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Arita W. Y. Chan
The Hong Kong Institute of Education

Angela F. Y. Siu
The Chinese University of Hong Kong

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Application of the Spiritual Intelligence Self-Report Inventory (SISRI-24) Among Hong Kong University Students

Arita W. Y. Chan
The Hong Kong Institute of Education
Tai Po, New Territories, Hong Kong

Angela F. Y. Siu
The Chinese University of Hong Kong
Shatin, New Territories, Hong Kong

The aim of this study was to examine the psychometric properties of the Chinese version of the Spiritual Intelligence Self-Report Inventory (SISRI-24). Two hundred thirteen undergraduate students in Hong Kong completed the Chinese SISRI-24, the Meaning of Life Questionnaire, the Metapersonal Self-Construal Scale, and the Satisfaction with Life Scale to allow examination of internal reliability and construct validity. Confirmatory factor analysis was also performed to examine whether the model of King and DeCicco (2009) fit our data. Our results indicated that the full scale of the Chinese SISRI-24 and its four subscales had acceptable internal reliability. The results also showed a positive relationship between spiritual intelligence and metapersonal self-construal. However, no significant relationship was reported between spiritual intelligence and life satisfaction. As such, construct validity was low to moderate. This study can be considered a foundation for understanding and measuring spiritual intelligence among undergraduate students in Hong Kong. Future research directions are suggested.

Keywords: *spiritual intelligence, meaning of life, university students, Chinese*

There has been increasing concern regarding the mental health of university students, and Hong Kong is no exception. Recent research findings in Hong Kong have shown that many university students suffer from various mental health problems including depression, anxiety, and stress (Hong Kong Tertiary Institutions Health Care Working Group, 2007; Wong, Cheung, Chan, Ma, & Tang, 2006) as well as insomnia (Sing & Wong, 2010) and many students are thought to need further exploration regarding their psychological health (Hong Kong Polytechnic University, 2007). Therefore, it is important for educators and other professionals to pay more attention to the psychological health of university students.

Recently, Parks (2011) explained that university students can be considered *emerging adults* who are seeking meaning, purpose, and faith in their lives. Hence, constructs relating to life goals and meaning, such as spiritual intelligence (SI), may influence the development of young people. It is meaningful, therefore, to study SI among university students in Hong Kong who have various mental health problems. Indeed, many psychologists have argued that SI can improve the psychological well-being of people in modern societies (Emmons, 2000; Noble, 2000; Vaughan, 2002). A better understanding of SI among university students in Hong Kong would be beneficial for the promotion of mental health in this group, but a reliable instrument for measurement of SI in students in Hong Kong is lacking. Therefore, the development of such a measure is important.

What is Spiritual Intelligence?

Rogers and Dantley (2001) argued that SI forms the base of thinking, which then shapes the system and organization of human thinking. Emmons (2000) identified five core components of SI: (a) the capacity to transcend the physical and material world; (b) the ability to experience heightened states of consciousness; (c) the ability to embrace everyday experiences; (d) the ability to use spiritual resources to solve problems; and (e) the capacity to engage in moral behavior. Noble (2000) suggested two additional characteristics: the realization that there exists a huge multidimensional reality and that physical reality, in which human beings live, is embedded within it; and the conscious pursuit of personal and community well-being. Indeed, the characteristic of moving from an individual focus to

a global focus is also shared by Vaughan (2002), who asserted that a significant characteristic of SI is the capacity to extend care and concerns to other people, such as family members, people in the community, and other ethnic groups.

In addition, Amram (2007) also proposed seven core elements of SI, including (a) developing awareness and knowledge about oneself; (b) living with love and trust for oneself and others; (c) finding purpose in every experience in daily life, including misery and painful experiences; (d) transcending the individual self to an interconnected wholeness; (e) developing the attitudes of open acceptance, inquisitiveness, and concern for all things in the world; (f) living harmoniously with self, veracity, divinity, and nature; and (g) developing inner freedom and responsibility for wise behavior.

Psychologists, such as those mentioned, support SI as an important construct; however, many still have doubts. Gardner (2000) did not support SI as a type of intelligence in his model of multiple intelligences and explained that SI could be considered an element of existential intelligence. Mayer (2000) also argued that the SI model proposed by Emmons failed to meet the criterion of intelligence because SI did not primarily involve abstract thinking. Edwards (2003) further suggested that SI could be accepted as a construct only if it could be proved to be (1) autonomous from other forms of intelligence, (2) useful to resolve problems that are specifically spiritual, and (3) different from simple knowledge about spirituality.

In response to the critique on SI, psychologists have used empirical studies to develop different models of SI. For example, King and DeCicco (2009) conducted empirical studies to investigate the factor structure of SI and identified four core components: (a) critical existential thinking (CET), which refers to thinking about the essence of reality, the world, and other existential and non-existential concerns in relation to oneself; (b) personal meaning production (PMP), which refers to finding personal meaning in all experiences and mastering the purpose of one's life; (c) transcendental awareness (TA), which refers to identifying the means of achieving transcendence from oneself and the physical world; and (d) conscious state expansion (CSE), which refers to the ability to control how and when to enter higher states of consciousness. In addition, the findings of King and DeCicco also supported the notions that CET is a kind of spiritual ability, that SI consists of a set of interrelated mental abilities, and that SI can probably develop with age; these in turn fulfill some of the criteria of Gardner's definition of intelligence. Therefore, SI could possibly be considered a kind of intelligence.

In summary, many definitions of SI have been offered, and its components include self-transcendence, holistic thinking, intuition, love and kindness, self-awareness, sanctification of everyday experiences, purpose production, consciousness, harmony with other people and nature, openness, flexibility, curiosity and pursuit of knowledge, wisdom, virtuousness, and caring for others or the community.

Spiritual Intelligence and Chinese Culture

Since ancient times in China, Taoism and Confucianism have been the two most prominent philosophical principles and practices that have formed the basis of Chinese culture (Ivanhoe & Van Norden, 2001; Sun, 2008). Indeed, Taoism still strongly influences the mental health of Chinese people in the modern world (Yip, 2004). According to Taoism, reaching homeostasis in oneself, society, and nature; preserving oneself and not striving too much for change; and transcending oneself, the material world; and secularism, are the essential practices for psychological well-being (Ivanhoe & Van Norden, 2001; Lu, Gilmour, & Kao, 2001; Sun, 2008). Introspection and self-cultivation are the two keys for achieving self-transcendence and reaching homeostasis (Lu et al., 2001).

According to Confucian philosophy, the welfare of an individual is less important than the collective welfare of one's family or clan (Ivanhoe & Van Norden, 2001; Lu et al., 2001). Hard work, suppression of one's desires, dedication of oneself to virtuous living, humility, honesty, and fulfillment of one's duties in the community are the responsibilities of all individuals. To achieve psychological health, one needs to become knowledgeable, benevolent, and generous, and harmonize with other people in one's own group (Lu et al., 2001; Sun, 2008).

As noted, components of SI include veracity, humility, charity, love and kindness, the pursuit of knowledge, virtuousness, and concern and caring for family and community. These are ~~actually~~ also some of the core components of Confucianism, which consists of virtuousness, social welfare, humility, honesty, knowledge, kindness, and harmony in the group. SI and Taoism also have common components, including self-

transcendence, holistic thinking, intuition, sanctifying everyday experiences, consciousness, harmony with other people and nature, self-introspection, openness, and flexibility. Because SI shares many similarities with Confucianism and Taoism, it can be assumed that SI can be applied to Chinese culture.

Spiritual Intelligence and Related Constructs

Spiritual intelligence can be seen as related to constructs such as life meaning, metapersonal self-construal, and psychological health.

Spiritual Intelligence and Life Meaning

According to King and DeCicco (2009), the second component of SI, PMP, is defined as "the ability to construct personal meaning and purpose in all physical and mental experiences, including the capacity to create and master a life purpose" (p. 70). Frankl (1984), the founder of logotherapy, explained that a person is born with the motivation to search for meaning in life. Meaning implies a purpose in life (Yalom, 1980). Searching for meaning can be defined as constructing a purpose for and coherence in one's life (Frankl, 1984; Yalom, 1980). Because searching for meaning and PMP have similar definitions, they are assumed to be correlated.

Spiritual Intelligence and Metapersonal Self-Construal

Metapersonal self-construal is defined as a more spiritual form of self-referent that can be achieved when "one construes the information about a relationship between the self and others as one that includes all things, all life, all of creation" (DeCicco & Stroink, 2007, p. 84). Because the definition of metapersonal self-construal is comparable to the meaning of SI, especially the concepts of CET and TA, it has been suggested that SI could be correlated with metapersonal self-construal.

Spiritual Intelligence and Psychological Health

Studies have examined the association between SI and mental health, and the findings support a positive relationship between SI and individual well-being. Noble (2000) used the narrative history method to study the lives of nine adults and found that greater SI was associated with a greater capability to cope with adversity, less destructive attitudes and behavior toward oneself, an increased capacity to identify and use inner resources, a greater understanding of personal feelings and the feelings of others, and a greater commitment for living life fully. Kass and Lenox (2005) had a perspective similar to that of Noble on the relationship between SI and living fully, and they explained that people with greater SI tended to have a better ability to utilize their potential in life; therefore, they were able to live life more fully. In addition, people with high SI were found to have characteristics similar to those of people with good psychological health. People with high SI were authentic, humble, generous, kind, and showed no defensive or hostile attitudes and behavior, and these personal qualities could also be seen in people with good mental well-being (Vaughan, 2002).

Other studies have investigated the role of SI on the mental health of young people. Kumar and Mehta (2011) reported that students with high SI had a better understanding of themselves and tended to be more conscientious, compassionate, and committed to life goals governed by core values of humanity than students who had low SI. SI was also reported to have a significant effect on improving the quality of life of university students (Bolghan-Abadi, Ghofrani, & Abde-Khodaei, 2014) and an indirect positive effect in the reduction of mental health problems among young people between 15 and 17 years of age (Hassan & Shabani, 2013).

In another study, Narayanan and Jose (2011) examined the role of SI on the mental health of 220 young people 16 to 19 years of age and found that SI was a strong predictor of resilience. In particular, six core SI elements, including (a) believing things would work out even when there were great difficulties, (b) maintaining a clear understanding of the present situation and personal experiences even when things were confused, (c) being able to find a feeling of happiness from daily experiences, (d) being able to incorporate different perspectives even when they conflict, (e) acting in accordance with one's own beliefs and values, and (f) being open and true to oneself, were strong predictors of resilience among young people.

Study

As increasing attention has been paid to SI, various instruments have been developed to measure this construct. The Scale for Spiritual Intelligence developed by Kumar and Mehta (2011) assesses SI in six dimensions, including purpose in life, human values, compassion, commitment to humanity, understanding

of self, and conscience. Wigglesworth (2013) introduced an SI assessment that focused on measurement of 21 SI skills. King (2008) developed the Spiritual Intelligence Self-Report Inventory (SISRI-24) for the measurement of SI in university students in Western countries. King and DeCicco (2009) extensively reviewed previous SI models, conducted empirical studies, and developed the SISRI-24, which they reported to have good internal reliability and external validity. Because the development of King and DeCicco's model is based on a sample of university students, our study adopted this model.

The SISRI is a 24-item self-report scale that consists of four subscales: CET, PMP, TA, and CSE (King & DeCicco, 2009). Separate scores are calculated for each subscale, and the scores on each subscale are added to form a total SI score. Higher scores represent higher SI. The internal reliability of the full scale (as estimated by Cronbach's alpha) was .92, the split-half reliability was .91, and the 4-month test-retest reliability was .89. The Cronbach alpha values for the four subscales ranged from .78 to .91, which indicates that the SISRI-24 has good reliability. The scores on the SISRI-24 full scale were significantly correlated with scores on the Metapersonal Self-Construal Scale (MSCS; $r = .67$, $p < .01$) and the Mysticism Scale-Research Form D ($r = .63$, $p < .01$), reflecting the construct validity. As for the subscales, PMP was highly correlated with the Presence of Meaning subscale of the Meaning of Life Questionnaire (MLQ; $r = .65$, $p < .01$), but not with the Search for Meaning subscale ($r = .05$, $p > .05$). However, CET was significantly correlated with the Search for Meaning subscale of the MLQ ($r = .39$, $p < .001$). These results further demonstrated that the SISRI-24 had discriminant and convergent validity.

Although the SISRI-24 had acceptable psychometric properties, the literature has shown a confounding issue between psychological well-being and spirituality. Koenig (2008) argued that research findings that demonstrated a positive relationship between spirituality and mental health were problematic because in these studies spirituality was measured by indicators of psychological well-being or positive personality traits. As a result, psychologists or other professionals should always be aware of this confounding issue when examining the psychometric properties of or using a measure of spirituality, including the SISRI-24.

Aims of the Study

The SISRI-24 is an appropriate instrument for measuring the SI of university students in Hong Kong because it was based on a sample of university students. Because there is no reliable instrument for the measurement of SI among university students in Hong Kong, the aims of this study were to develop a Chinese version of the SISRI-24 and to investigate its psychometric properties using a sample of university students in Hong Kong. Measures of theoretically related constructs were also included to assess the construct validity of the SISRI-24. Confirmatory factor analysis was conducted to investigate whether the original model fit the Hong Kong data. Specifically, the following hypotheses were tested.

Hypothesis 1: The Chinese version of the SISRI-24 will have acceptable reliability.

Hypothesis 2: Based on the second component of SI (PMP) and previous findings, it was hypothesized that there would be a positive correlation between the PMP subscale of the SISRI and the other measure of personal meaning, the MLQ (Steger, Frazier, Oishi, & Kaler, 2006).

Hypothesis 3: DeCicco and Stroink (2007) defined metapersonal self-construal as a more spiritual form of self-referent and explained that people with a high score in metapersonal self-construal were more likely to interpret themselves as being connected to all life, which is highly similar to the TA component of SI; therefore, a positive correlation between SI and metapersonal self-construal was predicted in this study.

Hypothesis 4: Because SI has been shown to be correlated with psychological well-being in previous studies, a positive correlation between SI and life satisfaction was predicted in this study.

Hypothesis 5: Because King and DeCicco (2009) proposed a four-factor model of SI, it was also predicted that the Chinese SISRI-24 would comprise four factors.

Participants

The participants included 213 undergraduate students from Hong Kong universities, of whom 66.7% (142) were female; 59.2% (126) were 18 to 20 years of age, 35.2% (75) 21 to 23 years, and 5.6% (12) 24 years or above; 58.2% (124) were in Year 1 of their study, 17.4% (37) in Year 2, 12.7% (27) in Year 3, and 11.7%

(25) in Year 4. The participants had many different majors, including commerce, social sciences, education, language studies, arts, sciences, engineering, medicine, fine arts, and law. Regarding religion, 26.8% (57) of the participants indicated that they had a religion, and 73.25% (156) indicated that they did not.

Measures

In addition to the Spiritual Intelligence Self-Report Scale, the Meaning in Life Questionnaire, the Metapersonal Self-Construal Scale, and the Satisfaction with Life Scale were administered to participants.

The Spiritual Intelligence Self-Report Inventory (SISRI-24; King, 2008). The SISRI-24 (King, 2008) is a 24-item self-report scale that measures SI. It consists of four subscales: CET, PMP, TA, and CSE. Participants are asked to rate each item on a 5-point scale. An example item is: "I have often questioned or pondered the nature of reality." As reported above, the SISRI-24 has good psychometric properties (King &DeCicco, 2009). The Chinese version of the SISRI-24 was developed specifically for this study.

Meaning in Life Questionnaire (MLQ; Steger et al., 2006). The MLQ is a 10-item self-report scale that measures the personal interpretation of the meaning of life. The MLQ comprises two subscales: presence of meaning and search for meaning. Participants rate their responses on a 7-point scale. An example item is: "I understand my life's meaning." Strack (2007) reported the internal consistency of the MLQ as satisfactory, with coefficient alphas ranging from .80 to .90 for the subscales. The Chinese version of the MLQ was used in this study, and the coefficient alphas were .81 for the full scale, .82 for the presence of meaning subscale, and .81 for the search for meaning subscale.

The Metapersonal Self-Construal Scale (MSCS; DeCicco & Stroink, 2007). The MSCS is a 10-item self-report scale that measures the personal interpretation of self as connected to all life. Participants are required to rate their responses on a 7-point scale. An example item is: "I feel a real sense of kinship with all living things." According to DeCicco and Stroink, the inter-item reliability coefficient was .77, and both convergent and discriminant validity were acceptable. The MSCS was translated into Chinese for use in this study. The scale showed high internal reliability, with a coefficient alpha of .82.

Satisfaction with Life Scale (SLS; Pavot & Diener, 1993). The SLS is a 5-item self-report scale that measures a person's global judgment of his or her own life. Participants rate their responses on a 7-point scale. An example item is: "In most ways my life is close to my ideal." The SLS has been found to have high internal consistency, with coefficient alphas of .77 and .79 at Time 1 and Time 2, respectively (Shek, 2007), and adequate reliability and validity (Shek, 1999, 2005, 2007). The Chinese version of the SLS (Wang, Yuen, & Slaney, 2009) was used in this study, and its internal reliability was high (Cronbach's alpha of .87).

Procedure

The proposal for this study was reviewed and approved by the Survey and Behavioural Research Ethics Committee of the Chinese University of Hong Kong where the investigators were affiliated. With approval from Dr. David King, the English version of the SISRI-24 was first translated into Chinese by two translators who had training in psychology and Chinese study or translation. Discrepancies were discussed, and a second version was produced by agreement between the two translators. This second version was pilot-tested on three university students. The second version was modified on the basis of the students' feedback and agreement between the two translators, and a third version was created. The third Chinese version was then back-translated into English by two other translators who had training in psychology and who were not involved in the previous process. The backed-translated English version was compared to the original English version to verify the original meaning, and almost no discrepancy was found between the back-translated and original versions.

The MSCS was translated into Chinese with approval from Professor Teresa DeCicco, following the same process as that of the SISRI-24. Data were collected from university students on the campus. Participants were asked to complete the questionnaires and to provide background information including gender, age, year and major of study, and religion.

Data Analysis

Cronbach's coefficient alphas were calculated for the total scale and for the four subscales to determine the internal reliability of the Chinese SISRI-24. Pearson's correlations between the SISRI-24 total scale or subscales and the Meaning in Life Questionnaire (MLQ), the Metapersonal Self-Construal Scale (MSCS), and the Satisfaction with Life Scale (SLS) were assessed to investigate the construct validity of the SISRI-24.

Confirmatory factor analysis was conducted to investigate whether the factor structure of the Chinese SISRI-24 fit the four-factor structure of King and DeCicco's model (2009).

Results

The descriptive statistics of the SISRI-24 are shown in Table 1. The reliability analysis indicated that the Chinese version of the SISRI-24 had acceptable internal consistency. Cronbach's coefficient alpha was .87 for the full scale, .65 for the CET subscale, .72 for the PMP subscale, .72 for the TA subscale, and .82 for the CSE subscale. In addition, the measures used in this study all reported acceptable internal consistency, with Cronbach's coefficient alpha of .81 for the MLQ, .82 for the MSCS, and .87 for the SLS.

Table 2 presents the results of the validity analysis. The full SISRI-24 scale was positively correlated with the full MLQ ($r = .45$, $p < .01$) and its two subscales, presence of meaning ($r = .36$, $p < .01$) and search for meaning ($r = .37$, $p < .01$). All four subscales of the SISRI-24 were positively correlated with the full scale of the MLQ: CET ($r = .29$, $p < .01$), TA ($r = .37$, $p < .01$), CSE ($r = .21$, $p < .01$), and PMP ($r = .62$, $p < .01$). Among the four subscales, PMP had the highest correlation with the MLQ. The PMP also had the highest correlations with the presence of meaning ($r = .53$, $p < .01$) and search for meaning ($r = .46$, $p < .01$) subscales.

The full scale SISRI-24 was positively correlated with the MSCS ($r = .50$, $p < .01$). The four subscales of the SISRI-24 were also positively correlated with the MSCS; CET had the highest correlation coefficient ($r = .43$, $p < .01$), followed in order by CSE ($r = .41$, $p < .01$), TA ($r = .41$, $p < .01$), and PMP ($r = .29$, $p < .01$).

The correlation between the full scale SISRI-24 and the SLS was not significant ($p > .05$). However, the correlation between the PMP subscale and the SLS was positive and moderate in strength ($r = .32$, $p < .01$).

Table 1. Descriptive Statistics of the Chinese SISRI-24

	Mean	Standard Deviation	Minimum Score	Maximum Score	Reliability Coefficient
SISRI-24 (total)	78.66	12.68	45.00	112.00	.87
CET	22.97	5.12	7.00	52.00	.65
PMP	18.01	3.00	8.00	24.00	.72
TA	23.19	4.09	13.00	34.00	.72
CSE	14.49	4.01	5.00	24.00	.82
MLQ	50.32	6.97	33.00	70.00	.81
MSCS	46.68	8.62	0.00	68.00	.82
SLS	23.45	5.25	6.00	35.00	.87

CET=Critical Existential Thinking; PMP=Personal Meaning Production; TA=Transcendental Awareness; CSE=Conscious State Expansion; MLQ=Meaning in Life Questionnaire; MSCS=Metapersonal Self-Construal Scale; SLS=Satisfaction with Life Scale

Table 2. Correlation Among the Chinese SISRI-24 Total and Subscale Scores and Measures of Validity (N = 213)

Measure	SI	CET	PMP	TA	CSE
Meaning in Life Questionnaire (MLQ)	0.45**	0.29**	0.62**	0.37**	0.21**
MLQ Search for Meaning subscale	0.37**	0.24**	0.46**	0.32**	0.19*
MLQ Presence of Meaning subscale	0.36**	0.22**	0.53**	0.29**	0.15*
Metapersonal Self-Construal Scale (MSCS)	0.50**	0.43**	0.29**	0.41**	0.41**
Satisfaction with Life Scale (SLS)	0.11	-0.01	0.32**	0.13	-0.01

SI=Total Spiritual Intelligence; CET=Critical Existential Thinking; PMP=Personal Meaning Production; TA=Transcendental Awareness; CSE=Conscious State Expansion. **$p < 0.01$; *$p < 0.05$

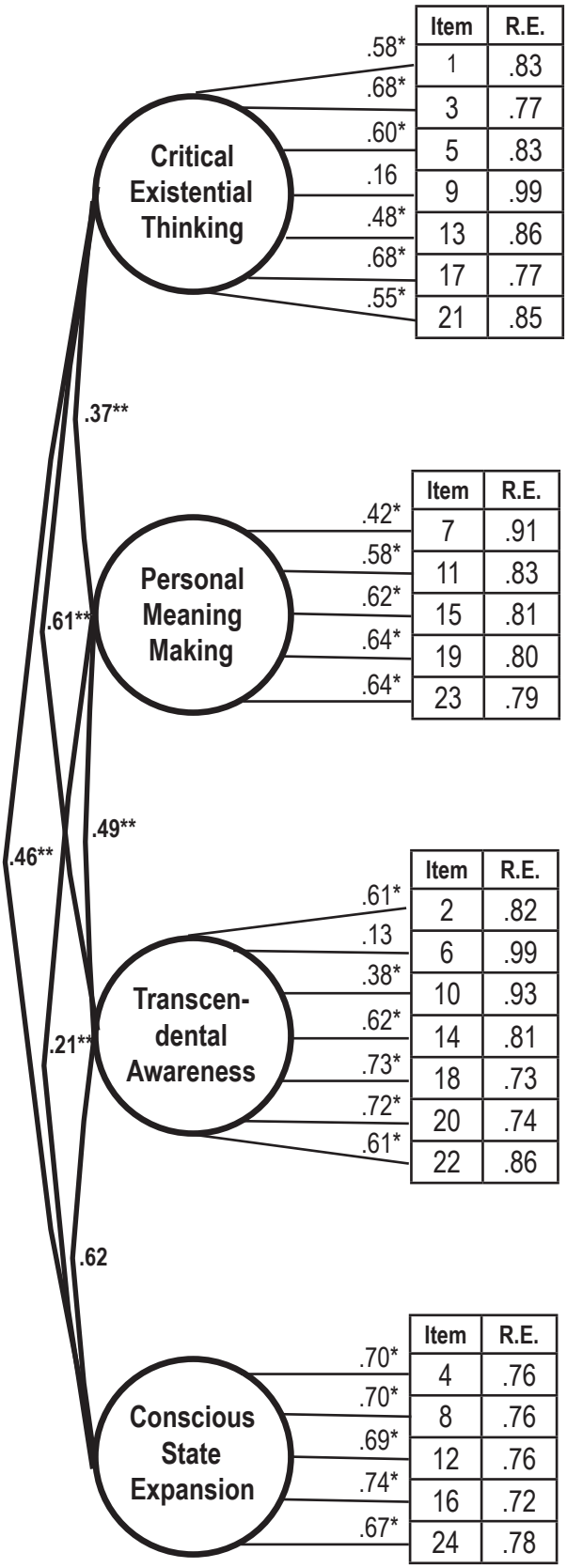

Figure 1. CFA four-factor model for the Chinese SISRI-24
R.E. = Residual Error *Parameter estimates significant at $p<.001$

Confirmatory factor analysis was conducted to examine the factor structure of the Chinese SISRI-24 using LISREL version 9. A correlated four-factor model was examined with maximum likelihood estimation. Figure 1 shows the tested model. The chi-square value was not significant (χ^2 = 1893.72, $p > .05$), indicating a good model fit. The chi-square/df ratio was calculated to further examine the fit of the four-factor model to the current data. The four-factor model showed a ratio of 7.6, which is higher than the recommended maximum value of 2.0 for a good fit (Tabachnick & Fidell, 2007), indicating that the four-factor model did not fit the data. However, it had a non-normed fit index of 1.06 and a comparative fit index of 1.00, which support a good model fit. In addition, the value of the root mean square error of approximation was 0.00, the goodness of fit index was .93, and the adjusted goodness of fit index was .92, which all indicated an adequate model fit (see Table 3).

The four factors were significantly correlated (see Table 4). The standardized factor loadings of the 24 items are shown in Table 5. All factor loadings except those of items 6 and 9 were significant ($t > 1.96$). All CET items (1, 3, 5, 13, 17, 21) except item 9 loaded on Factor 1, with loadings ranging from .48 to .68; all PMP items (7, 11, 15, 19, 23) loaded on Factor 2, with loadings ranging from .42 to .64; all TA items (2, 10, 14, 20, 22) except item 6 loaded on Factor 3, with loadings ranging from .38 to .73; and all CSE items (4, 8, 12, 15, 24) loaded on Factor 4, with loadings ranging from .69 to .74.

Because the loadings of item 6 and 9 were insignificant, these two items were deleted and confirmatory factor analysis was conducted to examine the factor structure of the remaining 22 items. The standardized factor loadings of all 22 items were significant ($t > 1.96$), but all of the goodness of fit statistics suggested a poorer model fit. The chi-square value was

Table 3. Fit Indices for Confirmatory Factor Analysis of the Chinese SISRI-24

χ^2	*df*	RMSEA	NNFI	CFI	GFI	AGFI
1893.72	246	0.00	1.06	1.00	0.93	0.92

RMSEA=Mean square error of approximation; NNFI=Non-normed fit index; CFI=Comparative fit index; GFI=Goodness of fit index; AGFI=Adjusted goodness of fit index

significant (c^2 = 1214.97, p < .05), the chi-square/df ratio was 5.98, the non-normed fit index was .74, the comparative fit index was .76, the value of the root mean square error of approximation was .15, the goodness of fit index was .79, and the adjusted goodness of fit index was .73. The factor loadings of the 22 items are shown in Table 6. All CET items (1, 3, 5, 13, 17, 21) significantly loaded on Factor 1, with loadings ranging from .47 to .68; all PMP items (7, 11, 15, 19, 23) significantly loaded on Factor 2, with loadings ranging from .41 to .65; all TA items (2, 10, 14, 20, 22) significantly loaded on Factor 3, with loadings ranging from .36 to .74; and all CSE items (4, 8, 12, 15, 24) significantly loaded on Factor 4, with loadings ranging from .62 to .75.

Table 4. Correlations Among the Four Subscales of the Chinese SISRI-24 (N = 213)

Subscale	CET	PMP	TA	CSE
CET	—	0.37**	0.61**	0.46**
PMP	0.37**	—	0.49**	0.21**
TA	0.61**	0.49**	—	0.62**

CET=Critical Existential Thinking; PMP=Personal Meaning Production; TA=Transcendental Awareness; CSE=Conscious State Expansion. ** p < 0.01

Table 5. Factor Loadings for the Chinese SISRI-24 (N = 213)

Item	CET	PMP	TA	CSE
1.	.58*			
2.			.61*	
3.	.68*			
4.				.70*
5.	.60*			
6.			-.13	
7.		.42*		
8.				.70*
9.	.16			
10.			.38*	
11.		.58*		
12.				.69*
13.	.48*			
14.			.62*	
15.		.62*		
16.				.74*
17.	.68*			
18.			.73*	
19.		.64*		
20.			.72*	
21.	.55*			
22.			.61*	
23.		.64*		
24.				.67*

CET=Critical Existential Thinking; PMP=Personal Meaning Production; TA=Transcendental Awareness; CSE=Conscious State Expansion. * p < 0.05

Discussion

The results of the reliability analysis indicated that the total scale and all four subscales of the Chinese SISRI-24 had acceptable internal consistency. Therefore, Hypothesis 1 was supported. The results of the validity analysis showed that the full scale of the Chinese SISRI-24 was positively correlated with the total scale and also with the two subscales of the MLQ. Among the four subscales of the Chinese SISRI-24, PMP had

Table 6. Factor Loadings for the Chinese SISRI-24 with Item 6 and 9 Deleted (N = 213)

Item	CET	PMP	TA	CSE
1.	.58*			
2.			.61*	
3.	.66*			
4.				.70*
5.	.60*			
7.		.41*		
8.				.75*
10.			.36*	
11.		.61*		
12.				.73*
13.	.47*			
14.			.62*	
15.		.60*		
16.				.72*
17.	.68*			
18.			.74*	
19.		.65*		
20.			.73*	
21.	.54*			
22.			.62*	
23.		.64*		
24.				.62*

CET=Critical Existential Thinking; PMP=Personal Meaning Production; TA=Transcendental Awareness; CSE=Conscious State Expansion. * p < 0.05

the strongest correlation with the MLQ full scale and its subscales. These results supported Hypothesis 2, which predicted a positive correlation between PMP and the other measure of personal meaning. The results also supported the construct validity of the Chinese SISRI-24, especially the PMP subscale. The present findings are similar to those of King and DeCicco (2009), which also demonstrated a positive correlation between PMP and the presence of meaning subscale, although they did not report a significant correlation between PMP and the search for meaning subscale. Fisher's z-test was conducted to investigate whether the correlation of PMP and the search for meaning subscale in this study was significantly different from that in King and DeCicco's study; the analysis indicated a significant difference ($z = 4.58$, $p < .01$). As such, the findings of our study differed slightly from those of the previous study.

Positive correlations were found between the MSCS and the full scale and the four subscales of the SISRI-24 in this study. These findings supported Hypothesis 3, which predicted a positive correlation between SI and metapersonal self-construal. King and DeCicco (2009) reported that the MSCS had the highest correlation with TA among the four SISRI-24 subscales. However, CET was found to have the highest correlation with MSCS in our study. Although the correlation between CET and MSCS in our study was not significantly different from that in King and DeCicco's study ($z = .13$, $p > .05$), the correlations between TA and MSCS were significantly different for the two studies ($z = 3.32$, $p < .01$). It is possible that the two studies produced different results because SI has different meanings for people in Western and Chinese societies. This issue is discussed in more detail below.

Hypothesis 4 predicted a positive correlation between SI and life satisfaction. Although the findings failed to demonstrate such a correlation, a moderate positive correlation was found between the PMP subscale and the SLS. Therefore, Hypothesis 4 was only partially supported. This finding differs from the results of previous studies. Confirmatory factor analysis provided only partial support for the four-factor model, so Hypothesis 5 was only partially supported. The inconsistency with previous findings may be due to differences in the concepts of SI between Chinese and Western societies, as discussed below.

The findings confirmed the acceptable inter-item consistency of the Chinese SISRI-24, partially supported the four-factor model, and failed to demonstrate high validity. The failure might be due to differences in the SI constructs between Chinese and Western cultures. Chinese university students and Canadian university students may interpret the meaning of SI differently. Mok, Wong, and Wong (2009) reported that the meaning of spirituality for Chinese patients in Hong Kong included four major themes and seven subthemes. The four major themes were "life is an integrated whole," "acceptance of death as a life process," "finding meaning in life," and "having a sense of peace" (p. 364). The seven subthemes consisted of "integration of mind and spirit," "a unique personal belief and experience," "harmony with self and nature," "letting go/forgiveness," "receiving and giving love in relationships and connectedness," "having faith in God/a higher power," and "being a good person" (p. 364).

By analyzing the various definitions of spirituality, Rousseau (2014) suggested that spirituality in Western cultures involved "intuitions that existence has meaning, value, and purpose, and that this meaning, value, and purpose is positive in some ethical or sacral sense," "intuitions that it matters how things are, and that we can make a difference to how things turn out," and "a yearning to achieve self-actualization by living up to this potential and promise" (p. 499). Many of the themes, such as "finding meaning in life" and "harmony with self and nature" are common themes that can be found in both the Chinese and Western cultures; however, themes such as "acceptance of death as a life process" is not an element in Western spirituality. As such, the meanings of spirituality for Chinese people may vary from those of Western people. Because spirituality shares common elements with SI, this implies that the meanings of SI may also be different between the Chinese and Western cultures. Therefore, the meaning of SI in Chinese culture should be investigated in future studies. In addition, cross-cultural comparison of the models of SI would also add to understandings of this construct.

In addition to the differences between Chinese and Western cultures, there is also diversity within the Chinese culture. According to Shek (2010), the definition of the meaning of life varies among Chinese philosophies. According to Confucianism, a person can have a meaningful life by dedicating himself or herself to promoting the well-being of the collective; in Taoism, a meaningful life comes from harmonizing with the universe; and in Buddhism, a meaningful life can be

found by transcending the material world (Shek, 2010). The definition of the meaning of life in these philosophies includes transcendence from self and the material world. In King and DeCicco's (2009) model of SI, the meaning of life, or PMP, and TA are two different dimensions. However, these two dimensions might be confounded in the Chinese philosophies, which might explain why item 6—"it is difficult for me to sense anything other than the physical and material" (King & DeCicco, 2009, p. 84)—did not load on the TA subscale in this study. In addition, removing items 6 and 9 resulted in a poorer model fit, which suggests that these two items might be related to SI in the Chinese population; however, it might be better to include them in other dimensions instead of in TA and CET. As a result, it is important for future studies to further explore the definitions of SI, the meaning of life, and transcendence in the Chinese population.

According to King (2008), SI was significantly correlated with age (r = .28, p < .001) and year of postsecondary education (r = .13, p < .05). In our study, neither age nor year of study was significantly correlated with SI (r = .78, p > .05; and r = .12, p > .05, respectively). The results of t-test analysis also failed to find significant effects of gender, university major, or religion on SI (p > .05). The failure to find a difference in our study may have been due to the small sample size and the unequal numbers of participants in the groups for comparison; for instance, 73.25% of the participants did not belong to any religion. In addition, the result of the validity analysis would be more reliable if a significance level of .001 were adopted in the analysis due to the small sample size in the study. As such, future studies with larger sample sizes and better comparison groups should be conducted to investigate the effects of religion, gender, age, and year of study on SI and to improve the reliability and validity of the results.

Although no significant association was found between SI and satisfaction with life, a moderate positive correlation between the PMP subscale and the SLS was reported. Hence, exploration of the association between SI and mental health among university students in Hong Kong is still worthwhile. Future studies could investigate the relationships between the full scale and the subscales of SI and other mental health indicators, such as mood, self-esteem, or level of psychological distress.

Koenig (2008) argued that measures of spirituality tended to assess positive personality traits or traits of psychological well-being, such as optimism, forgiveness, meaning and purpose in life, harmony, and general well-being. Consequently, research findings that have shown positive relationships between spirituality and mental health are problematic because spirituality was measured by indicators of psychological well-being (Koenig, 2008). Migdal and MacDonald (2013) further suggested that existential well-being, which is often used as a measure of spirituality, is better defined as a form of well-being rather than spirituality because existential well-being has been found to be positively correlated with psychological well-being and social desirability but not with spiritual and religious variables. Indeed, the PMP subscale and CET subscale in the SISRI-24 might be problematic because they might measure existential well-being instead of SI. As such, the results of this study might not only be affected by the cultural differences in the meanings of SI but also by unclear and ever-changing definitions of SI. A clear and universal definition of SI is essential to the development of a valid measure of SI.

To conclude, this pilot study built a foundation for examination of SI among university students in Hong Kong. Further empirical studies at a larger scale are needed to investigate the definition of SI, develop a more valid instrument to measure SI, and understand the development of SI among Chinese university students.

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About the Authors

Arita W. Y. Chan, MEd, is a Senior Teaching Fellow at the Department of Psychological Studies in the Hong Kong Institute of Education. She completed her master degree in McGill University, Canada and is currently a doctoral student at the Chinese University Hong Kong. Her research areas include spirituality and mental health, psychosocial development in children, and teacher training.

Angela F. Y. Siu, PhD, is an Associate Professor in the Department of Educational Psychology at the Chinese University of Hong Kong. Her research interests include: socio-emotional development of children and adolescents, mental health and child counseling.