

Construct Validity Examination of Life Skills for Primary School Students in Iran

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Abstract: *This study addressed the issue of assessing the psychology properties of the construct validity for the life skills instrument. The life skills instrument consists of 31 Likert-type items measuring ten skills in five areas, namely self-awareness and empathy, interpersonal relationship and communication, creative thinking and critical thinking, decision-making and problem solving, coping with stress and emotion. The study involves 215 primary school students in Iran. The findings showed that the Life skills have satisfactory construct validity with five factors extracted and confirmed by confirmatory factor analyses. The Cronbach's alpha values are supported construct validity, which the results indicates high validity and reliability for the instrument to measure life skills.*

Keywords: *Construct validity; Confirmatory factor analysis; Life skills.*

1. Introduction

World Health Organization (WHO) in 1997 reported that life skills are abilities that fortify students' overall development and reinforce their ability to encounter difficulties in life. Investigation of the life skills field suggests that there are some abilities that help children or adolescents for the promotion of the health and well-being that it is at the heart of skills-based initiatives.

Life skills that have been given attention in education for both primary and secondary levels are: effective communication, interpersonal relationship skills, self-awareness, empathy, decision making, problem solving, creative thinking, critical thinking, coping with emotions and coping with stress (WHO, 1999; Mangrulkar et al., 2001; Kord-Noghabi & Pasha Sharifii, 2008). Lou, Wang, Tu and Gao, (2008) postulate that capability of young people can be increased by these skills and thus, they can take responsibility for making healthier choices, resisting negative pressures, and avoiding risk behaviours. Therefore, life skills are a fundamental issue and expected to be taught at all levels and all ages of students. Integrating life skills in educational training can potentially help individual to change their way of life and promote healthy life (ESCAP, 2009).

This life skills training process can teach young students how to use daring behaviour, how to make decision and how to think critically. To achieve the desired results, all skills must be learned by the students (Botvin & Griffin 2004).

Based on need on youth and changes in society, the education system and curricula in Iran have been reformed in the past two decades. Educational system efforts to provide students to challenge with their everyday life based on some

plans and curriculum which emphasis has been placed in the past few years such as life skills training (Iran Chamber Society (ICS), 2001).

However, it is worth mentioning that life skill goals as well play an important part in Iran's educational system at primary level. Education of Islamic life skills is a set of skills required for living in Islamic society. These skills are based on people can observe and response the values and norms of society and individual needs and able to confront and solve their problems by using religious teachings.

Life skills programs effectively teach some skills that help to enhance personal and social competencies (Botvin & Griffin, 2004). He expresses that training of life skills program can decrease health risk behaviours of students (Botvin, 2002).

2. Literature Review

Many problems such as health and social problems, the big concern of the third millennium, is spreading out quickly. Health and social problems such in the Islamic Republic of Iran has shifted from low level to concentrated level of incidence (Report of Ministry of Health, Treatment & Medical Education, 2006, cited in Ministry of Education of the I.R. of Iran, 2008).

The first serious discussions and analyses of life skills emerged by Botvin in 1979. This approach aims to assist young people to regain control over their behavior while taking informed decisions that can lead to positive behaviors and values. The WHO in 1993 has developed a set of life skills to be included within school-based programs. These life skills are intended to help young people to make healthy lifestyle choices and to reach optimal physical, social, and psychological well-being. WHO (1993) considers the life skills to be most generally essential abilities and skills, but each is dependent on cultural influences.

Education based on life skills attention to developing knowledge, attitudes, and all skills that related to health and social issues (WHO, 1993). In addition, it can be provide opportunities for students to practice and interpersonal skill with using interactive education and learning methods (Adewale, 2011). This type education aid students to promote personal and social development, the prevention of health and social problems, and the protection of human rights (WHO, 1993).

Botvin et al. (1990), Botvin and Kantor (2000), and Botvin et al. (2003) have developed a life skills training curriculum for preventing substance abuse for middle or junior high school students. Program accomplishments of life skills training in some countries have immediate and dramatic positive effects on children, youth, and adults. Several attempts have been made to training life skills. For instance Life Skills Project being conducted in the Armenian education system as component of an overall effort in education reform (Ministry of Education and Science of Armenia, 2001). In other study life skills as an issue is intended to encourage pupils' all round development in Iceland Ministry of Education, Science and Culture, in order to enable them to better deal with the demands and challenges of everyday life (Ministry of Education of Iceland, 2004). In another study, Ministry of education and training in Vietnam (2006) conducted life skills education that referred to individual's ability (knowledge, values, attitude, and skills) to perform life functions and to fully participate in daily life. To measuring life skills in adolescents, Sharma (2003) used a survey to assess the level of life skills in adolescents of a secondary school at Katmandu. Sharma, based on WHO's definition, prepared a questionnaire in English with several questions to test life skills. The Likert's technique of summated rating has been chosen in this study. According to the finding, little over half 51% adolescents were higher level of life skills. In addition, another interesting result related to life skills' awareness of teachers that in their knowing, life skills is equal with vocational training and livelihood skills. Several studies investigating life skills have been carried out on Islamic Republic of Iran. The main purpose of these researches was to assess life skills education at youth attitudes towards problem society and positive effect on the personality factors thought their thinking.

3. Research Method

3.1 Participants & Sampling

Cluster sampling technique used in this study. The subjects of this study were fifth grade primary school girls who enrolled in the public schools in Tehran in academic year 2010-2011. Tehran is capital city of Iran and Iran's largest urban area and city. In addition, Tehran is multi-cultural, which it is home to diverse ethnic and linguistic groups from all over the country and represents of ethnic/linguistic composition of Iran. Most of economic center, public sector and large industrial firms, government ministries are located in Tehran. Moreover, Tehran is most important educational center of Iran, therefore, the investigation relevant to the education and program, this city finding the best model for the study. Furthermore, in Islamic Republic of Iran, girls are separated in their educations from the boys, and based on rule of

Tehran Education Organization, applying women teachers in boys' schools is forbidden in high school and use of these teachers in primary schools are special regulations. There are nineteen educational districts in Tehran. Then, second and fifth districts were selected randomly. From the list of schools, three schools selected randomly, that were in districts. The participant of this research contains 215 fifth grade primary school girls in Tehran. The range of students' age was between 10 and 12.

3.2 Instrument

To test life skills, several questions were developed based on the WHO's definition. In present study, life skills questionnaire (LSQ) used to measure life skills of adolescents. This questionnaire made by researcher that the design of the questionnaires was based on Sharma (2003) research. In this study, students were asked each question and give their opinion on each of those in a five-point scale as to whether it will be able to assess the particular life skill under study. Sharma were maintained three questions for each component of life skills (except for self-awareness, which had four questions). In this study, some items modified based on culture and suggestion of Tehran Ministry of Education. According to mentioned to some special words in the items seven and sixteen (AIDS and smoking), these two items were omitted and items five and eight were separated in order to questions being equal. Based on WHO (1997), subscales of life skills can be paired into five main areas and 31 questions of this questionnaire assess these subscales: self-awareness and empathy (Q1-7), communication and interpersonal relationships (Q8-14), creative thinking and critical thinking (Q15-19), decision-making and problem solving (Q20-25), coping with stress and emotion (Q26-31).

3.3 Content Validity

In this study, a questionnaire has been validated by a panel of judges who are lecturers in the field of curriculum and instruction, and supervisory committee. Of course, as it mentioned before, it was based on standard questionnaire that used in an article. All these experts are lecturers at University Putra Malaysia who validated the suitability of the research questionnaire and test to be used in the Iran context. This panel was selected based on their experiences in the field of education, their knowledge in research work as well as their familiarity with the subject.

Life skills instrument survey disseminated to three critical thinking experts in the Faculty of Education, University Putra Malaysia for validation. The validators' response revealed that the life skills are a highly suitable instrument. The researcher made relevant improvements based on comments from the validators.

3.4 Construct Validity

Construct validity involves an explanation of clearly specified conceptual limitations (Newman, 2002). In addition, it concerned with the essential elements rather than with the scores of instrument produces (Salkind, 2000). Based on theoretical considerations, this validity stresses a logical analysis and it can check the relationships predicated.

3.4.1 Convergent Validity

To test construct validity, convergent validity is used. In fact, construct validity refers to a theoretical viewpoint of identify phenomenon (Wiersma, 2000). Generally, construct is a complex concept with several interrelationships in the factors (Van Dalen, 1973). According to Fornell & Larcker (1981), factor loading, Composite Reliability (CR) and Average Variance Extracted (AVE) was assessed convergent validity in this study.

To estimate factor loading of variables, Confirmatory Factor Analysis (CFA) is conducted, because it can show the level of regression path of latent to its indicators. In this study, all of latent variables in each area had at least five items. Acceptable value for factor loading is more than 0.5 and it is good indicator if it is equal to 0.7 and above (Hair et al., 2010).

According to Bollen and Long, (1993) and Garson (2011), to test reliability, Cronbach's alpha can be used and acceptable value is 0.7 and above. It refers to another guideline to review convergent validity. CR is calculated by

$$CR = \frac{(\sum_{i=1}^n \lambda_{yi})^2}{(\sum_{i=1}^n \lambda_{yi})^2 + (\sum_{i=1}^p Var(\epsilon_i))} \quad (1)$$

CR = Indicates composite reliability

λ_y = The standardized factor loading

Var(ϵ_i) = Variance due to the measurement error

Finally, to check construct validity, AVE is conducted. AVE is measured the level of variance capture due to error's measurements by a construct versus. The acceptable value is 0.5 and above and when the value of AVE is more than 0.7, it will be considered very good (Hair et al., 2010). It is calculated by

$$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n} \quad (2)$$

AVE =Average variance extract

λ_i = The standardized factor loading

n = Number of items

3.4.2 Discriminant Validity

To ensure about significant variance among different variables, discriminant validity were test. It can indicate differentiate between two construct in the same model. In addition, two common ways were used to assess discriminate validity. In this time, if the correlations of two latent variables go above 0.9, there is significant overlapping constructs (Hair et al., 2010). Moreover, there is comparing AVE with squared correlation between two constructs to assess discriminate validity. In other way, to check this validity, the level of square root of AVE should be greater than the correlations involving the constructs (Fomell & Larcker, 1981).

3.5 Data Analysis

To analyze of data in this study, three statistical procedures were employed using SPSS in analyzing the data. The procedures of data analyses include:

1. Descriptive analyses used to obtain the distribution of percentage of respondents' age based on demographic variables.
2. Confirmatory factor analysis (CFA) using the AMOS data-fitting program was applied to further confirm the construct validity of items and constructs used in the main study.
3. Reliability analysis using Cronbach's alpha.

4. Results

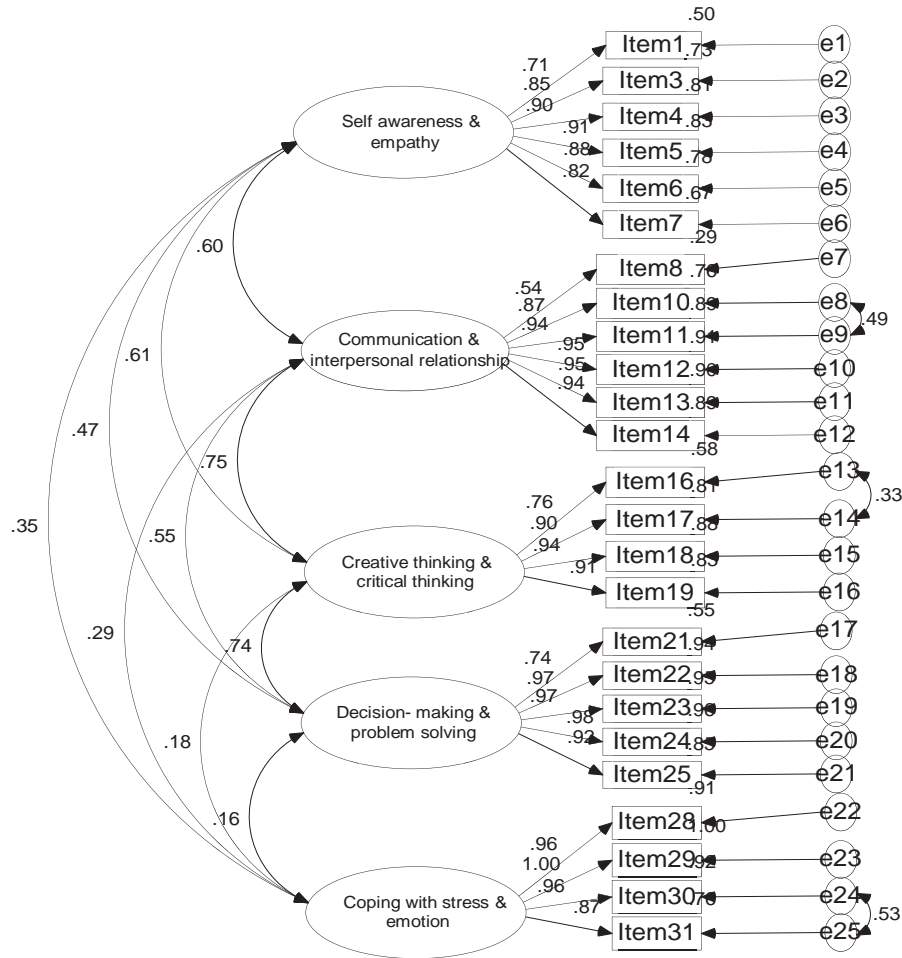
The range of ages respondent in this study were 31 in 10 year (14.4%), 150 in 11 (69.8%) and 34 in 12 (15.8%). The results of the CFA for the adapted life skills instrument as shown in Figure 1 that shows a good fit between the data (N=215) and the measurement model. The measurement model has Chi square= 262, P<.05. The ratio of the minimum discrepancy to its degree of freedom, CMIN/df was 3.8. The data exposed that for the revised measurement model, the fit statistics is good compared to the hypothesized measurement model. All of the fit indicators (Table 1), the GFI = .870, CFI = .903 and TLI = .902 fulfill the threshold of .90, the standard deemed important for model fit. However, the root mean square of approximation (RMSEA = .069) indicated a good fit of the hypothesized model. Consequently, this model has to be revised of good fit based on goodness of fit indices.

Table 1. Goodness-of-fit indices of the CTD measurement model

Fit Index	Recommended Value (Hair <i>et al.</i> , 2010)	CTD Model
χ^2/df	≤ 3	262
RMSEA	≤ 0.08	.069
GFI	≥ 0.9	.870
RMR	<0.5	.067
NFI	≥ 0.9	.900
CFI	≥ 0.9	.903
TLI	≥ 0.9	.902
PNFI	The higher ,the better	.801

Measurement model of life skills represents the five influential. These latent variables indicated by five to ten observed variables. Figure 1 are presented five life skills latent variables and their indicators with standardized factor loading of them. These constructs are self-awareness and empathy, interpersonal relationship and communication, creative and critical thinking, decision making and problem solving, cope with stress and emotion.

Figure 1. Life skills Model



After removing low factors loading indicator, the standardized factor loading of all items on their constructs are more than the acceptable level (> 0.5) that it shows in Table 2. In addition, AVE and CR were checked to test of convergent validity moreover factor loading. The results indicated that all components have the acceptable level of AVE between a range of 0.770 to 0.900 (Self-awareness and empathy =0.722, Interpersonal relationship and communication =0.770, Creative thinking and critical thinking=0.775, Decision-making and problem solving = 0.847, Coping with stress and emotion =0.900). Likewise, good level of composite reliability were observed in all the components of life skills (more than 0.7); Self-awareness and empathy =0.939, Interpersonal relationship and communication =0.951, Creative and critical thinking=0.932, Decision-making and problem solving = 0.965, Coping with stress and emotion =0.973. Hence, based on factor loading, AVE, and CR, three conditions for convergent validity were met. As a final point, all of Cronbach's alphas were more than 0.7 in the acceptable level.

Table 2. Cronbach's Alpha, Factor loading, and Convergent Validity

Cronbach's Alpha	Construct	Items	Factor loading	AVE	CR
.938	Self-awareness & Empathy	Item 1	.71	.722	.939
		Item 3	.85		
		Item 4	.90		
		Item 5	.91		
		Item 6	.89		
		Item 7	.82		
		.950	Interpersonal Relationship & communication		
Item 10	.87				
Item 11	.94				
Item 12	.95				
Item 13	.95				
Item 14	.94				
.929	Creative thinking & Critical thinking			Item 16	.76
		Item 17	.90		
		Item 18	.94		
		Item 19	.91		
.960	Decision making & Problem solving	Item 21	.74	.847	.965
		Item 22	.97		
		Item 23	.97		
		Item 24	.98		
		Item 25	.92		
.975	Coping with stress & Emotion	Item 28	.96	.900	.973
		Item 29	1.00		
		Item 30	.96		
		Item 31	.87		

Moreover, AVE of each variable with the square construct correlation between any two constructs is compared to test of discriminant validity. In fact, the square construct correlations should be smaller than AVE that it illustrated in the Table 3. this table shows comparing the AVE of components of life skill and square construct correlation that AVE of constructs are greater than square correlation between them.

Table 3. Discriminant Validity

	Self-awareness & Empathy	Interpersonal relationship & communication	Creative thinking & critical thinking	Decision making & Problem solving	Coping with Stress & Emotion
Self-awareness & Empathy	.722*				
Interpersonal relationship & communication	.364	.770*			
Creative thinking & critical thinking	.373	.561	.775*		
Decision making & Problem solving	.220	.300	.540	.847*	
Coping with Stress & Emotion	.121	.087	.030	.025	.900*

Notes:*Diagonal elements report the AVE and other matrix entries report the squared correlation estimation between them.

As results, testing convergent validity and discriminant validity have shown a good construct validity and reliability.

5. Conclusions and Implications

In conclusion, to validate the items and constructs related with items of this questionnaire, adapted life skills underwent the process of confirmatory factor analysis. Results of the studied instrument showed appropriate construct validity. It means in assessing student's life skills, the items in five subscales were valid. Moreover, the results of reliability analysis indicated that this instrument has a good reliability.

Implication that highlighted from this study is methodological approach where it revealed the usefulness of CFA in validating the items (self-awareness & empathy, interpersonal relationship & communication, creative and critical thinking, decision making & problem solving, coping with stress & emotion) and constructs of items consisted in the adapted life skills. Accordingly, researchers can conclude that this instrument was suitable to use for assessing life skills in primary school in Iran. Future research can survey the actual processes going on during the learning activities by using qualitative method in analyzing the items. This is due to the importance of the life skills students', which has a significant impact on quality of the living in the society and their success in all ten subscales of life skill.

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