



# Standardization of the Persian Version of the Academic Commitment Scale

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## Abstract

**Background:** Academic commitment as a new specialized issue has attracted the attention of educational researchers. Despite of the conducting relevant studies, it was more considered by Human-Vogel and Rabe. Their designed research tool has not yet been used in Iran.

**Objectives:** The purpose of this study was to investigate the factor structure and reliability of this tool in Iranian learners.

**Methods:** The primary tool consisted of 30 items and 5 dimensions (students' satisfaction with their studies, level of commitment, investment, quality of alternatives, and meaningfulness). In this cross-sectional study, 449 pre-university students of Bandar Abbas city were selected through multi-stage sampling. Data were analyzed using AMOS and SPSS software. Confirmatory factor analysis was used to examine factor structure. Cronbach's alpha coefficient and Gottman and Spearman-Brown split-half coefficients, were used to test the reliability.

**Results:** After examination the validity of the tool, five items were excluded and finally a questionnaire including 25 questions was obtained. Beta coefficients were greater than 0.4. Model fit indices, including root mean square error of approximation (RMSEA), Comparative fit index (CFI), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), incremental fit index (IFI), and Tucker-Lewis index (TLI) were obtained 0.04, 0.95, 0.91, 0.90, 0.90, 0.95, and 0.94, respectively, indicating the fitness of this five-factor tool. A Cronbach's alpha coefficient of 0.87, a Gottman's split-half of 0.65, and a Spearman-Brown split-half of 0.68 were obtained, indicating the appropriate reliability of the instrument.

**Conclusions:** Based on the results, the final version of the tool seems to be suitable for assessing academic commitment in Iranian learners in the Iran educational systems.

**Keywords:** Academic Commitment, Learner, Iran, Questionnaire, Persian

## 1. Background

The term "commit" or "commitment", in Webster's dictionary is defined as a promise of something or an individual (1) and, according to the Liuo's definition, expectations, personal benefits, ethical issues, sacrifice and loyalty. Commitment has been defined as having a feeling, purpose and direction in life (according to Curtis) as well as a belief in the importance and prominence, interesting, meaningfulness and valuable aspects of life's activities (based on Kobsa's definition) (2). In a study, commitment was identified with three dimensions, including effort investing, a strong sense of involvement, and a complete focus on one's activities (3).

Academic commitment refers to one of the dimensions, including school bonding (4, 5), or individual's psychological investment in the activities of a school or uni-

versity (6), or the learner's view of the importance and usefulness of the university or to achieve individual educational goals (3).

Commitment is a kind of purposeful fundamental feeling or sense of interconnectedness that is the most essential and most comprehensive source of resistance to any kind of stresses (including educational stress) (7). In addition, is also one of the dimensions of psychological hardness in Kobsa's theory that indicates that the committed person has realized the value and meaning of who he is and what he is doing (8).

Academic commitment was first conceptualized in terms of percentage of practical effort and time devoted to educational and scientific activity (9); however, Human-Vogel argued that the time and effort put into practice by a learner rarely represents the range that needs to be taken

into account for academic commitment during his or her education (10). The results of recent studies have shown that time and effort are more accurate descriptions of practical motivation (9), which Human-Vogel has defined it more as a consequence of commitment (10).

Human-Vogel and Rabe developed a comprehensive model of academic commitment, which in fact, was a developed model of commitment investment (11). The Rusbult commitment investment model, as the oldest model of marital commitment, was first developed to examine commitment in romantic relationships. According to this model, couples' commitment to each other depends on three interrelated factors, such as "marital satisfaction, marital investment, and marital alternatives" (4).

Given the revealed background by the investment theory in studying romantic relationships, this theory can be used in studies on student's progress or academic burnout (11).

Studies have shown that this theory is not just an interpersonal theory, but can also be extended to other fields to help clarify the limits and external boundaries of this model (9). Human-Vogel and Rabe developed this model to use in educational field and added two dimensions of the meaningfulness of education and the level of commitment (11).

Academic commitment is a new field of research. Commitment as a research structure and concept has been examined mainly in the communication or organizational areas, however studies on education are limited and has only recently been studied comprehensively (9).

Human-Vogel stated that there is a great deal of research into the role that commitment plays in organizational management and marketing, However, there is no comprehensive and comprehensive research on the sustainable practical motivation of students in educational settings (10).

Human-Vogel and Rabe believe that most of the conducted global studies on academic commitment have limited to the learners' essential commitments (according to the rules and conditions of higher education), commitment to the individual reports, commitment to the completion of education, and the organizational commitment-related issues of higher education staff (11).

The relationship between academic commitment to academic achievement (12-16), academic motivation (13, 17) and positive achievement emotions, including pleasure, hope, and pride (18) and academic vitality (17) highlights the importance of this issue, however this concept has not even been explored in these studies as a multi-dimensional concept and structure, but it has considered as one of the dimensions of school bonding or one of the dimensions of psychological hardiness.

Studies on academic commitment (in the broad sense) in Iran, similar to global studies, are very limited. For example, searching for first 100 records in Google as well as the Persian Scientific Information Database (SID) has resulted in less than 5 articles entitled "Comprehensive commitment among all learners (medical sciences universities, students of other universities and majors, and school students)", in which academic commitment was limited to commitment to homework (16, 18) or it was considered as a one-dimensional subscale. Therefore, it seems that multidimensional studies on academic commitment are needed in medical education in Iran. The lack of an approved research tool is one of the limitations of conducting comprehensive research in this area. Among global studies, conducted before Human-Vogel and Rabe research, there has been no tool for comprehensive measurement of academic commitment. In Iran, also, there has not yet been a tool to measure academic commitment comprehensively.

## 2. Objectives

The present study was conducted to standardize the academic commitment scale (ACS) among all students, including medical education students, students of other universities, pre-university students, and high school students.

## 3. Methods

This descriptive- analytical cross sectional study was carried out on 499 pre-university student of Bandar Abbas in 2017 - 2018. The studied population, in terms of age and status, as those who were about to enter the university was very close to the university students, especially medical students; however, it was also similar to the high school students. In fact, due to the subjects' status (between university and school), the result of the present study can be used in medical education, in higher education, and in high school students.

The sample size was estimated 480 students. To determine the sample size in structural equation modeling research, Kline proposed at least 5 people per factor and optimally 20 people per factor (19). According to Garver and Mentzer, a sample size of above 200 subjects in structural equations modeling represents a good statistical power for data analysis (20). Of the questionnaires received, 449 questionnaires were analyzed.

Multistage sampling was performed. Cluster sampling and then stratified random sampling were used. After making coordination with the Bandar Abbas Education Organization, the students' number was provided based on

the district, field of study and school type and the ratios of each were calculated. This ratio was also observed for the selected sample, so that in each Education Organization district, the needed sample size in the experimental sciences was calculated in public schools, special schools, and non-public schools. This sample size was also calculated for the mathematics and humanities.

First, in each educational district, the list of available schools was prepared, based on the type of school (public, non-public, and special schools). Then, some schools from each district were randomly selected. In the next step, the list of students according to their field of study was obtained from the school principal of the selected schools.

Based on the initial sample size calculated for each class, students were randomly selected (using Excel software).

The Human-Vogel and Rabe (2015) ACS was used as the research tool, which consists of 30 questions and 5 subscales (11).

The first subscale (level of commitment) assesses the likelihood that the subject will be able to continue his education until the end (without failing).

The second subscale (satisfaction) assesses the subjects' satisfaction with his studies and education.

The third subscale (size of investment) measures the amount of investment by students in their studies. In other words, how much time the student spent studying and how much effort he had made.

The fourth subscale (the quality of alternatives) assesses respondents' perceptions or possibly their preference to choose other alternatives to the university or school.

The fifth subscale (meaningfulness) indicates to what extent learners experience their education meaningfully and can be examined in several areas as follows:

(a) How their identities are formed by their studies, (b) how identity expression can enhance learners' motivation for university education at university, and (c) the degree, to which a university education supports student's identity expression.

The minimum score obtained in the initial questionnaire is 33 and the maximum is 165 (11).

ACS was first used on 259 students at the College of Engineering in South Africa and its validity and reliability were reported at an appropriate level. Its fit indices in this study were at the optimum level and its reliability using Cronbach's alpha coefficient for levels of commitment, the quality of alternatives, satisfaction, meaningfulness and size of investment was calculated 0.90, 0.68, 0.90, 0.91, and 0.90, respectively, which all indicate its appropriate overall reliability (11).

In the present study, ACS by Human-Vogel and Rabe was

used for the first time in Iran and for Iranian students. The items of ACS were first translated. To assess the scale validity, its translation was provided to one of the university professors and after confirmation, it was translated to English by another faculty member and matched with the original questionnaire. The two English texts were appropriately matched (the original text and the first English translation).

Content validity ratio (CVR) and content validity index (CVI) and medical education experts' views were used to assess content validity. Questions 5, 6 and 22 (CVR = 0.75) and questions 9 and 13 (CVR = 0.63) were excluded (questions 5, 9 and 13 showed a CVI of less than 0.70). Questions with 0.79% CVI  $\leq$  0.70 were modified and revised by experts. Finally, 25 questions remained (CVR = 0.86 and CVI = 0.89).

The researcher referred to the preschool and the questionnaires were distributed. Initial explanations were provided to the students and they were informed about the ethics of the research, including confidentiality of information, no need to write a name and surname, voluntary participation in the study and being free to withdraw from the research. Also, the ethics code (IR.HUMS.REC.1398.228) was obtained from the University Ethics Committee. To increase the respondents' willingness to participate in the study, a gift was given to each subject.

Data were analyzed using Excel 2010, AMOS 22 and SPSS 18 software (version 18, SPSS Inc., Chicago, IL). To investigate the factor structure of the ACS in terms of confirmatory factor analysis and also to evaluate the adequacy of the model,

Goodness of fit index (GFI), adjusted goodness of fit index (AGFI), root mean square error of approximation (RMSEA), comparative fit index (CFI), 2x, and degree of freedom were used. Before entering data to the model, the assumptions of using AMOS software (including normality of data, the lack of multivariate outliers, and multiple linearity) were also examined. Reliability was also measured using Cronbach's alpha coefficient and Gottman and Spearman-Brown split-half.

#### 4. Results

Of 499 pre-school female students in Bandar Abbas, 61.9% were studying in public schools, 19.9% in non-government schools, and 18.2% in other types. There were 53.7% of students in experimental sciences, 22% in mathematics and 24.3% in humanities.

Among the questions answered, the highest and lowest averages were found for question one, of the level of commitment dimension and question 17, of the investment dimension (Table 1).

To analyze the data, the assumptions to use AMOS software were examined. Normality is one of the assumptions

**Table 1.** Mean and Range of the Persian Version of Academic Commitment Questionnaire Scores and Its Dimensions

Dimension, Items	Score Range	Mean ± SD
<b>Level of commitment</b>		
Question 1	1-5	4.77 ± 0.53
Question 2	1-5	3.80 ± 1.01
Question 3	1-5	4.50 ± 0.71
Question 4	1-5	4.52 ± 0.80
Total dimension	4-20	22.11 ± 2.65
<b>Satisfaction</b>		
Question 5	1-5	4.08 ± 0.90
Question 6	1-5	4.14 ± 0.81
Question 7	1-5	4.19 ± 0.84
Question 8	1-5	3.41 ± 1.06
Question 9	1-5	3.68 ± 0.99
Total dimension	5-25	31.02 ± 5.08
<b>Quality of alternatives</b>		
Question 10	1-5	3.07 ± 1.26
Question 11	1-5	3.11 ± 1.22
Question 12	1-5	3.65 ± 1.10
Total dimension	3-15	9.82 ± 3.02
<b>Investment</b>		
Question 13	1-5	3.67 ± 1.06
Question 14	1-5	2.93 ± 1.11
Question 15	1-5	3.02 ± 1.12
Question 16	1-5	3.33 ± 1.06
Question 17	1-5	3.42 ± 1.09
Total dimension	5-25	16.37 ± 4.29
<b>Meaningfulness</b>		
Question 18	1-5	3.65 ± 1.09
Question 19	1-5	3.92 ± 0.92
Question 20	1-5	3.62 ± 1.04
Question 21	1-5	3.79 ± 1.04
Question 22	1-5	3.65 ± 0.98
Question 23	1-5	3.60 ± 1.03
Question 24	1-5	3.42 ± 1.11
Question 25	1-5	3.86 ± 1.02
Total dimension	8-40	33.25 ± 6.90

in using structural equation modeling.

After deleting outliers, the critical ratio, skewness, and kurtosis showed normal distribution of data (for all dimensions, critical ratio absolute value was less than 2.58). The absence of multivariate outlier data was also investi-

gated (Mardia multivariate kurtosis coefficient = 2.36 and critical ratio = 2.49). In the present study, there was no multiple linearity [tolerance of greater than 0.10 and variance inflation factor (VIF) of less than 10 were obtained] (Table 2).

In the present study, in order to determine the validity of the academic commitment scale, a confirmatory factor analysis was performed using AMOS software on the factors of this subscale (Figure 1). Accordingly, the academic commitment subscale of all items had a good factor load in performing confirmatory factor analysis, meaning that all standard coefficients were above 0.4. In other words, all items were significantly loaded on one factor (academic commitment) ( $P < 0.001$ ).

The results of Table 3 showed that this model had a relatively good fit. Model fit indices in confirmatory factor analysis indicated that the model good fit (Table 3).

Cronbach's alpha coefficient, Gottman's split-half and Spearman-Brown's split-half were used to determine the reliability of the academic commitment scale (Table 4). Accordingly, academic commitment scale and its subscales

**Table 2.** Assessing Multicollinearity of Academic Commitment Dimensions

Dimensions of Academic Commitment	Tolerance	VIF
Meaningfulness	0.62	1.61
Investment	0.68	1.46
Quality of alternatives	0.72	1.39
Satisfaction	0.44	2.29
Level of commitment	0.76	1.31

Abbreviation: VIF, variance inflation factor.

**Table 3.** Model Fit Indices in Confirmatory Factor Analysis of the Persian Version of Academic Commitment Scale

Fit Indicators	Value
$\chi^2$	623.66
P value	$\leq 0.001$
Degrees of freedom	353
$\chi^2/\text{degree of freedom}$	1.77
goodness-of-fit index	0.91
adjusted goodness-of-fit index (AGFI)	0.90
normed fit index (NFI)	0.90
goodness-of-fit (GFI)	0.95
incremental fit index (IFI)	0.95
Tucker-Lewis index	0.94
root-mean-square error of approximation (RMSEA)	0.04
Root mean square residuals	0.06

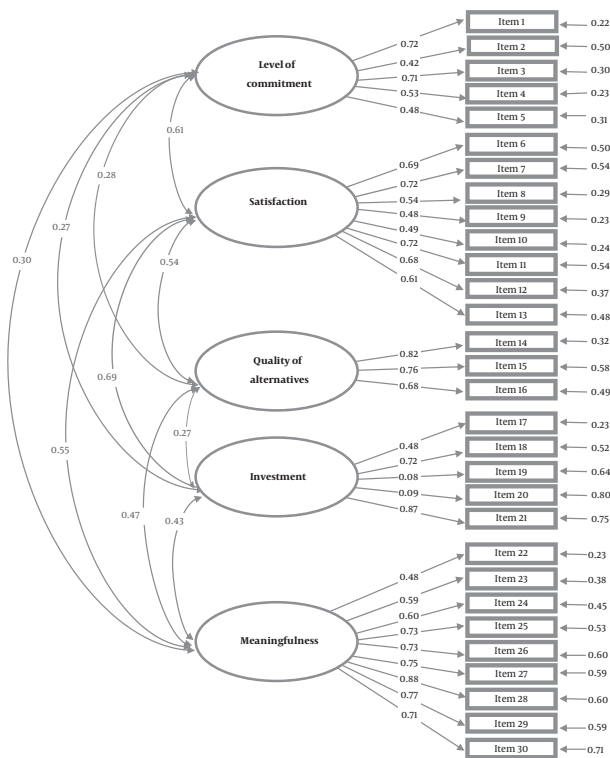


Figure 1. Beta coefficients (factor loadings) of the academic commitment scale

had relatively good reliability coefficients.

## 5. Discussion

The results of the present study showed that the Persian version of the Human-Vogel and Rabe Academic Commitment Questionnaire with some modifications has an acceptable validity and reliability. Also, B coefficients and model fit indices were acceptable, which is consistent with the results of the Human-Vogel and Rabe study.

In the present study, the  $\chi^2$  ratio to df and the RMSEA were more appropriate (lesser) than the Human-Vogel and Rabe research (11). The Cronbach's alpha coefficient was used for reliability of the academic commitment questionnaire in studies by Human-Vogel and Rabe (11), and Viljoen (9), which was slightly better than the present study. Also, the reliability of the meaningfulness dimension in the present study was equal to that of Viljoen (9).

Some differences were found between the original version of the ACS and the standardized version by Viljoen (9). In Viljoen's research, the quality of alternative was asked with two questions and one of the items was omitted from the questionnaire items (9), but in the present study, based on CVI and CVR coefficients, all three items remained in

the Persian questionnaire. In contrast, five items were excluded from its Persian version.

In general, the results of the present study can be explained by the theory of Human-Vogel and Rabe (11).

Human-Vogel and Rabe using commitment investment model, measured student satisfaction with study, long-term stability in study (commitment level), the level of investment by university students or students (investment), alternative competitive strategies (quality of alternatives) and the level of felt individual importance by their commitment to study (meaningfulness). Their results showed that the meaningful academic commitment can be predicted in terms of students' satisfaction with studies, time and practical investment, the quality of the alternatives to study, and a clear and distinct perception by the person (11).

On the other hand, Human-Vogel and Rabe regarding the theoretical explanation of academic commitment stated that academic commitment is theoretically related to the principles of self-regulation and student interaction.

Self-regulation theories often emphasize behavioral aspects of goal-directed behavior, whereas learners' interaction frameworks focus on behavioral indicators related to academic achievement, such as time spent on task performance and the quality of their effort (11).

In addition, the meaningfulness dimension in the present study can be explained by the psychological theory developed by Kobsa. In his view, one of the characteristics of a stubborn person is strong feelings of commitment to his activities (15). An individual with high commitment believes in the importance of value and meaning in who he is and what he does. Accordingly, he is supposed to find a meaning in his activities and arouse his curiosity (7).

Investment dimension is explained by a part of the "school bonding" theory. This theory is a multidimensional construct consisting of the components, including power, commitment, belonging, and belief in the rules (7). The commitment component in school bonding theory refers to the individual's psychological investment in school activities; however the commitment to the present study subject is broader and can be explained by the power component. The power component in this theory refers more to the student's behavioral relationship with the school, and it is measured based on time students spend on school-related behaviors (3, 7).

In general, the reliability and validity coefficients of the modified version of the tool were acceptable and can be theoretically explained by available theories.

### 5.1. Limitations and Suggestions

The main limitation of the present study, like the other studies using questionnaires, was the unwillingness of the

**Table 4.** Reliability Coefficients of the Persian Version of Academic Commitment and Its Subscales

Scale	Number of Questions	Cronbach's Alpha	Spearman-Brown Split-Half	Gottman Split-Half
Academic commitment	1 - 25	0.87	0.68	0.65
Level of commitment	1 - 4	0.70	0.69	0.69
Satisfaction	5 - 9	0.81	0.73	0.73
Quality of alternatives	10 - 12	0.80	0.77	0.65
Investment	13 - 17	0.87	0.85	0.83
Meaningfulness	18 - 30	0.90	0.87	0.86

participants to answer the questions.

It is suggested that the present study be conducted on the university student and particularly, on Iranian medical education student.

### Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

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### Footnotes

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