Open and distance education acreditation standards scale: validity and reliability studies

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ABSTRACT

The purpose of this study is to develop, and test the validity and reliability of a scale for the use of researchers to determine the accreditation standards of open and distance education based on the views of administrators, teachers, staff and students.

This research was designed according to general descriptive survey model since it aims to develop a scale to measure the accreditation standards in open and distance education. The sample of the research comprises 196 students and 19 teachers, administrators and staff studying or working in Private Open education courses in Kadıköy district of İstanbul during 2011-2012 school year. The research data were collected using a scale developed to measure the level of accreditation standards in open and distance education based on the views of stakeholders in open and distance education institutions.

The five-point Likert type scale "Acreditation Standards Scale for Open and Distance Education" developed in this research is consist of 47 items under eight factor including Organizational Structure, Students Services, Quality Assurance/Accreditation, Measurement and Assessment, Organization Mission, Distance Education Management, Distance Education Program, Openness/Credibility/Transparency. The Cronbach Alpha internal consistency coefficient was estimated .9683.

It was concluded that Open and Distance Education Standards Scale is a valid and reliable instrument developed to measure the open and distance education quality at post-secondary education stages in Turkey.

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Introduction

With the integration of education institutions with information and communication technologies, a considerable e-transformation has been experienced, which can be called e-management in the field of administration and e-learning in the field of education. Recently in Turkey there has been a huge increase in the number of universities offering distance education. Majority of universities in the world as well as in Turkey also try to provide their formal campus-based students with distance education service. However, in Turkey, for higher education institutions to open distance education programs, distance education centres, or open and distance education faculty is not based on any accreditation or quality assurance systems. Today, distance education centres and distance education programs open with the formal approval by the plenary committee of the Board of Higher Education (BHE) following an assessment by the Distance Education Committee working under BHE.

Considering the increasing number of institutions offering distance education and students who demand attending these institutions, there is a need to enhance the quality of these distance education programs and instructional activities they provide, and to establish a quality assurance system regarding the distance education practices. However, currently there are no such institutions in Turkey to accredit distance education institutions, their education programs or other services they provide. Bologna process, on the other hand, necessitates the establishment of a national accreditation system for distance education practices.

As stated by Özkul and Latchem (2011), efforts towards creation of access, equality and capacity in distance education were given more importance than enhancing the quality of it in Turkey. One important method of enhancing quality in distance higher education is related with the quality assurance and accreditation practices in distance education.

Latchem, Özkul, Aydın and Mutlu (2006) have emphasized that in Turkey there is a need for quality assurance systems in distance education practices and quality assurance should be given priority.

The e-transformation in every field of life in Turkey also necessitates significant arrangements. Particularly in terms of distance education infrastructure it is very important to organize and manage distance education, improve human sources in administrative and technological terms, and ensure financial and scientific incentives. Moreover, certain legal arrangements and academic definitions regarding open and distance education need to be done and enacted, efforts towards ensuring quality in distance education should be accelerated, and arrangements regarding accreditation and equivalence of distance education programs need to be actualized as soon as possible. As in formal campus-based education, in distance education there is a need to make important arrangements to measure students' achievement. There is also a need to arrange and standardize across institutions the students' tuitions and instructors' wages in legal, academic, financial and status-related terms.

As Can (2005, p.261) points out it is apparent from the current practices that although there are all kinds of work, attempt and legal arrangements towards increasing the number of distance education students Turkish higher education system, attempts towards improving the quality are progressing very slowly for now.

One of the most critical ways of meeting these needs and improving the quality in open and distance education is the accreditation of distance education programs.

As Lockee, Burton and Potter (2010) suggest that the issue of accreditation came into agenda as a result of the recent increase in the quality assessment studies in higher education to relieve concerns regarding the quality of courses delivered via distance education.

Since the middle of 1980s the main policy about open education practices in Turkey has been to prevent the congestion in the entrance to universities, to ensure that maximum number of students benefit from higher education and get a degree, i.e. to generate new capacity in higher education. This practice has continued fast in different fields including especially teacher training through distance education. Despite this quantitative development, it is evident that efforts were not made as fast to improve the quality in higher education.

Robinson (2004) defines accreditation as quality assurance and emphasizes that the only and most important issue an education institution that provides distance education for various reasons should consider in any case be a quality education experience. Therefore, there is a need for instruments to measure the quality standards of open and distance educational institutions.

Karal (2011) asserts that accreditation is very important in distance education and standardization is needed in this field, and there is no institution in Turkey to accredit distance education.

Karaoğlu (2002, p.6) suggests that accreditation is a kind of certificate of quality, and the institutions granting these certificates are independent of government and generally formed by the representatives of universities involved in the system.

There is a lack of concrete studies or practices about how to conduct a quality assurance and accreditation towards distance education practices in Turkey. Based on this lack, it is deemed important to develop and apply instruments to measure the level of accreditation standards in open and distance education, and conduct follow-up studies based on application results.

The purpose of this study is to develop, and to test the validity and reliability of a scale to determine the accreditation standards of open and distance education institutions based on the views of administrators, teachers, staff and students.

Method

This research was designed according to general descriptive survey model since it aims to develop a scale to measure the accreditation standards in open and distance education. General descriptive survey models are the kind of studies conducted on an entire population or a group, example or sample taken from the population to get a general understanding about the   population composed of many members (Karasar, 1995, p.79). Büyüköztürk (2001, p.2; 2002) suggests that survey studies are commonly used in social sciences and allow working on large groups. Moreover, survey studies are defined as research designs where there is no manipulation of the researcher on the independent variables or factors.

Yıldırım and Şimşek (2006, pp. 64-65) emphasizes that quantitative researchers are responsible for taking every measures that do not breach objectivity in quantitative designs, thus it is important to work using

standardized data collection tools and measurement instruments in terms of objectivity.

Sample

The sample of the research comprises 196 students and 19 teachers, administrators and staff studying or working in Private Open education courses in Kadıköy district of İstanbul during 2011-2012 school year.

Data Collection

The research data were collected using a scale developed to measure the level of accreditation standards in open and distance education based on the views of stakeholders in open and distance education institutions. Prior to the development of scale items, the relevant literature was reviewed, which revealed no scales developed previously in Turkey. Based on the literature review the standards regarding the open and distance education were developed theoretically. To this end, the accreditation standards and procedures used by some national accreditation institutions (e.g. MÜDEK, YÖDEK) and international accreditation institutions (DETC, ACCET, ACTDE, ODLQC, CHEA) were examined. In order to produce scale items based on an original study, it was decided to develop a five-point Likert type scale.

Denzin (1978) states that three kinds of triangulation can be used scientific studies i.e. triangulation of data, researcher, and theory and method. Likewise, in the present study the scale was developed and applied, and also method triangulation was used by conducting interviews. Moreover, sample triangulation was also used by collecting data based on views of different stakeholders (students, scholars, administrators, and staff) about the accreditation of Open education and distance education institutions in higher education.

In order to develop scale items, first students, teachers, administrators and staff were asked open ended questions about accreditation in education, accreditation in open and distance education, services provided by open education faculty, quality in open and distance education, characteristics of distance educational institutions and programs in Turkey, and the problems encountered during the provision of services and their suggestions. Their answers were taken in written form. In line with the analysis of the theoretical literature review and students' views, a pool of items for the draft scale were produced. The content of the pool was worded into item statements by the researcher and the draft scale form was developed after expert opinions were obtained. Next, it was decided to conduct a pilot study to test the adequacy of the draft scale in terms of content, clearness of expression and construct. To this end, draft form was administered on 196 students and 19 principal, teachers and staff studying or working at Kadıköy Branches of Private Open education courses. After the evaluation of data obtained from the pilot study, literature review and expert opinions, the draft scale with 60 items was revised. At the final stage, scholars from the department of educational administration department were consulted for their opinions about the scale items. In line with feedback from the experts, 13 items were discarded from the draft scale and the final draft scale form with 47 items was developed. Responses to items included "Strongly Agree", "Strongly Disagree", "Indecisive", "Disagree" and "Strongly Disagree". These responses were transformed into scores ranging from 5 to 1 respectively to be used in statistical analysis.

Data Analysis

The validity of the scale was tested through content and construct validity. For the content validity, specialist scholars were asked for their opinions about the scale items. For the construct validity, Exploratory Factor Analysis (AFA) was used followed by Confirmatory Factor Analysis (DFA) to test the goodness of fit of the model obtained in AFA.

The data were analysed using SPSS and Lisrel software programs. In order to test the construct validity of the scale, first Kaiser-Meyer-Olkin (KMO) and Bartlett test of Sphericity analyses were done. Next, principal components factor analysis was applied using Varimax rotation method. The reliability of the scale was tested estimating Cronbach Alpha coefficient and test-retest methods.

Findings

Descriptive Analysis Results

The draft scale was administered on a study group comprising a total of 155 people. The data set was subjected to factor analysis with Varimax rotation method. The Kaiser-Meyer-Olkin coefficient for the obtained data set was found ,893. This suggests that the size of the sample was adequate for the factor analysis. Next, Bartlett test was done to determine whether the measured variable is a multi-dimensional feature in the population parameter (8144,572), which yielded a statistically significant result at ,001 level (Table 1).

Table 1. The results of kaiser-meyer-olkin and barlett tests obtained in first factor analysis of the open and distance education accreditation standards scale

Test		Value
Kaiser-Meyer-Olkin Test		,893
Bartlett's Test of Sphericity	Chi-Squared	8144,572
	df	1770
	P	,000***

As it can be seen in Table 1, the scores regarding the perceptions of the administrators, teachers, staff and students about the accreditation standards in open and distance education are multi-dimensional in population parameter.

Table 2. The results of first factor analysis of the open and distance education accreditation standards scale with varimax rotation

Factor	Eigenvalue	% of variance	Cumulative %
1	7,978	13,297	13,297
2	5,602	9,337	22,634
3	5,561	9,269	31,902
4	5,345	8,909	40,811
5	4,861	8,102	48,914
6	3,671	6,119	55,032
7	3,368	5,613	60,646
8	2,992	4,986	65,632

According to the first factor analysis results of the Open and Distance Education Accreditation Standards Scale with Varimax rotation method (Table 2), the scale was composed of eight factors with eigenvalues above 2,00 including Organizational Structure, Student Services, Quality Assurance/Accreditation, Measurement and Assessment, Organization Mission, Distance Education Management, Distance Education Program, Openness/Credibility/Transparency. All eight factors explained 65,632% of the total variance. Inclusion criteria for items was considered to be having factor loadings at .30 or above in relevant factor. Since all items met this criteria all 60 items in the scale were considered to be valid.

Table 3. The results of second factor analysis of the open and distance education accreditation standards scale with varimax rotation

Factor	Eigenvalue	% of variance	Cumulative %
1	6,873	14,622	14,622
2	5,189	11,040	25,662
3	4,209	8,955	34,617
4	4,161	8,853	43,471
5	3,808	8,103	51,573
6	3,175	6,756	58,329
7	3,061	6,513	64,842
8	2,636	5,609	70,451

As it can be seen in Table 3, the items grouped in each factor with high loadings were named in accordance with their content. Next, the reliability analysis were conducted. Based on the reliability analysis 13 items were decided to be discarded from the scale since they had comparatively low reliability coefficients though their item analysis results were significant. It was also understood that these items took high loadings in multiple factors. After discarding them, the remaining 47 items were subjected to factor analysis with revised item numbers.

Table 4. The results of the third factor analysis of the open and distance education accreditation standards scale with varimax rotation

Factor	Eigenvalue	% of variance	Cumulative %
1	6,873	14,622	14,622
2	5,189	11,040	25,662
3	4,209	8,955	34,617
4	4,161	8,853	43,471
5	3,808	8,103	51,573
6	3,175	6,756	58,329
7	3,061	6,513	64,842
8	2,636	5,609	70,451

As it can be seen in Table 4, as a result of the third factor analysis, the scale composed of eight factors with eigenvalues above 2,00. The total variance explained by eight factors was 70,451%. In the third factor analysis, the minimum factor loadings of the items was .40. Thus, it was understood that all 47 items in the scale were valid.

Table 5. Names and numbers of items in each factor of open and distance education accreditation standards scale

Factor no	Factor name	Item no	Total number of items
1	Organizational Structure,	9, 10,11,12, 13,14,15,16,17	9
2	Student Services,	28, 29, 30, 34,35, 36, 37,38, 39,40, 45	11
3	Quality Assurance/Accreditation,	41, 42, 43, 44, 46, 47	6
4	Measurement and Assessment,	31, 32, 33	3
5	Organization Mission,	1, 2, 3, 4	4
6	Distance Education Management,	18,19, 20, 21	4
7	Distance Education Program,	22, 23, 24, 25, 26, 27	6
8	Openness/Credibility/Transparency	5, 6, 7, 8	4

As it can be seen in Table 5, as a result of the third factor analysis of the scale with Varimax rotation method, factor loadings of each item were estimated again according to their factors. As a result of the analysis, items were considered in the order of their factor loadings, the factors of some items changed and 8th factor was renamed.

Table 6. Correlations between factors of open and distance education accreditation standards scale

	Organizational Structure	Student Services	Quality Assurance/ Accreditation,	Measurement and Assessment,	Organization Mission,	Distance Education Management	Distance Education Program	Openness/ Credibility/ Transparency
Organizational Structure	1,000	,589***	,513***	,436***	,590***	,670***	,652***	,562***
Student Services		1,000	,643***	,601***	,556***	,552***	,715***	,463***
Quality Assurance/ Accreditation			1,000	,444***	,395***	,492***	,582***	,421***
Measurement and Assessment				1,000	,402***	,439***	,521***	,297***
Organization Mission					1,000	,520***	,529***	,558***
Distance Education Management						1,000	,579***	,447***
Distance Education Program							1,000	,558***
Openness/ Credibility/ Transparency								1,000

*p<,05   **p<,01   ***p<,001   n:155

As it is seen in Table 6, the correlations between the factors of Open and Distance Education Accreditation Standards Scale were estimated to test the construct validity, which revealed all significant correlation coefficients (p< .001). One of the important criteria regarding the construct validity of a scale is the statistically significant but not too high or too low correlation coefficients between the factors. The correlation coefficients ranged between .715 maximum and .297 minimum. These results clearly prove that factors are neither independent nor overlapping. The results suggested that the scale had the construct validity. After construct validity of Open and Distance Education Accreditation Standards Scale was proven, the scale was subjected to reliability analysis. The reliability of the scale was tested with two distinct methods. First of them was test-retest technique (Temporal reliability coefficient). The scale was administered on a group of 32 students twice in one week interval and the correlation between two test results was calculated.

Table 7. Test-retest analysis results (temporal reliability coefficients) for the factors of open and distance education accreditation standards scale

Factors	N	r	p
Organizational Structure,	32	,449	,010**
Student Services	32	,504	,003**
Quality Assurance/Accreditation	32	,536	,002**
Measurement and Assessment	32	,290	,108
Organization Mission	32	,703	,000***
Distance Education Management	32	,442	,011*
Distance Education Program	32	,595	,000***
Openness/Credibility/Transparency	32	,506	,003**
Total	32	,795	,000***

*p<,05   **p<,01   ***p<,001

As it is seen in Table 7, the correlation coefficients for the scores obtained from two successive applications of Open and Distance Education Accreditation Standards Scale ranged between .703 and .290 for each factor. The temporal reliability coefficients were found to be statistically significant for all factors except for measurement and assessment factor at .05 level at least.

Table 8. Internal consistency coefficients for open and distance education accreditation standards scale

Factor	N	r	p
Organizational Structure	155	,9420	,000***
Student Services	155	,9146	,000***
Quality Assurance/Accreditation	155	,8756	,000***
Measurement and Assessment	155	,8942	,000***
Organization Mission	155	,8861	,000***
Distance Education Management	155	,8860	,000***
Distance Education Program	155	,8839	,000***
Openness/Credibility/Transparency	155	,8111	,000***
Total	155	,9683	,000***

*p<,05   **p<,01   ***p<,001

As it is seen in Table 8, the Cronbach Alpha internal consistency coefficients for the factors of Open and Distance Education Accreditation Standards Scale were found between .9683 and .8111 as the second evidence of reliability. The Cronbach Alpha coefficient for the whole scale was found .9683, which proved that the developed scale was reliable. Based on the obtained results it can be said that the internal consistency and thus reliability of the items in each factor is high. In order to test the item reliability of the scale item-total correlations, adjusted item-total correlations and item discrimination indices were calculated. These tests were done both for individual factors and for the scale in general. Item analysis

were done for all items in Open and Distance Education Accreditation Standards Scale, and it was understood that all items yielded statistically significant (p< .001) results with all three tests. Considering the total scale, all items are reliable and valid (discriminative).

The same tests were repeated for each of the eight factors, and based on the results all factors of the scale similarly yielded statistically significant results (p< .001) in the analyses of item-total correlation, adjusted item-total correlation and item discrimination. he final scale was composed of 47 five-point Likert type items under eight factors including Organizational Structure, Student Services, Quality Assurance/Accreditation, Measurement and Assessment, Organization Mission, Distance Education Management, Distance Education program, Openness/Credibility/Transparency. Finally, the CFA results revealed that fit indices were adequate (x^2/df=1.62, GFI=.94, AGFI=.91, CFI: .92, RMSEA=.047 and SRMR=.076), thus the eight-factor structure of the scale had a good fit with the sample data.

Discussion, Conclusion, and Recommendations

To determine the accreditation standards in open and distance education is one of the priorities in Turkey. In the present research, the Open and Distance Education Accreditation Standards Scale with 47 items under 8 factors was developed conducting the validity and reliability studies. During the development process, to test the construct validity of the scale first

Kaiser-Meyer-Olkin (KMO) and Bartlett test of Sphericity tests were done. Kaiser-Meyer-Olkin value was found .893 and result of Bartlett test was found 8144,572. According to the results of first and second factor analysis of the scale with Varimax rotation method, it was understood that the scale was eight factors with eigenvalues over 2,00, including Organizational Structure, Student Services, Quality Assurance/Accreditation, Measurement and Assessment, Organization Mission, Distance Education Management, Distance Education Program, Openness/Credibility/Transparency. Total variance explained by the eight factors was 65,632% in the first analysis and 70,451% in the second analysis.

The correlation coefficients between the factors calculated to test the construct validity of the Open and Distance Education Accreditation Standards Scale was found between .715 maximum and .297 minimum, and all correlations between factors were found to be statistically significant at .001 level the least. Based on these results obtained, it was generally concluded that Open and Distance Education Accreditation Standards Scale is a valid instrument to be used in the field of open and distance education after middle schools stage.

The reliability of the scale was tested using test-retest method (temporal reliability). First the scale was administered on a group of 32 students twice in one week interval and the correlation between two test results was calculated. The correlation coefficients between the pre- and post-applications ranged between .703 and .290, which were statistically significant for all factors except for measurement and assessment factor at .05 level at least.

As the second stage of reliability studies of the scale, the Cronbach Alpha internal consistency coefficients for the factors of Open and Distance Education Accreditation Standards Scale were found between .9683 and .8111. The Cronbach Alpha coefficient for the whole scale was found .9683, which proved that the developed scale was reliable. Based on these results obtained, it was generally concluded that Open and Distance Education Accreditation Standards Scale is a

reliable instrument to be used in the field of open and distance education after middle schools stage.

The accreditation of distance education institutions shall increase their national and international publicity and thus making it easier for the graduates to be employed by international employers. The accreditation of the distance education programs will help justifying the establishment of an open and distance education program, thus taking an important step in terms of ensuring the compliance of open and distance education programs to the country's education philosophy, employment of graduates, student admission conditions, and required technical and academicals competencies.

The literature review (Bakioğlu &Can, 2011; Bakioğlu &Can, 2014a; Bakioğlu &Can, 2014b; Can, 2005; Can, 2012; Can, 2014a; Can, 2014b; Durman, 2007; Yamamoto &Can, 2013) revealed that recently there has been important quantitative development in open and distance education in Turkey. However, there are still some inadequacies in open and distance education in terms of legislature, pedagogy, administration, finance and standards particularly in measurement and assessment. Students attending open and distance education institutions have many demand and expectations from the institution especially in terms of academic achievement, demands from the institution, and student affairs. Students do not find open and distance education services sufficient. This suggests that determining the accreditation standards in open and distance education is a priority. Therefore, there is a need to establish accreditation institutions. It is a critical issue to determine to what extent open and distance educational institutions meet the accreditation standards after these accreditation institutions and standards are established. In this regard the Open and Distance Education Accreditation Standards Scale developed in the present study can be used as an instrument to meet this significant need.

Where accreditation studies in higher education in Turkey are analysed, it is noticed that such accreditation studies are conducted by YÖK (2012). In 2005, Academic Assessment and Quality Development Regulation for Higher Education Institutions was published in accordance with Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) in order to develop and assess the quality of education, instruction, and research activities. Moreover, as an important development, Academic Assessment and Quality Development Committee for Higher Education Institutions (YÖDEK) was founded.

It is evident that there is a need for researches to determine to what extent open and distance education institutions meet the accreditation standards making use of the current accreditation standards and procedures of national accreditation institutions (MÜDEK, 2012; YÖDEK, 2014) and international accreditation institutions (DETC, 2016; ACCET, 2016; ACTDE, 2010; ODLQC, 2016; CHEA, 2016).

Öz (2005) claims that there may be problems when quality assurance systems are imported from other countries, and in order to establish an accreditation system in the field of open and distance education, a quality assurance system special for our own country should be established considering the local institutional, cultural, structural and technical characteristics.

Jung (2004, p. 3-4) suggests that there is an urgent need for international entrepreneurship to create quality assurance and capacity in distance education in higher education market due to globalization, to discuss new issues in distance education based on changing conditions, and to revise the quality assurance

mechanisms of distance education at national and international institutional levels.

It is evident that the scale for which validity and reliability studies were done can be used to measure whether open and distance education intuitions meet the accreditation standards thus ensuring that clients of the open and distance education instructions will receive more qualified services.

It can be said that the "Open and Distance Education Standards Scale" composed of eight factors and 47 Likert type items developed in this study is a valid and reliable instrument. The scale can be used by researchers and policy-makers working in the field of open and distance education at post-secondary education level, and arrangements can be done based on the results obtained. However, it can be suggested that validity and reliability of the scale should be retested when the scale is intended to be used for open and distance education institutions at secondary school level. It can be also suggested that advanced studies should be done to determine the open and distance education accreditation standards on samples representing the general population at provincial or national levels. Moreover, it is believed that similar studies can be conducted with staff, students, teachers, and administers on different educational stages (e.g. secondary, higher, formal, extended education etc.).

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