteers express pro-social values related to altruistic concerns for others); (2) understanding function (volunteers acquire skills and knowledge from the service); (3) career function (the experience of volunteer service is beneficial to volunteers' career pursuit); (4) social function (volunteers are influenced by the people around them to participate in service); (5) enhancement function (volunteers have more positive self-worth); and (6) protective function (volunteers forget personal problems and other negative feelings).

According to Clary et al. (1998), factor analyses show that six factors corresponding to the aforementioned functions can be extracted, and these factors are stable across two random samples of volunteers (coefficients of congruence of the sub-scales range from .93 to .97). In addition, the VFI and its subscales are internally consistent (alphas range from .80 to .89). VFI has been applied in the study of adult volunteers and older volunteers (Clary et al., 1998). The translated scale was already

applied to Hong Kong university students (Wu et al., 2009). VFI has been intentionally applied to attract volunteers with high scores of particular functions to serve through the corresponding advertised messages (Clary et al., 1994; Clary, Snyder, & Stukas, 1996). The instrument has also been used to entice adult volunteers to work with possibly stigmatized service recipients, such as AIDS patients (Omoto & Snyder, 1993; 1995).

VFI outperforms its earlier counterparts because of its vigorous conceptual approach and psychometrically sound measures. Proposed motives are sporadically reported in different study areas, such as on prosocial values (Yates & Youniss, 1996; Penner & Finkelstein, 1998), learning (Omoto & Snyder, 2002), enhancement in job markets and educational endeavors (Andolina, Jenkins, Keeter, & Zukin, 2002), psychological enhancement (Magen, 1998; Carlo & Randall, 2002), and peer socialization (Bales, 1996; Dworkin, Larson, & Hansen, 2003). The functional approach, with its overarching metaframework, can succinctly summarize major underlying motives among volunteers.

Can the scale be fully endorsed to measure the motives of adolescents if we are interested in understanding the phenomenon in Chinese communities? This question is critical. If the measured findings are not entirely representative to the phenomenon, the conceptual and practical implications from the findings may not be totally meaningful. For instance, if there are additional motives other than those proposed by the VFI, the instrument cannot detect those additional motives. In fact, Law (2008) expressed his skepticism and advanced his conceptual, methodological, and empirical arguments.

Conceptually, there are three major limitations in measuring the underlying motives of Chinese adolescents behind volunteerism. First, factors in the VFI were actually borrowed from the literature on attitudes (Katz, 1960; Smith, Bruner, & White, 1956), which focuses on exploring universal underlying motives (or functions) towards the same surface behavior. The quest for some universal functions across different types of behavior in the literature on attitudes may have neglected some distinctive features of volunteerism. For instance, civic responsibility is a primary feature of volunteerism all over the world (e.g., Flanagan et al., 1999; Law & Shek, 2009a; Marta et al., 1999; Wilson, 2000). It is not mentioned in the literature on attitudes, and thus it was not used in the VFI. Second, Clary and his colleagues published the VFI in the 1990s (Clary et al., 1998), although its framework was

actually established in the 1960s (Katz, 1960; Smith et al., 1956). It should be noted that research and theoretical advancement in altruism and cognitive reasoning flourished in the 1980s (Batson, Ahmad, & Tsang, 2002; Davis, 1996; Dovidio, 1991). New or more refined factors, which emerged from these updated and topic-relevant studies, might have been neglected in the formulation of the VFI. Barnett, Thompson, and Schroff (1987) have long argued that “incompetence” accounts for unhelpful behavior among early adolescents. Prosocial values consist of the dimensions of altruistic concerns and prosocial competence (Eisenberg, Carlo, Murphy, & Van Court, 1995). However, prosocial competence is not examined in the VFI. Third, if we want to measure the motives of Chinese adolescents, both “cultural” and “adolescent” perspectives should be considered. The Chinese tend to view happiness and unhappiness as two sides of the same coin (Lu, 2001). There are two distinctive functions in the VFI: “enhancement” and “protective” functions. However, in the Chinese context, these two discrete functions in the VFI can be merged into one function. In addition, Chinese culture encourages adolescents to give top priority to helping their own families (Lau & Kuan, 1995). Family-related collective behavior is a distinctive type of in-group collectivism (Realo, Allik, & Vadi, 1997). In-group collectivism does not often support help out-groups (Triandis & Suh, 2002), while volunteerism involves helping out-groups. Thus, the VFI does not consider the cultural dimension of helping. Further, adolescents spend more time with peers, and the peer system is becoming more important in adolescent development (Hartup, 2005). Through participation, adolescents get along and socialize with peers. They tend to consider whether their peers will join the service and whether they will accept or praise the activity. This is an important motivation for adolescents in volunteering (i.e., getting along with peers) not considered in the VFI. One may argue the social function in the VFI includes this purpose (Clary et al., 1998). However, this VFI function in fact refers to the influence from people around volunteers, which cannot represent the distinctive “socializing” purpose of adolescents.

The VFI scale itself was initially developed for adult volunteers in the West; hence, it may not be fit for all. Specifically, some items do not completely fit Chinese adolescents. First, some items are not suitable to respondents with no service experience, such as VFI Item 8 [I am truly concerned about the organization which I am *working for* (italics added)]. Some items should be modified to the life experiences of adolescents, such as VFI Item 10 [I can make new contacts that might

help my *business or career* (italics added)]. The instrument should be modified if we want to measure the general beliefs of Chinese adolescents about volunteerism. Further, the VFI adopted a 7-point Likert Scale (1 = *not at all important*; 7 = *extremely important*), with a middle neutral answer. Chinese respondents tend to choose the neutral answer (Law, 2008). Then the scale cannot detect whether respondents agree or disagree with certain items. The scale sensitivity in measuring motives is reduced. An even-numbered Likert scale is thus preferred so that the responding tendency can be assessed.

There is a need to refine the VFI. VFI Item 29 (Volunteering is a way to make new friends) had low loading under the “enhancement” function in Clary et al. (1998). They did not report the factor loadings of this item under other functions. Thus, an alternative explanation cannot be proposed. In fact, Item 29 was again reported to be problematic in Wu et al. (2009) in their validation studies. In Study 2 of Clary et al. (1998), some loading scores are below .40 (e.g., Items 12 and 29). They also did not report the factor loading scores of all items, preventing readers from getting the full picture. The factor structure may not be completely stable. In addition, Okun, Barr, and Herzog (1998) argued the possibility of a higher order factor overlying the primary factors. This second-order model has not been verified. Most importantly, the VFI has not been used to explore the phenomenon of adolescent volunteerism. The first author of this paper worked with the youth in Hong Kong for more than 10 years. From his observation and experience, the underlying motives of adolescent volunteerism as depicted in the VFI may not entirely be accurate.

The VFI is very useful in assessing the general motives of volunteers. It was the first approach to capture all underlying motives, and it has produced tremendous empirical research findings. Some aforementioned problems, notably the choice of functions, come from the inherent conceptual framework of the VFI. Some arise when the scale is used to measure the motivation of Chinese adolescents behind their participation in volunteer services. If we want to examine the phenomenon more closely, modifications are required. In fact, modification is not a new thing for the VFI. It has once been modified by Kim, et al. (2010), but they maintained all the item contents of the VFI. The only modification was the addition of a particular context (i.e., sports organization). The factors proposed were the same as those in Clary et al. (1998). On the other hand, Esmond and Dunlop (2004) recognized the limitation of the VFI and designed a new scale by adding new statements. The scale was comprised

of ten underlying motives. Unfortunately, the factorial structure of the new scale was not evaluated.

In view of the limitations of the VFI in assessing the motives of Chinese adolescents in service participation, Law (2008) constructed another scale called the Revised Personal Functions of the Volunteerism Scale (R-PFVS). The new scale aims to describe the underlying motives behind volunteerism among Chinese adolescents. There are seven conceptual dimensions of the R-PFVS:

- (1) Altruistic concern function: To express pro-social values related to altruistic concerns for others (similar to the VFI's values function)
- (2) Learning function: To learn new skills and knowledge from the service (similar to the VFI's understanding function)
- (3) Future plan function: To build a stronger resume for future plans or for better education (similar to the VFI's career function)
- (4) Socializing function: To get along with peers (new function)
- (5) Prosocial competence function: To have a sense of competence from helping others (new function)
- (6) Civic responsibility function: To build a better community by participation (new function)
- (7) Well-being function: To enhance a positive sense of self-worth or to forget personal problems and unhappiness (combining enhancement and well-being functions)

The social function of the VFI is not endorsed in the new scale. Nevertheless, the new functions are socializing, civic responsibility, and prosocial competence functions.

Although the conceptual framework of the R-PFVS is slightly different from the VFI, the VFI items serve as the foundation of the new scale (Law, 2008). Several scale construction procedures and results are highlighted in this work, although interested readers may also refer to Law (2008). The VFI was initially translated to Chinese by a professional translator and then was back translated to English from Chinese by another professional translator. Discrepancies between the English and Chinese versions were evaluated and were gradually reduced through an iterative review process by one of the two translators and by the first author. New items from the new dimensions were added. Twelve adolescents chosen by convenience sampling evaluated the translated scale. Some VFI items were retained, modified, or removed.



An expert panel of five professionals (helping professionals and teachers) was constituted to evaluate the content validity of the scale, which turned out to be acceptable. The final list of the 32-item R-PFVS is attached in Appendix 1. Appendix 2 shows the VFI items not endorsed in the R-PFVS, making the similarities and differences between these two scales more explicit. It should be noted that the R-PFVS adopted a 6-point Likert scale (1 = *strongly disagree*; 6 = *strongly agree*), enabling the scale to measure the tendency of the responses more sharply.

Law (2008) reported several studies validating the psychometric properties of the R-PFVS. A pilot study using 192 students yielded satisfactory results of high reliability (Cronbach's alpha = .89). The score for volunteers was higher than that of the non-volunteers ( $t = 3.85, p < .001$ ). Moreover, the coefficients of congruence for the factor solution across two samples were .98 to .99. Test-retest reliability was also performed with a different group of adolescents. The scale was completed at an interval of three weeks. Test-retest reliability was high ( $r = .79, p < .001$ ). A further large scale study assessing 5,946 volunteer adolescents in Hong Kong yielded high reliability (Cronbach's alpha = .91).

Law's study (2008) also explored the factorial structure of the R-PFVS. He adopted principal components analysis (PCA) with varimax rotation. He removed items with double loadings (using .4 as criterion) and with low item-total reliability. As a result, he finally retained 20 items and removed scores from 12 items for further analysis. Subsequently, he produced five instead of seven factors. The five factors are (1) learning and civic responsibility, (2) well-being, (3) prosocial value and prosocial competence, (4) socializing, and (5) future plan. The removal of 12 items resulted in a clear summary of the data, as he aimed for an orthogonal solution. However, useful information from the removed item scores may provide meaningful implications.

PCA is not the best option in understanding the latent structure of a measurement (Costello & Osborne, 2005; Fabrigar, Wegener, MacCallum, & Strahan, 1999), as it only aims to reduce data and to summarize variables. Exploratory factor analysis can provide better results because its error variance is separate from understanding the factorial structure. In addition, confirmatory factor analysis (CFA) can be used to explore the factorial validity of the measurement. Several competitive models can be compared to determine a better model.

Against this background, the present study is a re-analysis of the responses from 5,946 adolescents in Law (2008) using all 32 items and with better data reduction

strategy, hence validating the factorial structure of the R-PFVS. Although the R-PFVS was hypothesized to measure seven separate motives in volunteerism, the extent to which they are distinguished by adolescents requires further investigation. There are four models to be tested, namely, the five-factor model, six-factor model, seven-factor model, and second-order model. The findings of Law (2008) revealed five factors. The learning function (in the VFI) consist of both “learning” and “civic responsibility” in Law (2008). It is understandable that learning a social problem and alleviating it can be viewed as the continuation of the same issue. The prosocial value function consists of both “altruistic concern” and “prosocial competence” functions. Thus, this is the five-factor model. Between the pairs “learning vs. civic responsibility” and “prosocial competence vs. altruistic concern,” the content distinctions between learning function and civic responsibility are more explicit. These two functions can be split. Thus, the six-factor model is formed. Finally, the proposed seven-factor model consists of the seven separate motives in adolescent volunteerism. When we have different yet similar opinions towards a subject matter, these opinions combine together as one general opinion (Cnaan & Goldberg-Glen, 1991). This suggests a higher-level abstract function encompassing the primary factors. Empirically, if the factors are highly inter-related, this may indicate the possibility of a more general motive operating at a higher level, influencing these specific motives at a lower level. Okun et al. (2003) suggested the possibility of a higher order factor (i.e., a second-order model) in understanding motives behind volunteerism. If this were the case, the second-order model would be more suitable in understanding the latent structure of motives behind volunteerism compared with simple reliance on primary factors.

## Methods

### *Participants and Procedure*

A total of 5,946 secondary school students [2,193 boys (36.9%), 3,744 girls (63.1%)], and 9 participants of undisclosed gender) participated in the study. By convenience sampling, students were recruited from 31 secondary schools and 1 Protestant youth fellowship. Among the participants, 66% were juniors [S. 1 (Grade 7) to S. 3 (Grade 9), aged 11 to 14], whereas 34% were seniors [S.4 (Grade 10) to S.6 (Grade 12); aged 15 to 19]. The mean age of the participants was 14.77 years ( $SD = 1.60$ ). The subject to item ratio (32 items) was 185:1, which is very high in terms of factor stability (Costello & Osborne, 2005).

Both parental and participant consent were obtained. With adequate time, all participants completed the self-administered inventory questionnaire. Demographic characteristics were also collected.

### *Instrument*

In the questionnaire, participants responded to the R-PFVS, which contained 32 items. Responses were made on a 6-point Likert scale [*strongly disagree* (1) to *strongly agree* (6)]. The items measured seven specific functions (motives) that may be served by volunteerism: altruistic concern, learning, future plan, well-being, socializing, prosocial competence, and civic responsibility. In terms of internal consistency, the items had reliable scales in highlighting the motives of adolescents behind their participation in volunteer services. The validation studies by Law (2008) have shown that the Cronbach's alpha coefficients of the sub-scales range from .89 to .91, which are highly satisfactory.

### *Data analytic strategy*

Data on the R-PFVS items were randomly divided into two halves: one for the principal components analysis (PCA) and principal axis factoring (PAF), and the other for confirmatory factor analysis (CFA). Clary et al. (1998) adopted similar factor analytic procedures. PCA was initially used to estimate the underlying number of factors. Promax rotation was used because factors were inter-related to each other. Scree plot test was used to determine the number of extracted factors. We obtained the number of factors by PCA, which was used as a criterion in PAF. Subsequently, PAF with oblique rotation method was conducted. The oblique rotation method was used because the factors were hypothesized to be inter-related. The criteria used to determine the factors and their items included the following: (1) a factor has an eigenvalue equal to or greater than 1.0 (Kaiser, 1974); (2) an item has a factor loading equal to or greater than .40 (Stevens, 2002); (3) a factor has at least three items (Hair, Anderson, Tatham, & Black, 1998); and (4) an identified factor and retained items are interpretable in the theoretical context. Factors are expected to be inter-related (Clary et al., 1998); thus, the criterion of removing items with double loadings, which was adopted in Law (2008), was not used in this study. The second half of the data was used for CFA. Before testing the hypothesized model parameters, a preliminary analysis was conducted to check any violations of the multivariate normality assumption and the skewness and kurtosis values of all items. This preliminary step is important because the maximum likelihood estimation method (ML) only correctly

estimates the model assuming the multivariate normality of the observed variables (Breckler, 1990; Curran, West, & Finch, 1996).

The CFA has two parts. First, the theoretical dimensions of R-PFVS were evaluated in terms of the overall fit of the model. Second, hierarchical confirmatory factor analysis (HCFA) was used to examine the higher-order structure of the R-PFVS. Using the seven factors as foundation, four specified models were assessed:

Model 1: *Five-factor model*. Based on the findings of Law (2008), five factors were assessed: (1) learning and civic responsibility, (2) altruistic concern and pro-social competence, (3) socializing, (4) future plan, and (5) well-being.

Model 2: *Six-factor model*. Civic responsibility is distinct from learning function (Flanagan et al., 1999; Marta et al., 1999; Wilson, 2000); hence, six factors were assessed, namely, (1) learning, (2) civic responsibility, (3) altruistic concern and pro-social competence, (4) socializing, (5) future plan, and (6) well-being.

Model 3: *Seven-factor model*. According to the proposed conceptual framework, seven factors were assessed, namely, (1) learning, (2) civic responsibility, (3) altruistic concern, (4) pro-social competence, (5) socializing, (6) future plan, and (7) well-being.

Model 4: *Second-order factor model*. Positive correlations are generally observed among factor scores (Wu et al, 2009), indicating the possibility of a more general and overarching motive operating at a higher level of abstraction encompassing these seven factors. A second-order factor accounting for the covariations among first-order factors was specified. All these first-order factors were forced to load on a second-order factor.

To evaluate the overall fit of the models, several fit indices were employed: chi-square ( $\chi^2$ ), root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), standardized mean square residual (SMSR), Bentler-Bonett nonnormed fit index (NNFI), comparative fit index (CFI), and the expected cross-validation index (ECVI) (Schumacker & Lomax, 2004; Tanaka, 1993). For GFI, CFI, NNFI, there is a general agreement that the value of .95 or greater indicates a satisfactory fit (Schumacker & Lomax, 2004). SRMR and RMSEA values below .08 and .06, respectively, represent acceptable model-data fit (Hu & Bentler, 1999). The ECVI should be as low as possible. Among the aforementioned indices, both SRMR and

RMSEA are the most important indicators, although other indicators (e.g. chi-square or ECVI) yield marginally better results. In addition, if the primary factor model and the second-order model share similar SRMR and RMSEA, it is generally agreed that the second-order model is more parsimonious in explaining the data. Hence, it is deemed superior. All analyses were conducted using covariance matrices via LISREL 8.80 (Jöreskog & Sörbom, 2006).

### *Results*

We conducted a factor analysis of participant responses to the R-PFVS. Beginning with PCA and promax rotation with the first half of the sample ( $N = 2,973$ ), we identified seven components with eigenvalues greater than 1.0, suggesting that there were seven factors behind the responses to the R-PFVS. For the first 12 components of the analysis, the eigenvalues (with the percent variance in parentheses) were 10.69 (33.39%), 2.65 (41.68%), 1.62 (46.74%), 1.41 (51.15%), 1.33 (55.33%), 1.23 (59.19%), 1.00 (62.32%), .98 (65.38%), .85 (68.03%), .79 (70.49%), .73 (72.77%), and .68 (74.90%). In addition, the resulting scree plot of the eigenvalues revealed that the leveling off to a straight horizontal line occurred after the seventh eigenvalue, further suggesting seven factors.

With this evidence indicating a seven-factor solution, we then performed PAF with promax rotation to a pre-selected seven-factor solution. The same dataset was used. Seven factors emerged, explaining 62.32 percent of the total variance in the structure matrix. The factors that emerged from this analysis clearly reflected each of the functions that we proposed. The items from each subscale were loaded on their intended factors. On the other hand, one item (Item 5) had low loading (i.e., below .20), hence failing to meet the criterion. Although the item did not affect overall reliability, it was excluded from further analysis, resulting in a final scale of 31 items. All items are shown in Appendix 1. The seven factors were labeled as well-being, learning, socializing, civic responsibility, future plan, altruistic concern, and pro-social competence functions.

After the factors were initially examined by PCA and PAF, CFA was employed to analyze the second half of the total sample. Before using the CFA, data assumption was verified. The assumption of univariate normality was supported (i.e., the skewness and kurtosis values of all variables were lower than 2 and 7, respectively) (Chou & Bentler, 1995; Curran et al., 1996; Finney & DiStefano, 2006). Therefore,

ML was used. The listwise deletion method was used to deal with data assumed to be missing completely at random (MCAR). The effective sample size was 2,725 out of 2,973. The amount of missing data was less than 9 percent.

The CFA models were tested. Table 2 shows the overall goodness-of-fit indices of the models. Generally, the seven-factor model (Model 3a) fitted the data slightly better than the other models (Model 1 & Model 2), demonstrating the seven dimensions of the R-PFVS. Large modification indices (i.e., MI above 1000) were calculated in three pairs of error covariance (i.e., Items 14 and 15; Items 16 and 17; Items 22 and 23). These parameters were allowed to be free because they belonged to the same factor, leading to Model 3b. A closer examination of these pairs revealed that their contents were very similar (see Appendix 1), which might cause large MI. This modified model fitted the data well [ $\chi^2_{(410)}=5061.65, p < .01$ ; CFI = .97; GFI = .87; NNFI = .96; RMSEA = .07; SRMR = .07; EVCI = 2.38 (Range = 2.28 to 2.47)].

Cronbach's alpha coefficients for the seven factors ranged from .65 to .89 (Table 3). The overall Cronbach's alpha for the R-PFVS was .93, which was very satisfactory. The high correlations among the factors (ranging from .43 to .77, Table 3) suggested the hierarchical structure of the models (Brown, 2006; Marsh & Hocevar, 1985). Therefore, a second-order model was tested (Model 4).

In this model, all first-order factors were subsumed under a second-order factor (Figure 1). The goodness-of-fit indices of this hierarchical model reached acceptable levels [ $\chi^2_{(423)}=5220.01, p < .01$ ; CFI = .97; GFI = .87; NNFI = .96; RMSEA = .07; SRMR = .07; EVCI = 2.45 (Range = 2.35 to 2.55)]. All first-order factors strongly loaded on the second-order factors (ranging from .68 to .89) (Table 4). RMSEA and SRMR indices were the same for Models 3b and 4, although the chi-square index and the EVCI of Model 3b were marginally better. A hierarchical model is generally preferred if the fit of the higher-order model is not worse than its lower-order counterpart. The hierarchical model provides a more parsimonious solution (Bong, 1997; Marsh, Balla, & McDonald, 1988). Therefore, Model 4 demonstrated the presence of the hierarchical structure of the R-PFVS.

In short, instead of four models, one new model (Model 3b) was additionally tested during data analysis. Altogether we have tested five models. Generally, the findings of the present study showed the existence of a seven-dimensional R-PFVS. The second-order factor model fitted the data better than the primary factor models, suggesting that the 31-item R-PFVS has a satisfactory hierarchical structure with a

general factor overlying the seven factors. This study demonstrated the factorial structure of the R-PFVS.

### Discussion

The present study aims to evaluate the factorial structure of the R-PFVS. The basic theoretical tenets of this new scale are the same as those of the VFI (Clary et al., 1998). Both R-PFVS and VFI adopt the functionalist approach in understanding the underlying motives behind people's volunteering behavior. Various underlying motives are neatly united under one framework.

The VFI has been widely used in the literature on volunteerism for more than 10 years, with its dimensions remaining unchallenged. Other possible motives of particular groups having different cultures or life circumstances are either dismissed or rejected. In addition, some motives, such as civic responsibility and prosocial competence, may be implied but not too explicitly in the VFI. Consequently, the measurement may not entirely be reflective of a particular phenomenon.

The rationale behind the R-PFVS is to understand the underlying motives of adolescent volunteerism in Chinese communities more closely. Conceptual and practical implications for Chinese adolescents can be derived.

Originally the R-PFVS consisted of 32 items. One item, Item 05, was removed because it had low factor loading. The statement format of Item 05 was different from the rest and its content, i.e. agreement of a Chinese idiom, might not be related to adolescent volunteerism. Thus the final list of R-PFVs consisted of 31 items. The underlying motives in the VFI are learning, values, protective, enhancement, career, and social functions, while those in the R-PFVS are understanding, altruistic concern, prosocial competence, well-being, future plan, socializing, and civic responsibility functions. It can be argued that the seven functions of the R-PFVS are derived from the six functions of the VFI:

- (1) Learning function in the VFI consisted of both understanding and social responsibility components (e.g. VFI Item 12 under learning function: I can learn more about social problems through volunteering). In the R-PFVS, these two components were differentiated. One characteristic of adolescent volunteerism is that adolescents are encouraged to participate in volunteer services to heighten their sense of civic responsibility (Law, 2008; Marta et al., 1999).
- (2) Career function in the VFI is modified by adding the dimension of further study as the "future plan function" of the R-PFVS. Universities consider community

services as entry requirement; thus, some adolescents participate in volunteer service to improve their portfolios (Andolina et al., 2002; Zakour, 1994). The underlying content is similar to career function.

- (3) Values function in the VFI is divided into two functions in the R-PFVS: altruistic concern and prosocial competence. VFI Item 22 (under values function) is “I can do something for a cause that is important to me.” It carries the meaning of prosocial competence. Being competent to help is an invigorating experience among adolescents (Barnett, Thompson, & Schroff, 1987). Thus, prosocial competence is differentiated in the R-PFVS as one distinct motive. On the other hand, the inclusion of one item (Item 04) about Chinese in-group collectivism implies that the underlying motives of adolescents can be influenced by Chinese beliefs on helping. Those who help families more tend not to help out-groups, which is consistent with Chinese ethos (Lau & Kuan, 1995). In the R-PFVS, this item belongs to altruistic concern function.
- (4) Enhancement and protective functions in the VFI are merged into one function called the well-being function in the R-PFVS. There are two possible reasons for this. First is culture. The Chinese tend to treat happiness as being without unhappiness and troubles (Lu, 2001). In this sense, both statements “volunteering increases my self-esteem (VFI Item 13 under enhancement)” and “it helps me work through my personal problems (VFI Item 20 under protective)” can refer to the same thing among the Chinese. The second explanation is cognitive functioning. Adolescents, especially early adolescents, cannot differentiate between positive well-being and negative well-being (Haviland et al., 1994; Wilkinson & Walford, 1998). In addition to the current study, Kim et al. (2010) also reported a high correlation between enhancement and protective motives using the VFI with American young volunteers. The empirical findings support the argument that adolescents may not be fully capable to differentiate enhancement and protective functions.
- (5) The meaning of social function in the VFI is different from the socializing function in the R-PFVS. Social function in the VFI mainly refers to social influence. One distinctive feature of the psychosocial needs of adolescents is the greater amount of time that they spend with peers than with other people, such as their families (Hartup, 2005). The sense of meeting and getting along with peers is not strong in the VFI. In fact, no item in the VFI directly relates to



meeting peers as one of the motives behind volunteer service participation. In view of this knowledge gap, the socializing function in the R-PFVS is designed to refer to getting along with peers, which is a more noticeable motive behind volunteerism among adolescents.

Results showed that the seven functions of volunteerism were highly correlated with one another. There was a high relationship between pro-social competence and learning functions ( $r = .79$ ). Kim et al. (2010) also reported similar findings that among all correlations between values functions and other VFI motives, the correlation between values and understanding was the highest. Data used in Kim et al. (2010) also came from children and adolescents. The relationship signifies that by acquiring different skills and knowledge through volunteerism, adolescents gain a sense of self-efficacy and competence. The high relationship between learning and civic responsibility functions in the R-VPFS can be explained by the idea that learning about social problems in a society and the commitment to alleviate those problems are inter-related. In fact, in the VFI, both fall under the understanding function. Among the correlations, another interesting result was revealed: the lowest correlation was found between future plan and altruistic concern. A similar result was found in Kim et al. (2010). This finding implies that helping because of altruistic concerns and helping because of a better educational endeavor are discrete motives.

Another comparison between the VFI and the R-PFVS lies in Item 16 of the R-PFVS (VFI Item 29: Volunteering is a way to make new friends). In Clary et al. (1998), this item attained the lowest factor loading in the enhancement factor. The loading deviated far from the loadings of other items in the same factor. Wu et al. (2009) found that the item doubly loaded with the career and understanding function, which is a non-target factor. Plausibly, this item does not totally fit any of the six motives in the VFI, and enhancement is the best option. In the present framework of the R-PFVS, this item served as the motive of “socializing” function. The data also fitted well. This evidence commands the revision of the scale item for a better model fit.

Clary et al. (1998) reported that the average intercorrelation among the six VFI sub-scales is .41. Kim et al. (2010) revealed that intercorrelations among the six VFI sub-scales range from .33 to .72. The current R-PFVS produced high correlations among factors (ranging from .43 to .77). The high inter-correlations paved the ground for the exploration of the second-order factor model. SRMR and RMSEA indices

were the same for Models 3b (first-order model) and 4 (second-order model); hence, the second-order factor model is more parsimonious in explaining the latent structure of the R-PFVS (Bong, 1997; Marsh, Balla, & McDonald, 1988). This is a conceptual breakthrough. Wu et al. (2009) attempted to explore underlying motives with the second-order model but found that the first-order model is better in explaining the data. The problematic VFI Item 29 might hinder the establishment of a second-order model. The current study shows that the seven motives under the R-PFVS are more highly intercorrelated with one another than the VFI factor scores. These seven motives can capture all primary reasons behind volunteerism among adolescents; hence, that they can be grouped under one more abstract motive. If one primary motive is not highly related to the rest, the second-order model would be more difficult to establish. This favors the case for modifying an established validated scale for a particular group of people in a particular society.

The development of the scale and the accumulation of research findings on the R-PFVS enable researchers to assess objectively the different motivating functions behind volunteerism among adolescents within the Chinese context. It has already been shown that motivating beliefs can predict volunteering behavior (Law & Shek, 2009b). Therefore, appropriate youth programs can be developed to enhance various volunteering motives for better service involvement. The scale can also be used to evaluate changes in the motives of volunteers after their service participation, as well as to sustain the sources of satisfaction and motivation of volunteers (Clary et al, 1998). There are a few available rapid assessment tools for the Chinese in the social work context (Shek, 2002; 2010). Further, almost all youth workers have to organize volunteer services for adolescents. One of the largest youth development programs in Hong Kong, Project P.A.T.H.S., suggests the use of volunteer service as an additional activity to enhance program effectiveness (Shek, 2007; Shek & Ma, 2010). The newly developed scale can be an indicator of effective evidence-based social work practice. In addition, owing to the formation of a higher-order solution, a short form of the R-PFVS consisting of only the highest loaded items of each function, that is, seven items grouped together, can be designed. A service organizer can then use this tool to conduct a quick check on adolescents participating in volunteer services.

The current study has several limitations. First, the research findings reported here were based on Chinese adolescents in Hong Kong. Therefore, there is a need to replicate the findings in other Chinese contexts. Second, although the sample size was

large, it was not randomly sampled. Thus, generalization of the findings to other Chinese adolescent groups should be conducted with caution. Third, although the current findings provided good evidence for the factorial validity of the R-PFVS, more central evidence on other aspects of validity, including convergent and discriminant validities, were not explored. Thus, it is recommended that strategies, such as multi-trait and multi-method strategies, be used in the future. Fourth, it is noteworthy that the goodness of fit of the proposed model in terms of SRMR and RMSEA indices can be regarded as “fair.” Therefore, there is a need to replicate the present findings. Fifth, because of the changes in the original VFI, a direct comparison between existing findings based on the VFI (e.g., Wu et al., 2009) and on the R-PFVS is not completely feasible. Finally, other motives may also be considered, such as reciprocity and recognition (Esmond & Dunlop, 2004). Despite these limitations, this study is the first to reveal the factorial structure of an instrument that measures the underlying motives of Chinese adolescents in volunteer service participation with “some degree of precision” (Clary et al., 1998, p.1519). This assessment tool can help us understand volunteerism as a measure of quality of life among Chinese adolescents.

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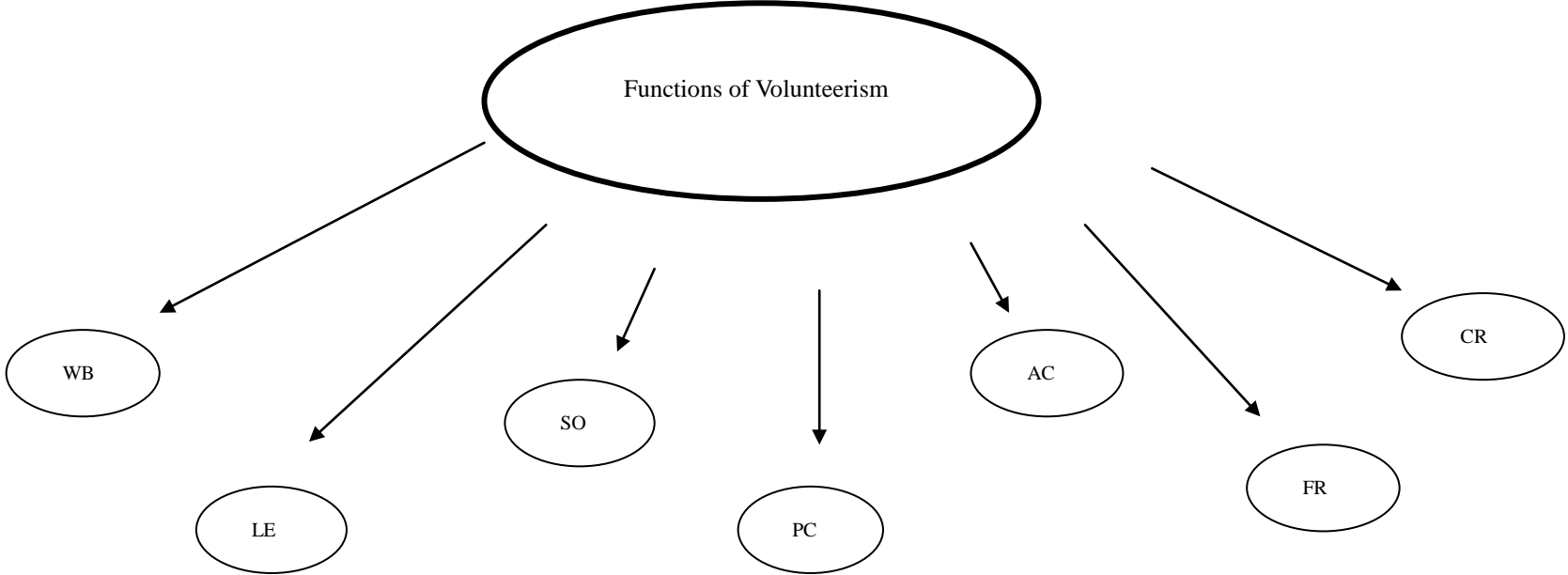
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**Table 1. The Revised Personal Functions of Volunteerism Scale (R-PFVS) Structure matrix (Principal-axis Factor analysis, promax rotation, seven factors specified)**

FACTOR	Factor						
	Well-being (WB)	Learning (LE)	Socializing (SO)	Prosocial Competence (PC)	Altruistic Concern (AC)	Future Plan (FP)	Civic responsibility (CR)
Variance explained	33.39%	8.29%	5.07%	4.41%	3.86%	3.86%	3.13%
item 01	.35	.31	.43	.47	<b>.75</b>	.22	.41
item 02	.31	.29	.44	.47	<b>.84</b>	.19	.42
item 03	.28	.26	.46	<b>.61</b>	.51	.16	.44
item 04	.10	.04	.26	.30	<b>.41</b>	.00	.18
item 05	.11	.09	.16	.19	.19	-.03	.08
item 06	.27	.29	.24	.17	.22	.23	<b>.43</b>
item07	.35	.32	.52	.33	.48	.24	<b>.81</b>
item08	.43	.39	.64	.37	.54	.26	<b>.78</b>
item09	.46	<b>.40</b>	.82	.33	.62	.29	.59
item10	.50	<b>.44</b>	.88	.34	.60	.27	.55
item11	.41	<b>.39</b>	.82	.34	.63	.28	.49
item12	.55	<b>.62</b>	.66	.31	.59	.32	.48
item13	.46	<b>.60</b>	.51	.31	.55	.30	.52
item14	.46	.34	<b>.84</b>	.15	.30	.33	.31
item15	.45	.34	<b>.84</b>	.14	.32	.34	.33
item16	.42	.59	<b>.60</b>	.22	.68	.34	.36
item17	.40	.63	<b>.51</b>	.20	.63	.38	.32
item18	.31	.56	<b>.44</b>	.15	.37	.47	.31
item19	.57	.64	.45	.16	.49	<b>.53</b>	.45
item20	.56	.62	.43	.11	.47	<b>.55</b>	.44
item21	.47	.47	.59	.20	.41	<b>.51</b>	.47
item22	.26	.31	.17	.05	.22	<b>.78</b>	.18
item23	.30	.34	.22	.04	.24	<b>.78</b>	.27
item24	<b>.75</b>	.44	.53	.25	.49	.29	.42
item25	<b>.78</b>	.44	.51	.25	.49	.30	.38
item26	<b>.75</b>	.51	.38	.18	.39	.30	.37
item27	<b>.41</b>	.25	-.01	-.00	-.06	.20	.04
item28	<b>.71</b>	.42	.39	.17	.46	.35	.39
item29	<b>.71</b>	.46	.53	.22	.63	.36	.44
item30	.35	.25	.50	<b>.66</b>	.39	.18	.43
item31	.54	.40	.45	<b>.61</b>	.29	.33	.41
item32	.37	.26	.39	<b>.54</b>	.33	.24	.39



**Figure 1. Measurement model for the second-order model of the Revised Personal Functions of Volunteerism Scale (ITEM)**



*Note.* WB=well-being; LE=learning; SO=socializing; PC=prosocial competence; AC=altruistic concern; FP= future plan; CR=civic responsibility.

**Table 2. Summary of Goodness-of-fit Indices for all CFA models**

Model	Description	$\chi^2$	df	CFI	GFI	NNFI	RMSEA (90% CI)	SRMR	ECVI (90% CI)
1	5-factor model	8772.42**	424	.96	.82	.94	.09 (.09-.09)	.08	3.39 (3.278-3.50)
2	6-factor model	8820.73**	419	.94	.80	.94	.09 (.09-.09)	.07	3.86 (3.74-3.99)
3a	7-factor model	8308.80**	413	.95	.81	.94	.09 (.09-.09)	.09	3.75 (3.63-3.87)
3b	7-factor model 3 pairs of error covariance were allowed to be related	5061.65**	410	.97	.87	.96	.07 (.07-.07)	.07	2.38 (2.28-2.47)
4	Second-order model	5220.01**	423	.97	.87	.96	.07 (.07-.07)	.07	2.45 (2.35-2.55)

Note:  $N_{\text{effective sample}}=2,725$ .  $\chi^2$ = chi-square; CFA=confirmatory factor analysis; CFI = comparative fit index; GFI = goodness-of-fit index; NNFI = Bentler-Bonett nonnormed fit index; RMSEA = root mean square error of approximation; SRMR= standardized root mean square residual; ECVI = expected cross-validation index. \*\* $p<.01$ , \* $p<.05$ .

**Table 3. Correlation Coefficients, Mean of Inter-item Correlations and Cronbach's  $\alpha$  among Factors based on Model 3b**

Factor	$\alpha$	Mean inter-item correlations	WB	LE	SO	AC	FP	CR	PC
WB	.83	.44	-						
LE	.89	.57	.64	-					
SO	.82	.53	.69	.77	-				
AC	.65	.39	.43	.61	.49	-			
FP	.80	.44	.65	.53	.75	.34	-		
CR	.69	.43	.51	.71	.56	.54	.44	-	
PC	.74	.42	.66	.79	.69	.75	.50	.68	-

Note. All parameters were significant ( $p<.05$ ).

WB=well-being; LE=learning; SO=socializing; PC=prosocial competence; AC=altruistic concern; FP= future plan; CR=civic responsibility..

**Table 4. Completely Standardized Factor Loadings, Uniqueness and Squared Multiple Correlations for the models**

	Model 4				
	First-order			Second-order	
	SMC	FL	U	FL	D
<u>Altruistic Concern</u>	.46			.68	.54
item01	.66	.81	.34		
item02 <sup>a</sup>	.70	.83	.30		
item04	.09	.30	.91		
<u>Prosocial Competence</u>	.79			.88	.22
item03	.37	.61	.63		
item30 <sup>a</sup>	.50	.70	.50		
item31	.43	.65	.57		
item32	.39	.63	.61		
<u>Learning</u>	.80			.89	.21
item09	.68	.82	.32		
item10 <sup>a</sup>	.75	.87	.25		
item11	.69	.83	.31		
item12	.52	.72	.48		
item13	.45	.67	.55		
<u>Socializing</u>	.68			.83	.31
item14	.28	.53	.72		
item15	.32	.57	.68		
item16 <sup>a</sup>	.60	.77	.40		
item17	.57	.75	.43		
item18	.37	.61	.63		
<u>Future Plan</u>	.42			.68	.49
item19 <sup>a</sup>	.65	.81	.35		
item20	.66	.81	.34		
item21	.38	.62	.62		
item22	.15	.39	.85		
item23	.21	.46	.79		

Note. All parameters were significant ( $p < .05$ ). FL = completely standardized factor loading; U = uniqueness; D= disturbance.<sup>a</sup> Item was fixed to a value of 1.0.

Table 4. (continued)

	Model 4				
	First-order			Second-order	
	SMC	FL	U	FL	D
<u>Civic responsibility</u>	.56			.75	.44
item06	.15	.38	.85		
item07	.59	.77	.41		
item08 <sup>a</sup>	.74	.86	.26		
<u>Well-being</u>	.44			.75	.44
item24 <sup>a</sup>	.57	.75	.43		
item25	.64	.80	.36		
item26	.49	.70	.51		
item27	.09	.29	.91		
item28	.49	.70	.51		
item29	.54	.74	.46		

Note. All parameters were significant ( $p < .05$ ). FL = completely standardized factor loading; U = uniqueness; D= disturbance.

<sup>a</sup> Item was fixed to a value of 1.0.

**Appendix 1. Items of the Revised Personal Functions of Volunteerism Scale (R-PFVS) and comparison with the Volunteer Functions Inventory (VFI)**

R-PFVS item no.	Item description	VFI item equivalence	Function in VFI	modification for R-PFVS
Altruistic concern function				
01	I am concerned about those less fortunate than myself.	3	values	no change
02	I feel compassion towards people in need.	16	values	no change
04	Apart from my family, I would not help other people. (Reversed scoring)	-	-	-
Civic responsibility				
06	I can help improve social problems with my own efforts.	-	-	-
07	I have a responsibility to improve HK's social problems	-	-	-
08	As a citizen of HK, it is important to participate in social affairs.	-	-	-
Learning function				
09	Volunteering lets me learn things through direct, hands on experience.	18	understanding	no change
10	Volunteering allows me to gain a new perspective on things.	14	understanding	no change
11	I can learn how to deal with a variety of people	25	understanding	no change
12	I can explore my own strengths	30	understanding	no change
13	I can learn more about social problems through volunteering.	12	understanding	slightly modified, from "cause" to "social problems"
Socializing function				
14	I can meet old friends in volunteer activities.	-	-	-
15	I can socialize with old friends in volunteer activities.	-	-	-
16	Volunteering is a way to make new friends.	29	enhancement	no change

17	I can socialize with new friends in volunteer activities.	-	-	-
18	I will be praised by friends for volunteering participation.	-	-	-
Future plan function				
19	Volunteering can help me to get my foot in the door at a place where I would like to work or further study.	1	career	adding "study" in addition to work
20	I can make new contacts that might help my studies or career through volunteer activities.	10	career	adding "study" in addition to "work"
21	Volunteering allows me to explore different career options.	15	career	no change
22	Volunteering experience will look good on my resume (or better personal portfolio).	28	career	no change
23	Volunteering makes it easier for me to enter university or better schools.	21	career	changing from "profession" to "schools"
Well-being function				
24	No matter how bad I've been feeling, volunteering helps me to forget about it.	7	protective	no change
25	By volunteering I feel less lonely.	9	protective	no change
26	Volunteering helps me work through my own personal problems.	20	protective	no change
27	Volunteering is a good escape from my own troubles.	24	protective	no change
28	Volunteering makes me feel important.	5	enhancement	no change
29	Volunteering increases my self-esteem.	13	enhancement	no change
Prosocial competence function				
03	I feel it is very important to help others.	19	values	no change
30	Helping others is the source of happiness.	-		
31	Volunteering makes me feel needed.	26	enhancement	no change
32	I believe I am capable of helping others.	-		

\*Item 05 “I agree with the statement ‘each family is only responsible for the snow outside his own house’, meaning I only concern the needs of my family” was removed because of low factor loading.

### **Appendix 2. Reasons of not endorsing some VFI items in the R-PFVS**

VFI	Item	Reasons of not adopting in pilot study (Law, 2008)
11	Doing volunteer work relieves me of some of the guilt over being more fortunate than others.	Chinese adolescents did not understand the meaning immediately because this feeling of guilt is “strange” among them.
8	I am genuinely concerned about the particular group I am serving.	The item is not applicable to non-volunteers.
22	I can do something for a cause that is important to me.	The term “cause” is too abstract to Chinese adolescents.
27	Volunteering makes me feel better about myself	The Chinese translation was very similar for VFI items 26 and 27. Thus only VFI 26 was adopted
2	My friends volunteer.	All items refer to the social influence by people. The “socializing function” in R-PFVS refers to getting along peers. Owing to different meanings, those items under social function in VFI are not endorsed.
4	People I'm close to want me to volunteer.	
6	People I know share an interest in community service.	
17	Others with whom I am close place a value on community service.	
23	Volunteering is an important activity to the people I know best.	