Structural Model of Strengths and Virtues on Basis of Positive Psychology*

Zhan Qisheng, Liu Yuanyuan
Tianjin University, Tianjin, China

Su Huili
Nankai University, Tianjin, China

Zhang Kuo, Feng Chuande
Tianjin University, Tianjin, China

Positive psychology is established by Seligman in the 1990s. It is related to a series of new concepts such as positive virtues or strengths. A variety of influential factors in positive psychology have been explored in this article. Ninety-six positive strengths and virtues have been confirmed on the basis of a survey which involves 7,059 participants. Subsequently, a structural equational model with 13 latent variables has been established according to various personality theories and results of above survey. Moreover, this model has been confirmed through confirmatory factor analysis as a nice one with good absolute fit indices and good comparative fit indices.

Keywords: positive psychology, strengths and virtues, fit indices, structural equational model

Introduction

Mental health service in the world has been undergoing a huge change from focusing upon psychological problems to stressing on positive traits. Mental health practitioners, clinical psychologists, psychotherapists, and psychological counselors all put emphasis on the symptoms of human mental disorders. Positive psychology, founded in the 1990s, has put forward a new perspective of how to cope with psychological problems and concentrate upon human positive traits. Thus, a tremendous change has occurred to psychological sciences and human beings' life because of positive psychology. Above all, American psychologist Seligman and Csikszentmihalyi (2000) formally put forward the concept of positive psychology. Three main themes of positive psychology are positive subjective experience, positive personal traits, and positive environment. Seligman (1998) suggested that psychology should recover the two other missions of facilitating human good life and nurturing talent besides treating mental diseases. Building human strengths is one of the most critical goals of positive psychology.

However, first of all, we must explore the structure of human positive traits so as to reach the above goals. Many problems such as quantity, quality, and classification of strengths and virtues need to be solved. Seligman (1999) has called for a taxonomy of the strengths and virtues that promote resilience and

***Acknowledgements:** This study is supported by a grant from the Humanities and Social Sciences Research Program in Tianjin Municipal Education Commission (2011FDY04); it is also one part of Tianjin Education Science "Twelfth Five-year" Planning Issue (HE4103).

Zhan Qisheng, Ph.D., associate professor, Director of Institute of Psychology, Tianjin University.

Liu Yuanyuan, Master student, Institute of Psychology, Tianjin University.

Su Huili, Doctoral student, Department of Social Psychology, Nankai University.

Zhang Kuo, Master student, Institute of Psychology, Tianjin University.

Feng Chuande, Master student, Institute of Psychology, Tianjin University.

responsibility in individuals. Meanwhile, family social scientists and family therapists have developed substantive bodies of scholarly and applied literature in such related areas as family strength frameworks (Stinnett, Stinnett, DeFrain, & DeFrain, 1997; Sandage & Hill, 2001).

As a matter of fact, positive psychology can be traced back to Maslow's humanistic theory and positive psychotherapy founded by German psychologist Peseschkian (1987). Peseschkian (1987) gave us a new analytical pathway to observe human dynamic strengths and virtues. However, positive psychology is different from humanistic psychology (Bohart & Greening, 2001). Fredrickson (2001) paid special attention to the dimension of positive emotions. Foster and Lloyd (2007) pointed out some concrete strategies of identifying and applying personal strengths and virtues. Wood and Tarrier (2010) believed that mental disorders can be treated through promoting the positive characteristics which include gratitude, flexibility, and positive emotions. In addition, people's stressors can be dealt with by means of positive imagination (Davis & Asliturk, 2011). Wong (2011) regarded meaning, virtue, resilience, and well-being as four basic elements of beautiful life. On the whole, the research on systems of positive traits of positive psychology is still scarce (Gable & Haidt, 2005). Therefore, this article will explore the structural model of positive traits.

Methods

Sample and Participants

Seven thousand and fifty-nine college students were surveyed. They come from 12 universities and colleges in Tianjin city, China, which involve Tianjin University, Nankai University, Tianjin Normal University, Tianjin Medical University, and so on.

Sex

Among the total participants, there are 2,938 male students, accounting for 41.6%, and 3,744 female students, accounting for 53.1%. Besides, 377 (accounting for 5.3%) other college students did not answer the question of sex.

Measures

To use the open-ended questions as the items of survey method. Every respondent has to answer only two questions: One is "What is my most important strength?"; and the other one is "What is my biggest weakness?".

Statistical Software

All questionnaire data are analyzed by SPSS 16.0 (Statistical Product and Service Solutions) and Lisrel 8.51 (Linear Structural Relations).

Results and Discussion

In this survey, 7,059 participants answered the questionnaire. Two thousand and sixty-three participants' answers are inexact, and 4,996 questionnaires are valid. The results are listed in Table 1.

On the basis of the theories of Cattell's Sixteen Personality Factors Questionnaire, Eysenck Personality Questionnaire, the Big Five Personality Traits Model, and other theories related to characteristics of cognition, emotion, and behavior in psychology, the 96 strengths and virtues can be divided into 13 latent variables, L1-L13. Each latent variable is comprised of correspondent items:

Table 1

College Students' Strengths and Virtues

No.	Strengths and virtues	Freq.
V1	Self-confidence	982
V2	Optimistic	291
V3	Conscientious	235
V4	Intelligent	208
V5	Diligent	204
V6	Strong sociability	187
V7	Kindness	157
V8	Understanding oneself	133
V9	Open-minded	133
V10	Sincerity	112
V11	Introspection	98
V12	Perseverance	94
V13	Good interpersonal relationship	92
V14	Strong Self-control	83
V15	Enthusiastic	79
V16	Unremitting	66
V17	Easy-going	62
V18	Honest	62
V19	Patient	59
V20	Talkative	57
V21	Strong	55
V22	Calmness	53
V23	Motivated	52
V24	Persistent	50
V25	Psychological diathesis	46
V26	Steady	45
V27	Gentle	45
V28	Good-looking	41
V29	Studious	38
V30	Rational	37
V31	Good comprehensive ability	36
V32	Good grades	36
V33	Love sports	36
V34	Good at thinking	35
V35	Good learning capacity	34
V36	With broad interests	34
V37	Goal-oriented	34
V38	Considerate	33
V39	Strong sense of responsibility	33
V40	Have affinity	33
V41	Logical thinking	30
V42	Down-to-earth	30
V43	Real	29
V44	Helpful	29
V45	Modest	28
V46	Tolerant	28
V47	Quick-wittedness	28
V48	Strong adaptability	28
V49	In good health	25

(Table 1 to be continued)

No.	Strengths and virtues	Freq.
V50	Good endurance	25
V51	Good memory	24
V52	Careful	22
V53	Idealistic	22
V54	Ambitious	21
V55	Silent	20
V56	Resilience	20
V57	Good sleep	18
V58	Good receptivity	18
V59	Practical ability	17
V60	Whole-hearted	17
V61	Thoughtful	17
V62	Self-improvement	16
V63	Efficient	15
V64	Risible	15
V65	In good faith	14
V66	Independent	13
V67	Brave	13
V68	In good figure	12
V69	Integrity	12
V70	Competent	12
V71	Humorous	11
V72	Good expressive power	11
V73	Quiet	11
V74	Good self-regulation ability	10
V75	Obedient	10
V76	Organized and planed	9
V77	Meek	9
V78	Learned	9
V79	Curiosity	8
V80	Strong character	8
V81	Lovable	8
V82	Passionate	7
V83	Self-supporting	7
V84	Imaginative	7
V85	Active	7
V86	Mature	6
V87	Sympathetic	5
V88	Innovation ability	5
V89	Principled	5
V90	Pure	5
V91	Have certain specialties	5
V92	High emotional quotient	4
V93	Leadership ability	4
V94	Initiative	3
V95	Assertive	3
V96	Generous	1
Total		4,996

L1 (goal and confidence): V1, V8, V25, V37, V53, V62, V70, V76, V78

L2 (social ability): V6, V13, V15, V20, V40, V44, V72, V92, V94

L3 (conscientiousness): V3, V5, V11, V29, V39, V52, V60, V89

L4 (optimism): V9, V55, V64, V71, V73, V79

L5 (physical characteristic): V28, V49, V57, V68, V81

L6 (intellectual ability): V31, V35, V51, V58, V59, V88, V93

L7 (willpower): V12, V14, V16, V19, V21, V24, V48, V50, V56, V74

L8 (authenticity): V10, V18, V26, V42, V43, V45, V65, V69

L9 (traits of thinking): V4, V32, V34, V41, V47, V63, V84

L10 (autonomy): V61, V66, V75, V80, V83, V95

L11 (considerateness): V7, V17, V27, V38, V46, V87, V96

L12 (aggressiveness): V2, V23, V33, V36, V54, V82, V85, V91

L13 (rationality): V22, V30, V67, V77, V86, V90

Psychometrics

After the above-mentioned structural equational model had been established, 193 undergraduates and 126 postgraduates were invited to participate in a self-reported questionnaire with 96 strengths and virtues. Participants should rate the 96 strengths one by one from 1 to 7, in which 1 indicates “The most inappropriate to him/her”, and 7 indicates “The most appropriate to him/her”.

After inputting these data and establishing the structural equational model, by running the program with lisrel 8.51, the LISREL estimates (Maximum Likelihood) could be gotten. Afterwards, the model should be modified according to Modification Indices for LAMBDA-X matrix, Completely Standardized Solution (< 0.50) and their meanings. For this reason, some dissatisfactory variables have to be deleted or transferred in the following.

In latent V1: delete five variables from “goal and confidence (L1)”, which are V8 (Understanding oneself), V25 (Psychological diathesis), V62 (Self-improvement), V70 (Competent), and V78 (Learned).

In latent V2: delete four variables from “social ability (L2)”, which are V13 (Good interpersonal relationship), V20 (Talkative), V40 (Have affinity), V44 (Helpful), and transfer V15 (Enthusiastic) from “social ability (L2)” to “optimism (L4)”.

In latent V3: delete two variables from “conscientiousness (L3)”, which are V11 (Introspection) and V89 (Principled).

In latent V4: delete two variables from “optimism (L4)”, which are V55 (Silent) and V73 (Quiet).

In latent V5: delete three variables from “physical characteristic (L5)”, which are V49 (In good health), V57 (Good sleep), and V81 (Lovable).

In latent V6: transfer only one variable from “intellectual ability (L6)” to “social ability (L2)”, which is V93 (Leadership ability).

In latent V7: delete five variables from “willpower (L7)”, which are V19 (Patient), V21 (Strong), V48 (Strong adaptability), V50 (Good endurance), and V74 (Good self-regulation ability).

In latent V8: delete five variables from “authenticity (L8)”, which are V10 (Sincerity), V26 (Steady), V42 (Down-to-earth), V43 (Real), and V69 (Integrity).

In latent V9: delete only one variable from “traits of thinking (L9)”, which is V32 (Good grades).

In latent V10: delete three variables from “autonomous (L10)”, which are V66 (Independent), V75 (Obedient), and V80 (Strong character).

In latent V11: delete two variables from “considerateness (L11)”, which are V7 (Kindness) and V87 (Sympathetic).

In latent V12: delete five variables from “aggressiveness (L12)”, which are V2 (Optimistic), V33 (Love sports), V82 (Passionate), V85 (Active), and V91 (Have certain specialties).

In latent V13: delete three variables from “rationality (L13)”, which are V67 (Brave), V77 (Meek), and V90 (Pure).

Other 96 satisfactory variables are composed of New Structural Equational Model in LAMBDA-X matrix. The LAMBDA-X matrix can be tabulated in Table 2.

Table 2

Factor Load of Different Items in Their Corresponding Latent Variables

No.	Item	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
V37	goal-oriented	0.66												
V53	idealistic	0.63												
V1	self-confidence	0.51												
V76	organized and planned	0.59												
V72	good expressive power		0.67											
V92	high emotional quotient		0.55											
V15	enthusiastic				0.75									
V6	strong sociability		0.54											
V94	initiative		0.75											
V29	studious			0.62										
V5	diligent			0.66										
V3	conscientious			0.59										
V52	careful			0.55										
V39	strong sense of responsibility			0.53										
V60	whole-hearted			0.56										
V64	risible				0.52									
V9	open-minded				0.69									
V71	humorous				0.52									
V79	curiosity				0.55									
V68	in good figure					0.59								
V28	good-looking					0.75								
V88	innovation ability						0.68							
V59	practical ability						0.52							
V51	good memory						0.62							
V58	good receptivity						0.51							
V31	good comprehensive ability						0.63							
V35	good learning capacity						0.74							
V93	Leadership ability		0.72											
V16	unremitting							0.80						
V56	resilience							0.58						
V12	perseverance							0.78						

(Table 2 to be continued)

No.	Item	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
V24	persistent							0.60						
V14	strong self-control							0.72						
V18	honest								0.62					
V65	in good faith								0.55					
V45	modest								0.54					
V4	intelligent									0.56				
V34	good at thinking									0.65				
V47	quick-wittedness									0.71				
V84	imaginative									0.51				
V63	efficient									0.62				
V41	logical thinking									0.54				
V61	thoughtful										0.68			
V95	assertive										0.78			
V83	self-supporting										0.58			
V96	generous											0.50		
V46	tolerant											0.70		
V27	gentle											0.68		
V38	considerate											0.53		
V17	easy-going											0.59		
V23	motivated												0.62	
V54	ambitious												0.66	
V36	with broad interests												0.57	
V22	calmness													0.76
V86	mature													0.58
V30	rational													0.63

In addition, the correlation coefficients between thirteen Latent Variables are presented in PHI matrix. The results can be tabulated in Table 3.

Table 3

Correlation Coefficients Between Latent Variables

Latent variable	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
1. goal and confidence	1.00												
2. social ability	0.80	1.00											
3. conscientiousness	0.78	0.59	1.00										
4. optimism	0.49	0.66	0.29	1.00									
5. physical characteristic	0.57	0.46	0.41	0.32	1.00								
6. intellectual ability	0.73	0.72	0.56	0.64	0.54	1.00							
7. willpower	0.79	0.46	0.87	0.26	0.40	0.53	1.00						
8. authenticity	0.46	0.22	0.74	0.32	0.22	0.36	0.47	1.00					
9. traits of thinking	0.77	0.72	0.57	0.58	0.57	0.99	0.59	0.32	1.00				
10. autonomy	0.86	0.85	0.59	0.43	0.38	0.70	0.55	0.25	0.76	1.00			
11. considerateness	0.43	0.43	0.48	0.65	0.32	0.49	0.32	0.71	0.48	0.76	1.00		
12. aggressiveness	0.79	0.86	0.50	0.87	0.46	0.78	0.44	0.47	0.80	0.80	0.62	1.00	
13. rationality	0.67	0.56	0.60	0.28	0.52	0.71	0.62	0.39	0.65	0.65	0.54	0.45	1.00

Note. All *t*-values of above correlation coefficients are larger than 2.00 ($t \geq 2.00, p < 0.05$).

Finally, the absolute model fit indices and the comparative model fit indices can be showed in Table 4.

The results of Table 4 show that in this model, RMSEA (Root Mean Square Error of Approximation) is less than 0.08, and NNFI (Non-Normed Fit Index), CFI (Comparative Fit Index), and IFI (Incremental Fit Index) are all greater than 0.90, which indicate that this model has satisfactory fit indices.

Table 4

Various Fit Indices of Strengths and Virtues Model

χ^2	df	RMSEA	NNFI	CFI	IFI
1660.42	1406	0.035	0.91	0.92	0.92

Notes. RMSEA: Root Mean Square Error of Approximation; NNFI: Non-Normed Fit Index; CFI: Comparative Fit Index; IFI: Incremental Fit Index.

According to the results of Tables 2, 3, and 4, this article confirmed a good new model related to strengths and virtues from the perspective of positive psychology. This model shows that college students' strengths and virtues can be identified as 13 important factors which are goal and confidence, social ability, conscientiousness, optimism, physical characteristic, intellectual ability, willpower, authenticity, traits of thinking, autonomy, considerateness, aggressiveness, and rationality.

As a college student, he/she can develop his/her positive personality traits in the light of this model. First of all, "setting a goal and boosting self-confidence" is the most critical strength for each college student. It is also one of the most important tasks to improve college students' sociability, to develop intellectual ability, to cultivate the optimistic attitudes, to train the traits of thinking, and so on. In a word, future study had better convert to the direction towards how to use this model as a valid tool for college students' growth.

Meanwhile, several limitations in this study deserve comment. Almost 29% of survey respondents described their strengths and virtues in inexact words. Furthermore, the interpretations to some similar positive personality traits are often confused. In addition, the size and structure of the sample still need to be standardized or optimized.

Conclusions

In conclusion, this paper established a new model of college students' strengths and virtues by means of the data of large sample, several classic and traditional personality theories, and scientific statistical methods. This model can be confirmed to have good fit indices, thus it belongs to a valid and valuable model related to positive personality traits.

References

- Bohart, A. C., & Greening, T. (2001). Humanistic psychology and positive psychology. *American Psychologist*, 56(1), 81-82.
- Davis, C. G., & Asliturk, E. (2011). Toward a positive psychology of coping with anticipated events. *Canadian Psychology*, 52(2), 101-110.
- Foster, S. L., & Lloyd, P. J. (2007). Positive psychology principles applied to consulting psychology at the individual and group level. *Consulting Psychology Journal: Practice and Research*, 59(1), 30-40.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56(3), 218-226.
- Gable, S. L., & Haidt, J. (2005). What (and why) is positive psychology? *Review of General Psychology*, 9(2), 103-110.
- Peseshkian, N. (1987) *Positive psychotherapy: Theory and practice of a new method*. Berlin, New York: Springer-Verlag.
- Sandage, S. J., & Hill, P. C. (2001). The virtues of positive psychology: The rapprochement and challenges of an affirmative postmodern perspective. *Journal for the Theory of Social Behaviour*, 31(3), 241-260.

- Seligman, M. E. P. (1998). Building human strength: Psychology's forgotten mission. *APA Monitor*, January 2.
- Seligman, M. E. P. (1998). What is the "good life"? *APA Monitor*, October 2.
- Seligman, M. E. P. (1999). The president's address. *American Psychologist*, 54, 559-562.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5-14.
- Stinnett, N., Stinnett, N., DeFrain, J., & DeFrain, N. (1997). *Good families*. New York: Doubleday.
- Wong, P. T. P. (2011). Positive psychology 2.0: Towards a balanced interactive model of the good life. *Canadian Psychology*, 52(2), 69-81.
- Wood, A. M., & Tarrier, N. (2010). Positive clinical psychology: A new vision and strategy for integrated research and practice. *Clinical Psychology Review*, 30(7), 819-829.