

The Persian Version of Developmental Assets Profile: Reliability of Psychometric Properties and Confirmatory Factor Analysis

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Abstract

Developmental assets profile (DAP) created by Search Institute which measure 40 required assets for the adolescents' transcendental and positive development is one of the most comprehensive frameworks in the field of positive youth development. The purpose of this study was to investigate the psychometric properties and factor structure of DAP questionnaire using the confirmatory factor analysis in 2018. To conduct this descriptive cross-sectional study, we investigated 300 female students of the first and second grades in Yazd high schools using the multi-stage sampling method. The data were analyzed by Lisrel 8.80 software. The questionnaire was translated and analyzed using the standard method. Test re-test method was applied and ICC was calculated as the relative repeatability index to evaluate the questionnaire's reliability. The confirmatory analysis factor was also applied to evaluate the construct validity of the questionnaire. The significance indexes included RMSEA, $\frac{\chi^2}{df}$, GFH, CFL, IFI, and NNFI.

We confirmed the existence of Boundaries and Expectations, Support, Empowerment, and Constructive Use of Time factors in the external assets as well as Positive Values, Social Competencies, Positive Identities, and Commitment to Learning factors in the internal assets. The results showed appropriate validity and reliability for the Persian version of the DAP questionnaire. Goodness of the fit was also confirmed for the factor structure of the questionnaire. According to the results of the present study the Persian version of DAP can be used as an appropriate tool to measure the developmental assets of adolescents in high schools.

Key words: Adolescents, Factor Analysis, Growth and Development, Questionnaire.

Introduction

In the recent decades, the world of research has turned to an ability-centered approach for teenagers. The previous approach on preventing the risky behaviors or treating the behavioral abnormalities and problems in teenagers is not the best choice any more. The new philosophy believes that adolescents should be viewed positively and with no judgment. The ability-centered approach, as an opposition to the problem-oriented approach, supports the teenagers and does not allow the society to blame them for making mistakes. Many studies from different domains confirmed this change of attitude. (Lewis *et al.*, 2016)

Developmental assets profile

The recent approach to the adolescents' development supports their abilities and promotes their positive capabilities and favorable outcomes. This approach is called Positive Youth Development (PYD). Several theoretical and conceptual frameworks exist in relation

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to PYD, (Conway *et al.*, 2015) but DAP from the Search Institute is one of the most comprehensive frameworks in this area. This framework encompasses all the 40 required assets for the adolescents' transcendental and positive development, which are essential for PYD. The Search Institution designed a 58-item questionnaire to study the assets, which has been used in several studies and the validity and reliability of its English version was confirmed. (Scales, 2011)

The 58-item DAP questionnaire is a self-report that categorizes the developmental assets in eight classes of Boundaries and Expectations, Support, Empowerment, Constructive Use of Time, Positive Values, Social Competencies, Positive Identity, and Commitment to learning. In addition, it can be classified under five sub-titles of Community, School, Family, Social, and Personal.¹

The 40 developmental assets consist of relationships, skills, facilities, values, and commitments, which are required by children and adolescents to become responsible, healthy, caring, and productive adults (table 1). This scientific framework is divided into two main categories of external and internal assets. The external assets provide external resources, such as the things that individuals receive from their families, friends, organizations, and communities. In contrast, the internal assets rely on each individual's internal factors and originate from the skills, abilities, and values that all young people require in order to achieve their identity, personality, and skills throughout their lives.

The 40 developmental assets questionnaire is widely used for PYD and is recognized as a fundamental framework for the adolescents' development in many societies. This framework was created by Search Institute. (Benson *et al.*, 2011) Many studies showed that high scores in developmental assets framework were associated with adolescents' success, avoidance of risky behaviors, and enhancement of positive behaviors such as pro-social behavior, resilience, and leadership. (Benson *et al.*, 2011; Greene *et al.*, 2018; Bleck and DeBate, 2016)

The items of this questionnaire are designed on a four-point Likert scale, which should be responded using the four choices of "Not at all or Rarely," "Somewhat or Sometimes," "Very or Often," and "Extremely or Almost always". The choices receive the scores of zero to three, respectively. Higher scores show more assets and indicate less probability of the teenager's involvement in risky behaviors. So, an adolescent with more assets is expected to be a more successful and healthy individual in education and life. Different studies have verified this finding among various races and ethnicities in different societies. (Roehlkepartain and Scales, 2007)

The Developmental Assets Profile is a valid, reliable, and sustainable questionnaire designed for adolescents and provides general information about the psychological conditions associated with teenagers' DAP. In 2004, two field studies were conducted before DAP publication; the first study was conducted in the Minnesota school district among a sample of 1300 students in grades 6 to 12. The results showed that the total internal consistency for the eight classes of assets (0.81) was relatively high. Moreover, the internal consistencies of the internal and external assets were 0.95 and 0.93, respectively. The general internal consistency of the assets was also calculated as 0.97. The test re-test reliability of the questionnaire with a two-week interval was acceptable for the students of grades six and seven (n=225). Considering the eight classes of assets, the reliability was 0.79. The test re-test reliability was $r = 0.86$ for the external assets and $r = 0.84$ for the internal assets. The test re-test reliability for the total assets was $r = 0.87$. The concurrent reliability of DAP was measured using Attitude and Behavior (A & B), which measured all the 40 assets along with the risk behaviors among more than four million adolescents. Based on the results, the correlation between the score of DAP total assets and the score calculated in the A & B study was 0.82 ($P < 0.001$), which represented a very strong linear correlation.² Despite the international application, comprehensiveness, and various benefits of this questionnaire in the development of adolescents' health, we found no Persian version of this framework. Moreover, the Persian community consists of about 110 million people all around the world, who can make use of this questionnaire.

Table 1: search institute developmental assets

DAP categories	Developmental assets	Number of items
External Assets Support	1. Family support—Family life provides high levels of love and support. 2. Positive family communication—Young person and her or his parent(s) communicate positively, and young person is willing to seek advice and counsel from parents. 3. Other adult relationships—Young person receives support from three or more nonparent adults. 4. Caring neighborhood—Young person experiences caring neighbors. 5. Caring school climate—School provides a caring, encouraging environment. 6. Parent involvement in schooling—Parent(s) are actively involved in helping young person succeed in school.	7
Empowerment	7. Community values youth—Young person perceives that adults in the community value youth. 8. Youth as resources—Young people are given useful roles in the community. 9. Service to others—Young person serves in the community one hour or more per week. 10. Safety—Young person feels safe at home, school, and in the neighborhood.	6

¹ Institute S. Developmental Assets Profile User Manual. 615 First Avenue NE, Suite 125 Minneapolis, MN 554132005.

² Institute S. Developmental Assets Profile: Technical Summary. Minneapolis, MN 5541315May 2013. Available from: www.search-institute.org.

Boundaries & Expectations	11. Family boundaries—Family has clear rules and consequences and monitors the young person's whereabouts. 12. School Boundaries—School provides clear rules and consequences. 13. Neighborhood boundaries—Neighbors take responsibility for monitoring young people's behavior. 14. Adult role models—Parent(s) and other adults model positive, responsible behavior. 15. Positive peer influence—Young person's best friends model responsible behavior. 16. High expectations—Both parent(s) and teachers encourage the young person to do well.	9
Constructive Use of Time	17. Creative activities—Young person spends three or more hours per week in lessons or practice in music, Theater or other arts. 18. Youth programs—Young person spends three or more hours per week in sports, clubs, or organizations at school and/or in the community. 19. Religious community—Young person spends one or more hours per week in activities in a religious institution. 20. Time at home—Young person is out with friends "with nothing special to do" two or fewer nights per week.	4
Internal Assets Commitment to Learning	21. Achievement Motivation—Young person is motivated to do well in school. 22. School Engagement—Young person is actively engaged in learning. 23. Homework—Young person reports doing at least one hour of homework every school day. 24. Bonding to school—Young person cares about her or his school. 25. Reading for Pleasure—Young person reads for pleasure three or more hours per week.	7
Positive Values	26. Caring—Young person places high value on helping other people. 27. Equality and social justice—Young person places high value on promoting equality and reducing hunger and poverty. 28. Integrity—Young person acts on convictions and stands up for her or his beliefs. 29. Honesty—Young person "tells the truth even when it is not easy." 30. Responsibility—Young person accepts and takes personal responsibility. 31. Restraint—Young person believes it is important not to be sexually active or to use alcohol or other drugs.	11
Social Competencies	32. Planning and decision making—Young person knows how to plan ahead and make choices. 33. Interpersonal Competence—Young person has empathy, sensitivity, and friendship skills. 34. Cultural Competence—Young person has knowledge of and comfort with people of different cultural/racial/ethnic backgrounds. 35. Resistance skills—Young person can resist negative peer pressure and dangerous situations. 36. Peaceful conflict resolution—Young person seeks to resolve conflict nonviolently.	8
Positive Identity	37. Personal power—Young person feels he or she has control over "things that happen to me." 38. Self-esteem—Young person reports having a high self-esteem. 39. Sense of purpose—Young person reports that "my life has a purpose." 40. Positive view of personal future—Young person is optimistic about her or his personal future.	6

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Many studies have been conducted using the English version of this questionnaire in Western countries, mostly in the United States. Researchers examined various aspects of adolescents' behaviors using such studies (Greene *et al.*, 2018; Fulkerson *et al.*, 2006; Scales *et al.*, 2000; Scales *et al.*, 2006; Benson *et al.*, 1999; Scales *et al.*, 2005). Scales evaluated the international adaption of the questionnaire in a broad-scope study, but his research only covered Albania, Bangladesh, Japan, Lebanon, and Philippines. (Scales, 2011) However, we are still faced with paucity of DAP studies in the Eastern countries. This unique questionnaire, as the result of many years of endeavors by the Search Institute researchers, was imported to Iran followed by our direct request and translated into Persian.

Methods:

This study was conducted as a part of a Ph.D. thesis in Yazd Shahid Sadoughi University of Medical Sciences. The aim was to translate the DAP questionnaire into Persian and evaluate the reliability and validity of the new version. The study was confirmed by the Ethics Committee of Shahid Sadoughi University of Medical Sciences and received the code number IR.SSU.SPH.REC.1396.115.

Samples and sampling methods:

In this study, we investigated 320 female high school students in Yazd city, Iran. We used the Maximum Likelihood method to determine the sample size. In this regard, five people were added to the sample size considering each item. The questionnaire had 58 items, which resulted in a sample size of 300. By considering a 10 percent of sample loss, we distributed the questionnaire among 330 participants. After data collection, we found that eight questionnaires met the exclusion criteria; two participants answered less than 10 percent of the items (6 questions), five questionnaires had invalid responses, and one questionnaire contained multiple responses to items. These exclusions were performed according to the Search Institute instructions.

The participants of this study included adolescents in the age range of 13–19 years. Written informed consents were signed by all adolescents and their parents; only the students with signed informed consent forms could enter the study. High schools in Iran are of two types: primary high schools including the grades of 7-9 and secondary high schools including the grades of 10-12. To collect the samples, we selected two schools from the primary high schools and two schools from the secondary high schools using the simple random sampling. Then, one class was selected from each school randomly and all students of that class were required to sign the informed consent forms to enter the study. The needed time for completing the questionnaire was about 20 minutes. During this time, the researcher was present and ready to answer the students' questions and solved their problems regarding the comprehension of the questions.

Translation and localization process of DAP

Two main and essential steps exist in translating any questionnaire from the source language to the target language. The first process includes the cultural adaptation and conceptual evaluation of the questionnaire and the second stage is the evaluation of validity and reliability of the translated questionnaire.

In the translation and localization process, the original English version of the questionnaire was translated into Persian. In the first stage, two Persian translators who were not familiar with the DAP questionnaire produced the initial parallel translations of the original questionnaire independently. Researchers and translators reached consensus on the translation in a meeting. One of the translators had experience in translation of medical texts and was familiar with medical terms. Translators and researchers discussed about the first version of translation and examined the parts, which were difficult to translate. They reached consensus on the final version by reviewing the translation and replacing appropriate words in case of ambiguous structures. Then, the first version of Persian translation was translated into English by two translators whose first language was English and had sufficient proficiency and experience in translating texts from Persian into English. They also were not familiar with the DAP questionnaire. The English backward translation was conceptually compared and modified with its original version; the researchers and translators reached consensus and provided one English version of the questionnaire after two meetings. Ultimately, the final backward English translation was translated into Persian appropriately.

The Persian questionnaire was distributed among 30 female high school students in Yazd city as the pilot study. These individuals were not among the participants of the main study. The aim of this pilot study was to evaluate the adolescents' opinions about simplicity, clarity, and comprehensibility of the items.

The backward English translation was sent to the Search Institute in the United States of America. They analyzed the conceptual similarity of the translated English questionnaire with the original version and mentioned some points to consider. We edited our translation according to the Search comments and the final version was ultimately confirmed by the Institute.

Evaluation of validity and reliability:

To determine the content validity of the Persian version, we asked 10 health education experts and psychologists as well as 30 female adolescents to evaluate the quality of the questionnaire. They were required to check and comment on the questionnaire regarding the grammatical structures, use of appropriate words, and placement of items.

In order to assess the repeatability of the Persian version of the DAP questionnaire, it was administered to 26 people two times with an interval of seven days. We applied the SEM and ICC methods, as relative repeatability indices to determine the reliability of the questionnaire. In order to study the construct validity of the questionnaire and to evaluate the degree of compliance (LV and FR) between the original questionnaire and its Persian translation, we ran the Factor analysis method using the Lisrel software. Several indexes were used to evaluate the fitness of factor analysis: the RMSEA index or the square root of the variance estimation error of approximation (with the acceptable value of less than 0.08), the $\frac{\chi^2}{df}$ index (with an acceptable value of less than 3), and GFH, CFL, IFI, NNFI (with acceptable values of less than 0.9). In the case that the significant coefficients (T-Value) of each variable were higher than 2 and lower than -2, we would say that the model has a good fitness and covers a reasonable approximation of the population.

Table 2. Demographic characteristics of the participants

	Number	Percent
Family affluence		
Very good	43	13.20
good	167	51.40
Average	104	32.00
Bad	7	2.20
Very bad	1	0.30
Birth order		
1-2	263	80.90
3-4	48	14.80
5-6	10	3.10
Number of brothers and sisters		
0-1-2	271	93.50
3-4	49	15.10
5-6	4	1.20
Is mother dead?		
Yes	322	99.10
No	3	0.90
Is father dead?		
Yes	317	97.50
No	8	2.50
Level of education of mother		
Under diploma	120	36.90
Diploma	136	42.10
Associate degree	19	5.90
Bachelor's degree	41	12.70
Master's degree and upper	7	2.20
Level of education of father		
Under diploma	124	38.20
Diploma	118	36.30
Associate degree	22	6.80
Bachelor's degree	39	12.00
Master's degree and upper	15	4.60

Results:

In this study, the average age of participants was 15.86 (SD = 1.70). The demographic characteristics of the participants are shown in Table 2. In the pilot phase of the study, several words were ambiguous according to the feedbacks of health education experts, psychologists, and students, which were changed and confirmed by the experts and students. Considering other criteria such as grammatical structures and placement of the items, the questionnaire did not have any problems. The reliability of the DAP questionnaire using the intra-class correlation coefficient is represented in Table 3. The ICC had an acceptable level (0.80-0.96) regarding the classes of the questionnaire, which indicated appropriate reliability of the questionnaire.

Table 3. Confirmatory factor analysis of the developmental assets' frame work

Scale	Construct	Number of items	Sample size	Intraclass Correlation Coefficient
DAP (the Asset View)	support	7	26	0.91
	empowerment	6	25	0.85
	boundaries and expectations	9	26	0.84
	constructive use of time	4	26	0.86
	commitment to learning	7	26	0.93
	positive values	11	26	0.93
	social competencies	8	26	0.87
	positive identity	6	26	0.80
DAP (the	personal assets	13	26	0.96

Context View)	social assets	13	26	0.92
	family assets	10	26	0.89
	school assets	10	26	0.91
	community assets	12	26	0.85

Table 4 and 5 shows the results of the confirmatory factor analysis of the DAP questionnaire. With regard to the analyses of collected data, the DAP questionnaire had a favorable structural validity in all stages (Table 4 and table 5).

Table 4. Results of evaluation of fitting indexes of external assets

Index	The standardized index	The value of index in the model	Conclusion
X2/df	< 3	1/72	The fitness is good
GFI	> 0/9	0/98	The fitness is good
AGFI	> 0/9	0/93	The fitness is good
CFI	> 0/9	0/92	The fitness is good
IFI	> 0/9	0/92	The fitness is good
NFI	> 0/9	0/95	The fitness is good
NNFI	> 0/9	0/99	The fitness is good
RFI	> 0/9	0/91	The fitness is good
RMSEA	< 0/08	0/068	The fitness is good
p-value	< 0/05	0/000	The fitness is good
chi square	> 0/05	503/31	The fitness is good

Table 5. Results of evaluation of fitting indexes of internal assets

Index	The standardized index	The value of index in the model	Conclusion
X2/df	< 3	2/82	The fitness of model is appropriate
GFI	> 0/9	0/91	The fitness of model is appropriate
AGFI	> 0/9	0/98	The fitness of model is appropriate
CFI	> 0/9	0/97	The fitness of model is appropriate
IFI	> 0/9	0/92	The fitness of model is appropriate
NFI	> 0/9	0/97	The fitness of model is appropriate
NNFI	> 0/9	0/95	The fitness of model is appropriate
RFI	> 0/9	0/95	The fitness of model is appropriate
RMSEA	< 0/08	0/075	The fitness of model is appropriate
p-value	< 0/05	0/000	The fitness of model is appropriate
chi square	> 0/05	1206/42	The fitness of model is appropriate

Results of the confirmatory factor analysis of external assets:

According to the Lisrel results, summarized in Table 4, the fitness for the model was appropriate. Considering the Lisrel output, the standard model of factor analysis of the external assets is represented in Figure 1. The figure shows the relationship between variables and their coefficients. According to these figures, the membership of all evaluated factors was confirmed in this variable. The factors including Support, Empowerment, Boundaries and Expectations and Constructive Use of Time are shown in abbreviated forms of SUP, EMP, BOE and CUT in the figure 1 and 2.

The significance test of the model was examined based on the T-Value index. In the case that T-Value was higher than 2 and less than -2, all coefficients of the model were significant. The Lisrel output showed the significance of coefficients. Figure 2 represents the dimensional model of external assets; all coefficients were higher than 2, therefore, the model and its coefficients were quite significant.

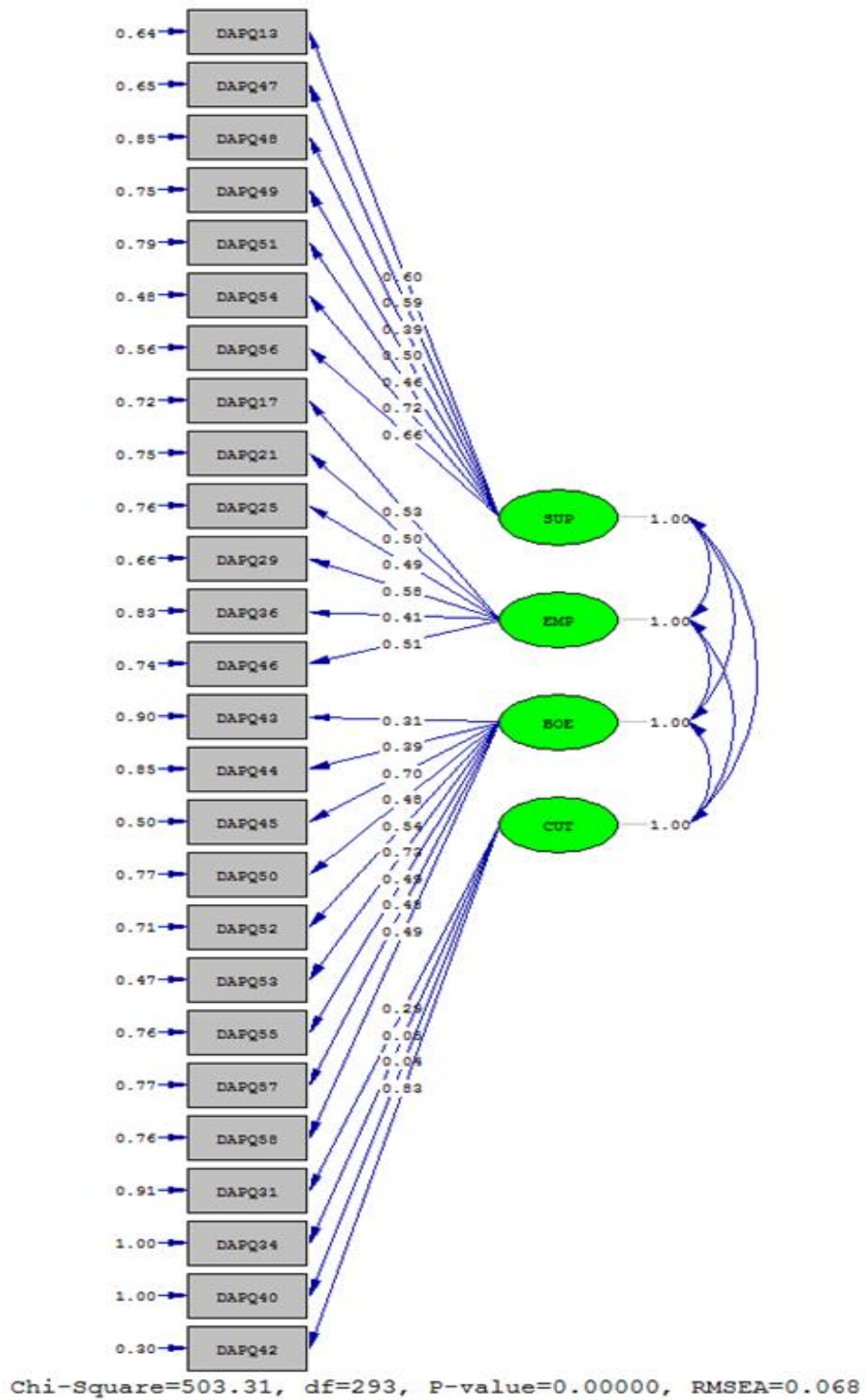


Figure 1: Measurement model of external assets' dimensions using standard factor analysis

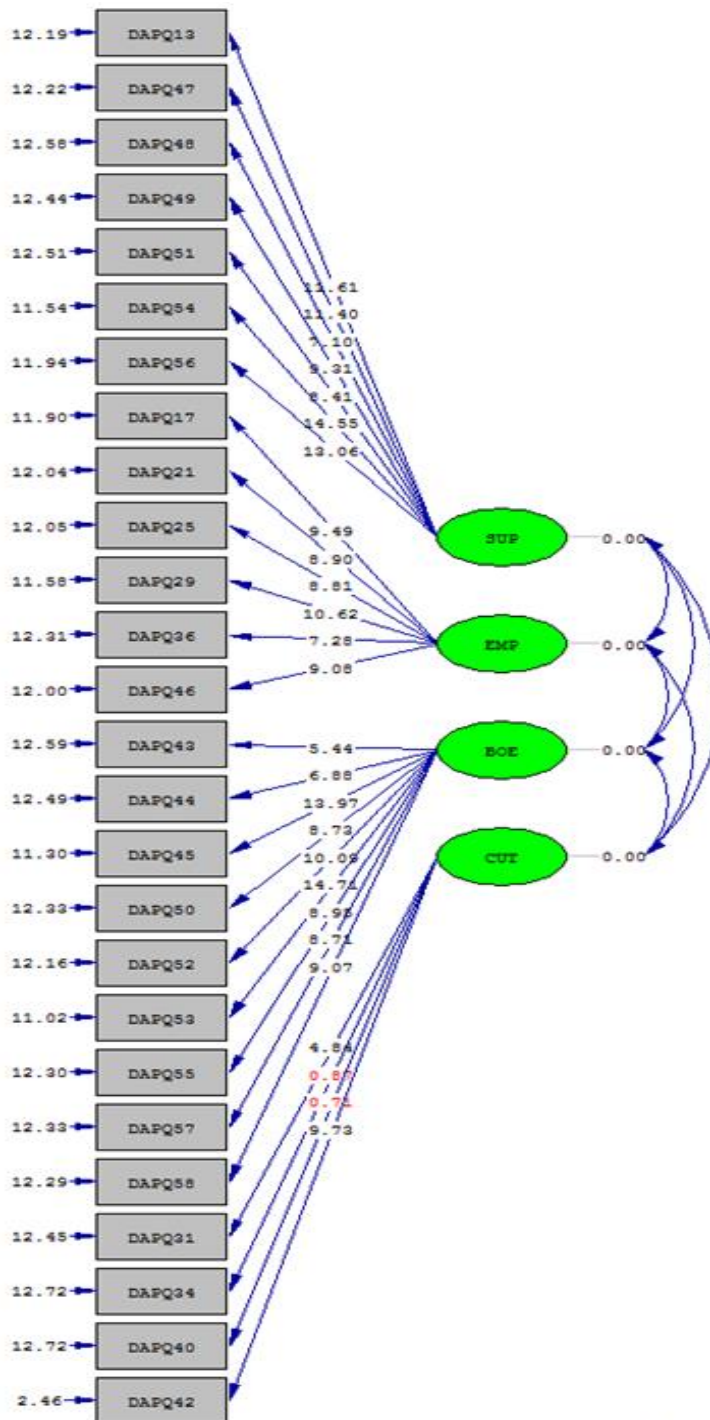


Figure 2: Measurement model of external assets' dimensions using significant factor analysis

Results of the confirmatory factor analysis of the internal assets:

According to the Lisrel results summarized in Table 5, the fitness of the model is appropriate. According to the Lisrel output, Figure 3 represents the standard model of internal assets' dimensions as well as the relationships between variables and their coefficients. According to this figure, the membership of all examined factors in this variable is confirmed. The factors including Commitment to Learning, Positive Values, Social Competencies and Positive Identity are shown in abbreviated forms of CTL, POV, SOC and POI in the figure 3 and 4.

Figure 4 indicates the significance model of internal assets' dimensions. Considering Figure 4, all coefficients are higher than 2, so, the model and its coefficients are quite significant.

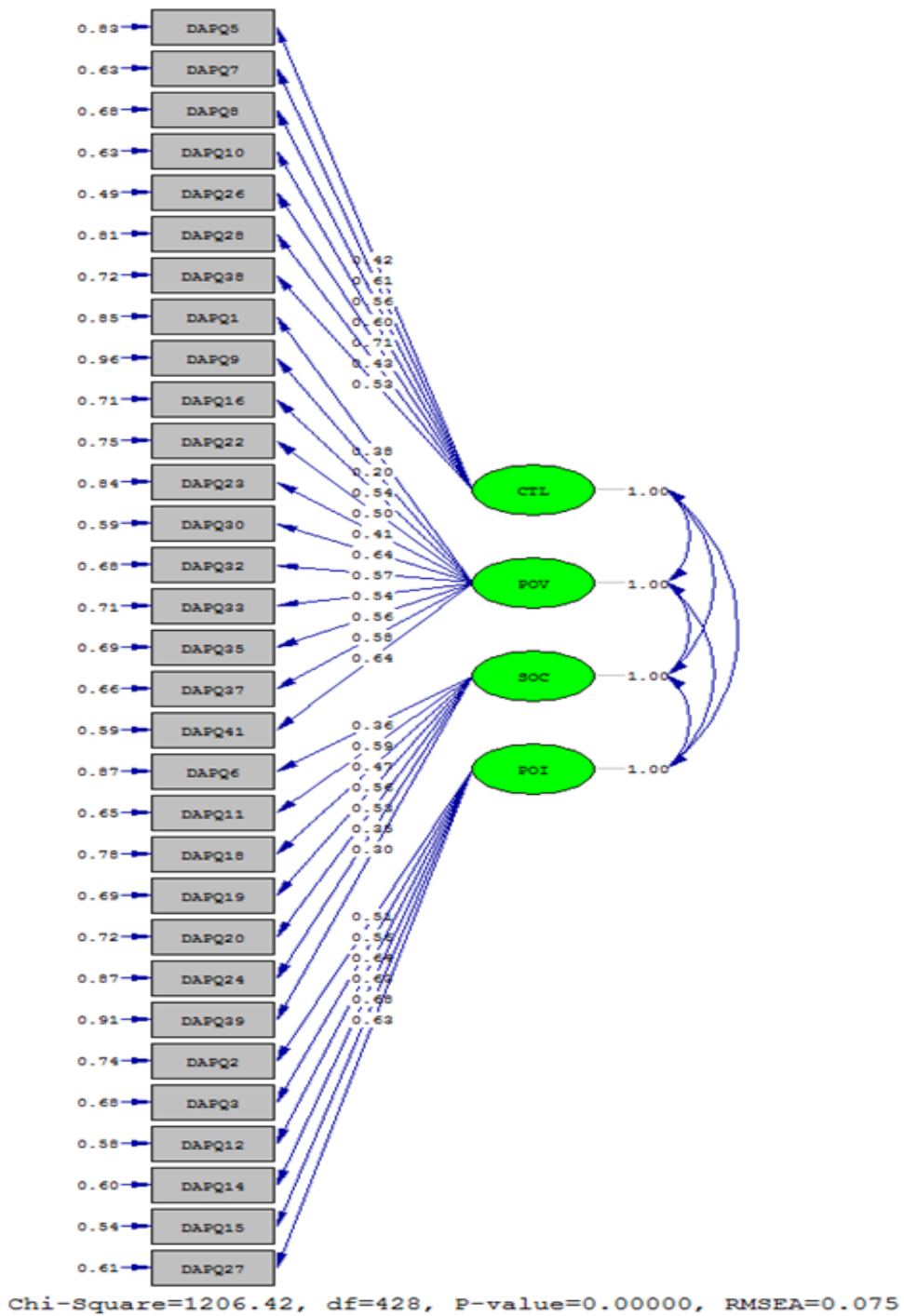
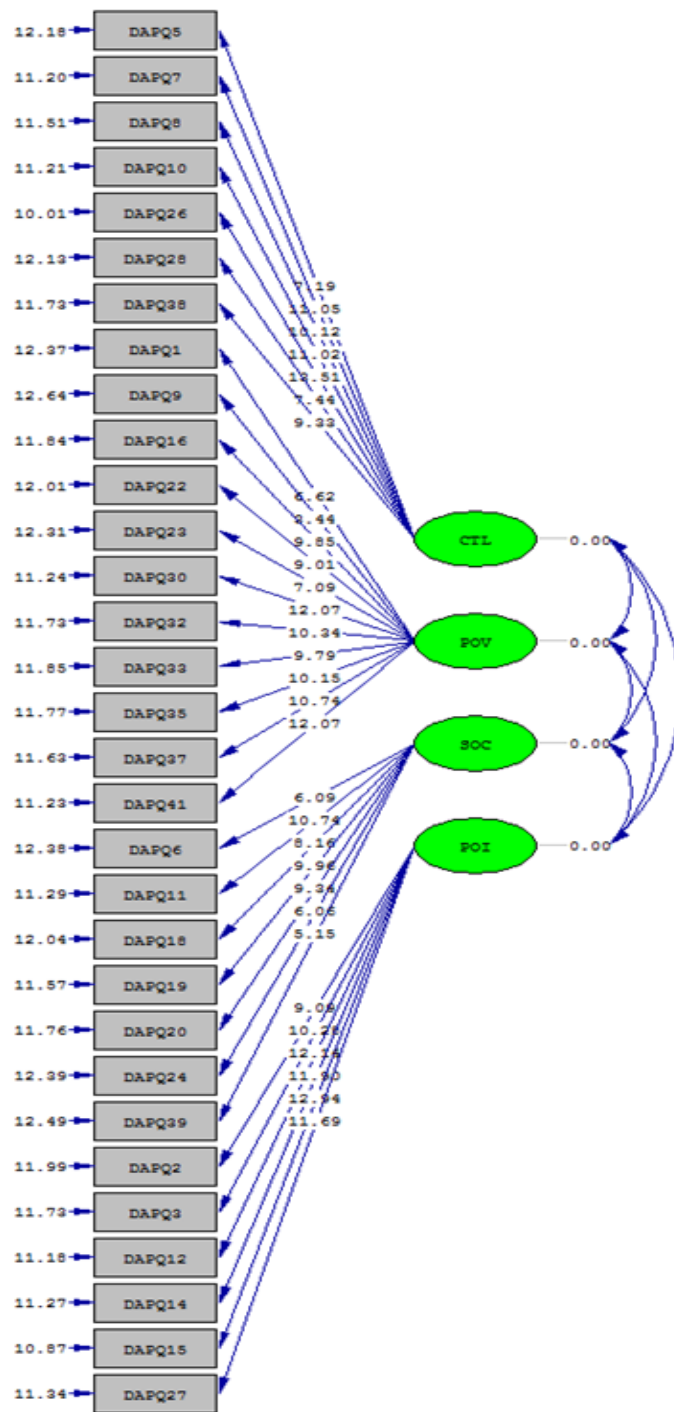


Figure 3: Measurement model of the internal assets' dimensions using a standard factor analysis



Chi-Square=1206.42, df=428, P-value=0.00000, RMSEA=0.075

Figure 4: Measurement model of internal assets' dimensions using a significance factor analysis

Discussion:

The current study was conducted to determine the validity, reliability, and localization of the DAP questionnaire. The results showed that the translated questionnaire had acceptable reliability and validity.

The results of the study by Scales indicated that the psychometric properties of the DAP questionnaires translated into Albanian, Bengali, Japanese, Lebanese, and Filipino were not significantly different regarding the questionnaire's classes including Support, Boundaries and Expectations, Commitment to learning, and Positive Values. In addition, the translated versions did not differ significantly from the

original questionnaire; they even showed higher structural validity in non-US countries. However, regarding the classes of Empowerment Assets, Social Capabilities, and to a less degree Positive Identity, some psychometric weaknesses exist in the non-English versions due to cultural differences regarding the industrial and western societies. (Scales, 2011) However, results of the present study were in a different line; we found that the psychometric properties of most structures were appropriate. Furthermore, the ICC of developmental assets' classes was not significantly different from the original version; it was better in some cases. On the other hand, results of the study conducted by Scales showed that the translated versions in comparison with the English version had a lower alpha value in three classes of Empowerment Assets, Social Capabilities, and Positive Identities.

The findings of this study showed that the items dealing with the Constructive Use of Time class (items number 31, 34, and 40) had the lowest factor loads of 0.26, 0.06, and 0.04, respectively. These questions included "I am involved in a religious activity or group", "I am involved in a sport, club, or other group", and "I am involved in creative things such as music, theater, or art". The heterogeneous results achieved regarding these items are due to the cultural differences; in other words, such arts take other forms in terms of Iranian culture and the students' confusion while completing the questionnaires showed this. Music, theater, and art are three separate areas from the viewpoints of Iranian teenagers, which should not be questioned in one item. In addition, membership in groups asked in questions number 34 and 40 was a little obscure for Iranian adolescents. This is perhaps due to the lack of team work in Iran. Considering the question number 31, the religious activities of the Iranians or indeed the Muslims are usually conducted individually, although the original forms were carried out in a group. This is completely different from the religious activities of the Christians, which is usually carried out in groups in churches. The findings of Scales *et al.*, who reviewed the research data of 31 countries, were in the same line with the results of the current study. According to their results, the Constructive Use of Time had an unacceptable validity in half of the investigated countries, because this construct was intentionally designed multi-dimensionally. (Scales *et al.*, 2017) Most studies carried out in this area showed this construct as the weakest asset experienced by the adolescents. (Scales, 2011; Scales *et al.*, 2017) The most trusted classes of asserts among these 31 countries included Boundaries and Expectations, Commitment to Learning, and Positive Values, whereas, the most unreliable category was the Constructive Use of Time. (Scales *et al.*, 2017)

Considering the internal assets, the choices of question number 9, which was "I stay away from tobacco, alcohol, and drugs," became unexpectedly problematic. The students, especially the younger ones were confused and considered the choices reversely. They perceived the "At all" and "Very little" choices as avoidance or absence of consumption. Apparently, this confusion was due to the wordings and the informal grammar used in refusal of doing wrong things in Persian language. In other words, Iranian people use the term "at all" when they refuse to do something emphatically.

Conclusion:

The results of this research can be used to pave the way for the future studies in this area. Researchers may use this tool to study DAP of adolescents in Iran by developing effective interventions.

We should note that all rights of DAP questionnaire belong to the Search Institute and the Persian version will also be available to the researchers after receiving the permission from this Institute.

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