Designing and Validating the Indigenous Model of ten Professional Standards for Secondary Teachers

By

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Abstract

This study aimed at investigating to validation or accrediting of the pre-designed indigenous model of secondary teacher's ten professional standards among public high school teachers in "Tabriz" city of Iran. The study method was survey study and statistical population was 715 public high school teachers from 5 education regions. Statistical sample consist of 154 secondary teachers were selected in 15 high school from 3 education region through multistage cluster sampling method. The validation instrument was five-item LIKERT scale questionnaire contained indices and components of teacher's professional standards model that the calculated reliability with Cronbach's Alpha in pilot study was 0/965. Data analyzing with using descriptive and inferential statistics showed that teachers have confirmed and ranked the standards and their indices in different levels so that the std.7 (knowledge and skills for technology use in classroom) had top rank and the std.10 (teacher's pedagogic approaches) had the lowest rating from secondary teachers viewpoints.

Keywords: *professional standards, public high school teachers, validation.*

1. Introduction

The report of "Organization for Economic Cooperation and Development (OECD) (2004) stated that in the efforts to promotion of school's efficiency and its reform process, the teachers as the most valuable resources and their vital role in education are very important. Also the "international Commission on Education for the 21st Century" stipulates that no reform can be successful without the active and effective teachers and their participation and cooperation (Haney, 2005: p.9). Nowadays, it is believed that in order to maximize learning opportunities for all learners in the process of education, policymakers and educational leaders must ensure that teachers implement standards-based education (Castillo et al, 2002) Therefore one of the major steps in improving the quality and performance of teachers is the design and development of related professional standards in the areas of knowledge, skills, and practices and so efforts to institutionalizing them in the educational systems (Izadi and Shafe, 2009). Because this professional standards leads to clarifying of educational goals and expectations, developing more strong and attractive teaching – learning opportunities (Kluth and Straut, 2001; Cimer, 2007) and Improving the quality of teaching in the classroom and thus improve the quality and efficiency of the schools and the education system and ensuring the quality of educational services (Martens and Prosser, 1998) and also the professional standards guide teachers to identify professional development needs and managing their continuous learning, facilitating pre-service training program and results to the enthusiasm and motivation of the teaching profession (Professional Standards for Queensland Teachers, 2005).

The "European committee for standardization" was defined the standardization as "agreement about the precise criteria that continually needs to applied in form of laws, guidelines or rules to adaption of processes, products or services in the best possible with the objectives" (Biczynski, 2001). Therefore the

standardization is the adapting of tasks and behaviors with special patterns that is defined through set of rules and norms for a particular situation (Jones, 1998).

Generally Standardization is not a single paradigm perspective so couldn't have a definitively viewpoint on the issue. Especially in the field of education that deals with the human subject, standardizing becomes more complicated. Therefore in the area of education, particularly in school area don't have any global same standards as the same universal standards for goods and industry products. Thus any countries should make and developed education standards such as teacher's professional standards in order to their all aspect coordinate such culture, politic, ideology, education philosophy and other local and indigenous factors (khanifar, 2004). Therefore previously researchers in a qualitative study with using Delphi technique have designed a set of professional standards for secondary teachers that including:
Std1. Classroom management
Std2. Classroom learning environment and climate
Std3. Classroom leadership
Std4. Knowledge and skills of instructional development and teaching design
Std5. Knowledge and skills of teaching and organizing of learning opportunities
Std6. Supervision, evaluation and feedback in classroom
Std7. Knowledge and skills of technology use in classroom
Std8. Professional, legal and ethical responsibility
Std9. Teacher's career progress and professional development
Std10. Teacher's pedagogic viewpoints and approaches

Thus the main purpose in this study is that validation of the ten standards above with aim determining of the acceptability and general admission of the designed ten professional standards among secondary teachers community.

2. Methodology

It must be said that the methodology of present study for the validation of a professional standards model (that formerly designed and accreditation by group of experts in the Delphi process) certainly is referring to the objective comments of group of teachers that was involved at teaching – learning environments, until to be measured their viewpoints and judging to the standard's indices through questionnaire. Thus the methodological approach of the study is a quantitative - descriptive approach that was conducted with survey method. The validation instrument was five-item "LIKERT" scale questionnaire contained indices and components of teacher's professional standards model that was made by researchers and to ensure its validity and reliability, the calculated reliability with Cronbach's Alpha in pilot study through SPSS was 0/965. Of course the reliability of the questionnaire was calculated uniformly for the whole standards and separately for each of sub-indices after data collecting so that the obtained Cronbach's Alpha was 0/762. The participants in this study 715 secondary high school teachers from 5 education regions in "Tabriz" city that 154 of them was sampled through multistage cluster sampling method. From 154 questionnaires were distributed among selected teachers, 143 were returned and were based for statistical analyzes. Finally the data were analyzed by descriptive statistics such as frequency and distribution histograms of responses and were used the inferential statistics such as "confirmatory factor analysis" (CFA) and especially the F test of Friedman In order to identifying the rating standards by teachers.

3. Results and discussion

Before the presenting of any results related to this section must be said that produced the 10 secondary teachers professional standards in Delphi processing was validated through participant experts in limited sample that experts was confirmed the standards with high degree of confirmation view as mentioned below:

Table 2: validation results of high school teacher's professional standards model.

Areas of validation	Validation indicators	Confirmation (or validation) coefficient
Comprehensiveness	Professional behavioral/ professional Performance/professional knowledge/ Professional skills	0/100
Inclusion and integration	Primary/secondary 1,2 Teachers/trainers Fields and classes(high school)	0/944
Validity and reliability	Internal consistency of sub-components-std Within/between components validity Overlap/duplication	0/100
Appropriateness and consistency	National and religious culture Philosophy of education National strategic and macro plans and documents/educational policies Executive rules and regulations School's culture and climates Teachers pedagogic knowledge and skills	0/888
Backup drivers	Professionalization Decentralization Operating Teachers accreditation and certificate of teaching professional competencies Generalization and enforcement	0/100

After this quality validation, in the quantity section of research as previously mentioned, data obtained from 143 questionnaires were based to Statistical analysis. However first the descriptive presentation of demographic findings includes: 39 teachers are from education region1. Consist of 23 have bachelor and 16 have master degree and with average of 22/72 teaching experience years 41 from education region3. Consist of 27 have bachelor and 14 have master degree with average of 21/46 teaching experience years and 63 teachers from education region4. Consist of 40 have bachelor and 23 have master degree with average of 21/02 teaching experience years.
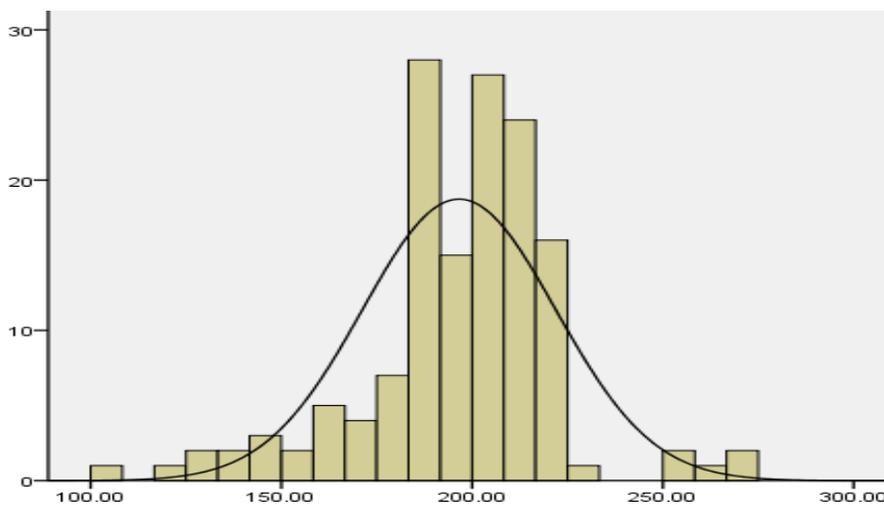
Figure1: The histograms diagram of data Frequency distribution in the whole scale

The diagram below showing that the distribution of 143 response frequencies had negative skewness or hadn't normal distribution. And also it follows from the diagram that the rate and extent of participants' responses to each of the ten standards were different.

In the diagram above with drawing the normal distribution curve, simply can be observed the left kurtosis of distribution in a non-normal state.

For inferential statistics, in the first step after the data collection and entry into SPSS software, for determine the validity of constructs and final approval of the ten standards, Factor analysis. But before the factor analysis, observance of a test defaults such as "KMO" for the adequacy of 143 the sample size and the "Bartlett" symmetry measurement for the observance of the linear multiplicity of correlation matrix was necessary.

Table1: KMO and Bartlett's test for determining the adequacy of sampling and taking items

KMO measurement for adequacy of sample size		**0/880**
Bartlett's test of sphericity	(approximation Chi-square)	**3910/026**
Degree of freedom (df)		**946**
Significance (sig)		**0/000**

Since the above results showed fitting of factor analysis to identifying the structure model and has been observed the assumption of the linear multiplicity of correlation matrix.
 Hence the maximum likelihood confirmatory factor analysis with VARIMAX rotation and stabilizing 10 assumed factors (standards) was used in the software as following. The ten confirmed pre assumed factors are showed in the chart below.
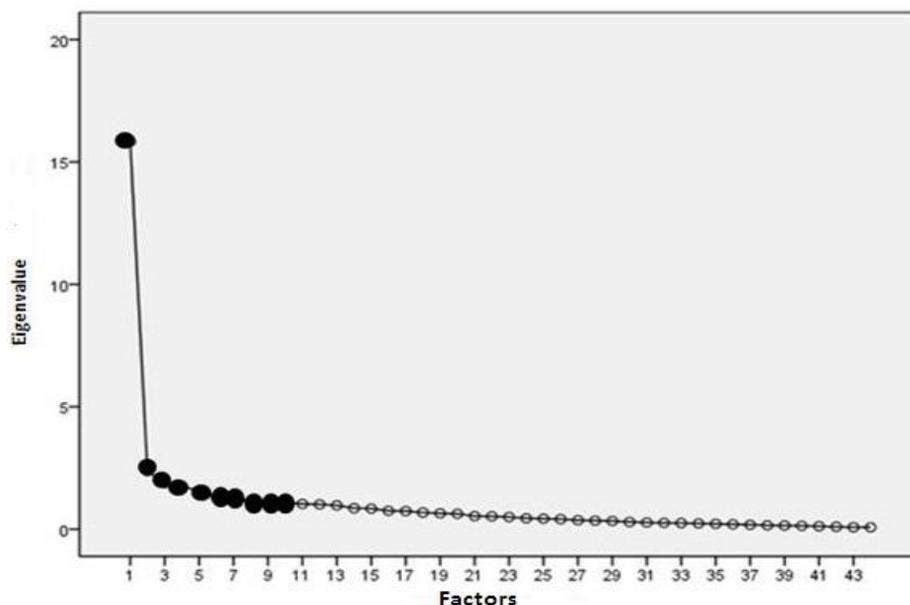
Figure 2: Scree plot for ten factors.

The result of confirmatory factor analysis in the table (2) showed that the 10 assumed standards (factors) were capable to explaining of 57/111 percent of variances. So this result due to factor scattering and having 44 multiple sub-components had a good result for organizing the indicators around 10 domains.

Table2: Confirmatory factor analysis with the 10 factors and the whole explained variance.

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.834	35.987	35.987	15.426	35.059	35.059	4.734	10.760	**10.760**
2	2.371	5.388	41.375	2.009	4.565	39.624	4.704	10.690	**21.450**
3	1.881	4.275	45.649	1.309	2.974	42.598	3.065	6.967	**28.417**
4	1.740	3.954	49.604	1.454	3.305	45.903	2.802	6.369	**34.786**
5	1.575	3.579	53.182	1.186	2.696	48.598	2.799	6.362	**41.148**
6	1.311	2.981	56.163	.881	2.002	50.601	2.532	5.754	**46.902**
7	1.242	2.823	58.985	.875	1.988	52.589	1.286	2.924	**49.826**
8	1.162	2.642	61.627	.839	1.908	54.496	1.205	2.738	**52.565**
9	1.100	2.501	64.127	.612	1.392	55.888	1.133	2.575	**55.140**
10	1.080	2.456	66.583	.538	1.223	57.111	.867	1.972	**57.111**

After confirmation of ten professional standards through CFA test using field data in secondary teachers community, the next step was compared difference of standard's mean to estimation of the ten standards ranking that was rated by teachers.

Table3: One – sample t test results to comparing of mean's difference.

Standards	t	df	Sig	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Std1	10.509	413	.000	1.51208	1.2293	1.7949
Std2	-7.880	413	.000	-1.94928	-2.4356	-1.4630
Std3	12.349	413	.000	3.64010	3.0607	4.2195
Std4	-23.416	413	.000	-2.61594	-2.8355	-2.3963
Std5	16.263	413	.000	2.41304	2.1214	2.7047
Std6	-23.483	413	.000	-6.41063	-6.9473	-5.8740
Std7	-27.170	413	.000	-6.66425	-7.1464	-6.1821
Std8	-6.899	413	.000	-1.78502	-2.2936	-1.2764
Std9	-17.836	413	.000	-2.91304	-3.2341	-2.5920
Std10	53.949	413	.000	11.92995	11.4953	12.3646

One-Sample Test (Test Value = 20)

Value of 20 for the test above is determined in order to response's means of items from high to too much. Results showing that the standards of 1, 3, 5, 10 with positive value of t have high mean's difference and it means that variance of responses for them is too much. For analysis of this results Friedman test is required.

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Table4: Friedman test for rating of standards

Standards	Mean	Rating Mean	Chi – Square	df	sig	Proposed Rating
Std1.	21.5121	7.38				7
Std2.	18.0507	4.63				5
Std3.	23.6401	8.23				9
Std4.	17.3841	4.42				4
Std5.	22.4130	7.97				8
Std6.	13.5894	1.77	3227.992	9	0.000	2
Std7.	13.3357	1.66				1
Std8.	18.2150	4.77				6
Std9.	17.0870	4.23				3
Std10.	31.9300	9.94				10

In order to given the significant difference between the mean and the mean values the standards have been ranked 1 to 10, which this ranking was proposed from the results of one-sample t-test and Friedman's test approximately.

4. Conclusion

As a result in the present study we were able to constructing a model of ten professional standards for secondary teachers through qualitative Delphi method in education expert panel, and also accrediting that model based on data collecting of secondary school teachers. Data analysis showed that:

1. Constructed ten professional standards through two Delphi round and among education experts panel have high confirmatory coefficient in process of the model quality validation with some validating descriptors from the education experts and faculties viewpoints.
2. Participant teachers confirmed ten principal factors that called ten professional standards because of the ten factors were able to explain more than half of the variance in confirmatory factor analysis (CFA) model.
3. Also secondary teachers have an optimal evaluation toward designed indicators and standards for use in teaching - learning environments.
4. Some standards such as 6 and 7 from teacher's viewpoints as high priority standards in their professional performance and others such as 3 and 10 were lower priority for them.

These standards that are designed, accredited and validated in a field scientific and research process, so is suggesting as a model for the professional practice, behavior and performance of secondary teachers in the classrooms and other teaching - learning environments, and as well as a set of indicators for performance evaluation by managers and supervisors to use in the real education environments.

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