

Validating Quality of Education Based on Teachers' Perception

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Abstract

In one of research findings, it was found that the concept of quality of education has been perceived differently by decision makers at the institutional, organizational and operational level in Indonesia (2006/2007). This will lead the confusing of deciding educational objectives at school level. What indicators and factors that might be unidimensional in measuring quality of education perceived by teachers is a problem of this study. A factor analysis has been applied by involving 336 basic education school teachers around Bogor, Indonesia. Theoretically, quality of education determined by students achievement, relevancy to job availability, quality of teaching and learning, students life skills, learning impact, students independency and teachers performances. Its construct validity was verified by Exploratory factor Analysis (EFA) and based on its factor loading, it was found some valid factors that contribute in measuring dimensionality of quality of education empirically. This will lead to the same perception in how to define the concept of quality of education.

Key words: Quality of Education, Teachers' Perception, Unidimensional, Exploratory Factor, Analysis (EFA)

Introduction

National development has a specific goal and determined by economic growth, environmental problems, poverty, social politic stability and educational sector. That is why education must be included in any development programs in every country. This sector has been applied in determining the dimensions of human development index measurement for each country. The dimensions consist of life expectancy, GDP and enrollment rate. Enrollment rate means not only affordable for the people but also equity and quality. Term of quality has been historically developed since 1960s for management which was also used for educational sectors such as total quality management which emphasizing on customers satisfaction, speaking with the fact and continuous improvement (Salis, 1979).

Quality framework has been described in term of TQM which summarized by Hill and Taylor (2007, in Chaubey & Krivacek, Robert Morris University as follow (1) quality is conceptualized as customers' perception; (2) customer is defined as a person ... who receives a product or service; (3) its objective is reduce cost when meet with customers' requirements; (4) it is evaluated immediately...; (5) it requires information system...; (6) it requires commitment of organization members in continuous improvement (Academy of Educational Leadership, Vol. 21, no.1, p.5). These are concerning with what it has been called "total quality management" which could be implemented in educational sector. It is closely related to continuous improvement as part of learning organization concepts (Kinicki & William, 2016). In a micro level, quality of education perceived from teachers quality point of view, which directly affect students' achievement.

In its conclusion, Tzu-Bin Lin (2013, p. 819) stated that “the teachers quality is the aim of teachers education because it has direct effect on students' learning outcomes and the success of education system, that is why teachers quality is prioritized again."There is no clear-cut relationship between requiring field experiences or internships and overall educational quality... There also does not appear to be a straightforward link between the types of field experiences performed as part of principal preparation programs and over all educational quality (Dodson, 2015, p.14).

In the context of education, definition of educational quality is complex and multifaceted nature of the concept, such as terms like efficiency, effectiveness, equity and quality have often been applied with a little bit differences due to its similarity. However, UNECEF (2000, p. 4) proposed the basic dimensions of quality education which include (1) learners who are healthy; (2) environments that are safe, healthy...; (3) content that is reflected in relevant curricula...;(4) process through which trained teachers...well-managed classroom...facilitate learning and reduce disparities; (5) outcomes that encompass knowledge, skills, and attitudes and link to national goals for education and positive participation in society.

Theoretically, quality of education determined by students achievement, relevancy to job availability, quality of teaching and learning, students life skills and independency and teachers performances. Then, it would emerge a common perception of almost Indonesian Teachers that could be required to be verified empirically. Therefore, the problem that has been solved by this study is “are these factors such as students’ achievement, relevancy to job availability, quality of teaching and learning, students life skills and independency and teachers performances perceived by teachers to be similar to when teachers asked what quality of education really mean?

Research Methodology

This is an exploratory study which concurrently in accordance to research problem and survey method has been applied. Involving 346 elementary school teachers as respondents and 336 sample was selected by simple random sampling, this study has developed an instrument to measure quality of education based on teachers perception. There were 7 factors which consists of 5 to 6 items (variables) for each factor as shown on table 1.

Table 1. Table of Specification Measuring Quality of Education

DIMENSIONS/FACTORS AND INDICATORS	ITEM NUMBER	TOTAL
1. Students Achievement 1.1. score high in several core subject matter 1.2. Pass with high percentage of any subjects 1.3. high percentage in students mastering 1.4. high academic achievement 1.5. no need to join extra learning (shadow education) 1.6. low class repetition	1, 2, 3, 4, 5, 6	6
2. Accepted in higher level of education 2.1. accepted at higher educ level without test	7, 8, 9,	6

DIMENSIONS/FACTORS AND INDICATORS	ITEM NUMBER	TOTAL
2.2. has a desire to continue to study again 2.3. high learning impact 2.4. high percentage to continue study at higher level. 2.5. high enrollment rate 2.6. low students drop out	10, 11, 12	
3. To win in any competition nationally or internationally 3.1. high percentage in winning scientific competition 3.2. originality of students scientific papers 3.3. high creativity in create a new creation 3.4. improving in students scientific attitudes 3.5. high students interest in doing research	13, 14, 15, 16, 17	5
4. Relevancy to Job Available/Industry 4.1. easier to find job 4.2. not take long time as unemployment 4.3. high graduate employability 4.4. more relevant to job availablity 4.5. high preparation for students life skills	18, 19, 20, 21, 22	5
5. Quality of Teaching Learning Process 5.1. teaching quality improvement 5.2. instructional students center 5.3. focus on students cognitive process 5.4. intensity of students teachers interaction	23, 24, 25, 26	4
6. Students' Life Skills and independency 6.1. students high self confidence 6.2. low dependency on parents and others 6.3. less spoiled 6.4. high adversity 6.5. high motivation to live in society	27, 28, 29, 30, 31	5
7. Teachers performances 7.1. prepare an instructional planning 7.2. preparing off and on line learning resources 7.3. mastering in digitalized learning 7.4. inspire and motivate students 7.5. able to evaluate students by applying CRT 7.6. understand learning psychology	32 , 33, 34, 35, 36, 37	6
Total		37

As a result of items validity calculation, by applying Pearson Product Moment formula, it was found that 5 items, item number 5, 26, 32, 35, and 36 were not valid.

Instrument reliability was .99 (after 5 items omitted). All data have been analyzed by applying correlational analysis, t-independent test for comparing male and female teachers perception, and Exploratory Factor Analysis (EFA) used to test its construct validity by finding out a unidimensional instrument in measuring quality of education based on teachers perception.

Research Findings and Discussion

Based on calculation, it was found that means of teachers perception on quality of education was 86.69 with standard deviation (SD) 7.26 which mean that the average of teachers was very high in perceiving quality of education that has been measured using those indicators such as students achievement (in and competition at out of school), job relevant, quality of teaching and learning, students' life skills and independency, and teachers performances. It has been based on the empirical scores with the range of 40 (the lowest) and 96 (highest) and the position of means 86.69 was closed to highest score, 96. This finding was also not too high variation among sample since it has been found its standard deviation was only 6.77(see table 2 below).

Table 2. Teachers Perception Means

N	Valid	336
	Missing	0
Mean		86,6875
Std. Error of Mean		,36938
Median		88,0000
Mode		88,00
Std. Deviation		6,77092
Variance		45,845
Skewness		-2,128
Std. Error of Skewness		,133
Kurtosis		9,890
Std. Error of Kurtosis		,265
Range		56,00
Minimum		40,00
Maximum		96,00
Sum		29127,00

Visually, it could be seen on histogram below (fig.1) which indicates that the average of teachers has positive perception toward quality of education based on indicators that has been developed when measuring quality of education. It is clear that theoretical dimensions of educational quality perceived by teachers in accordance to those conceptually developed based on multi dimensions into uni dimension which will influence all of educational sectors specialists to be more focus on those dimensions.

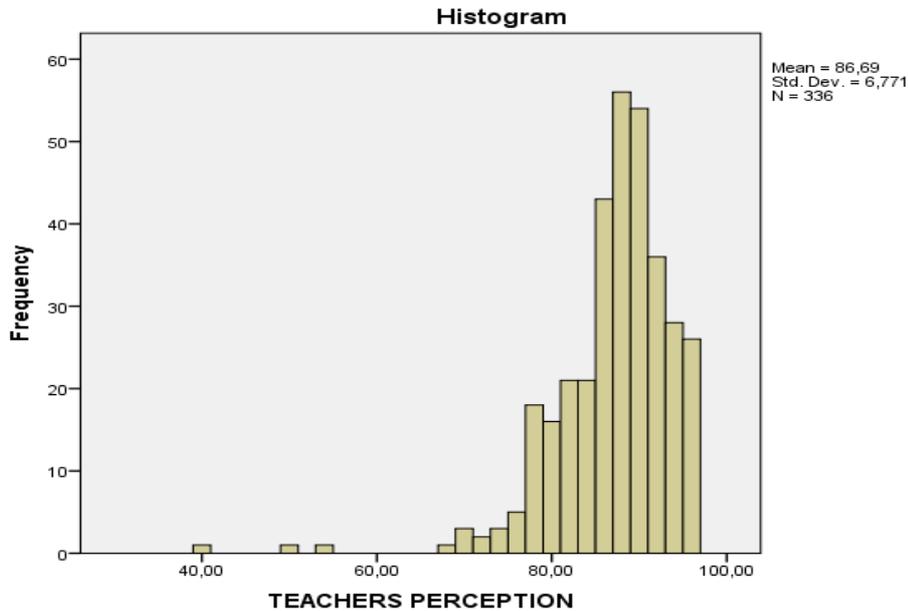


Fig. 1. Teachers perception towards quality of Education Histogram

Besides, it has been measured also teachers' level of education and their experiences in participating any formal training (in-service teachers training) which measured by asking "how many often teachers have participated those formal training?" The average of teachers are holding bachelor degree with means of 2.87 and SD was .54 and teachers frequency means in training involvement was too low, around 1.80, it was less than 4 times a year. However, fortunately, those two factors, teachers educational level and training experiences did not determine teachers perception toward quality of education as seen from this table below (see table 3 for correlation matrix).

Table 3. Correlations Matrix

		Level of Education	Experience	Teachers Perception
Level of Education	Pearson Correlation	1	,047	-,067
	Sig. (2-tailed)		,387	,218
	N	336	336	336
Experience	Pearson Correlation	,047	1	-,029
	Sig. (2-tailed)	,387		,602
	N	336	336	336
Teachers Perception	Pearson Correlation	-,067	-,029	1
	Sig. (2-tailed)	,218	,602	
	N	336	336	336

Based on table 3, it was found that the correlation between teachers educational level and training experiences with teachers perception was not significant since those correlation coefficients were lower than r- table at any level of significant (- .067 and - .029). This means that teachers perception toward quality of education was not determined by teachers educational level and their training experiences. This is good findings since teachers perception was determined by teachers themselves which easier in socializing educational quality policies to all teachers at level of education. Moreover, it was found also that there was no significant different of teachers perception between male and female teachers (Male n =106; Female n = 230, means different only .38).

Finally, it was very important findings related to dimensionality of teachers perception instrument in term of construct validity by applying exploratory factor analysis (EFA) and research results revealed that based on table 4 below, there were only three eigen value was higher than 1.00 and be eligible to be used for further analysis. Therefore, there were three components selected as a result of variances explained by those variables into factors, as shown on figure 1 below.

Table 4.Total VarianceExplained

Com p	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	2,554	36,479	36,479	2,554	36,479	36,479	1,941	27,728	27,728
2	1,381	19,732	56,211	1,381	19,732	56,211	1,826	26,083	53,811
3	1,010	14,423	70,634	1,010	14,423	70,634	1,178	16,823	70,634
4	,711	10,152	80,786						
5	,552	7,889	88,675						
6	,446	6,365	95,039						
7	,347	4,961	100,000						

Extraction Method: Principal Component Analysis.

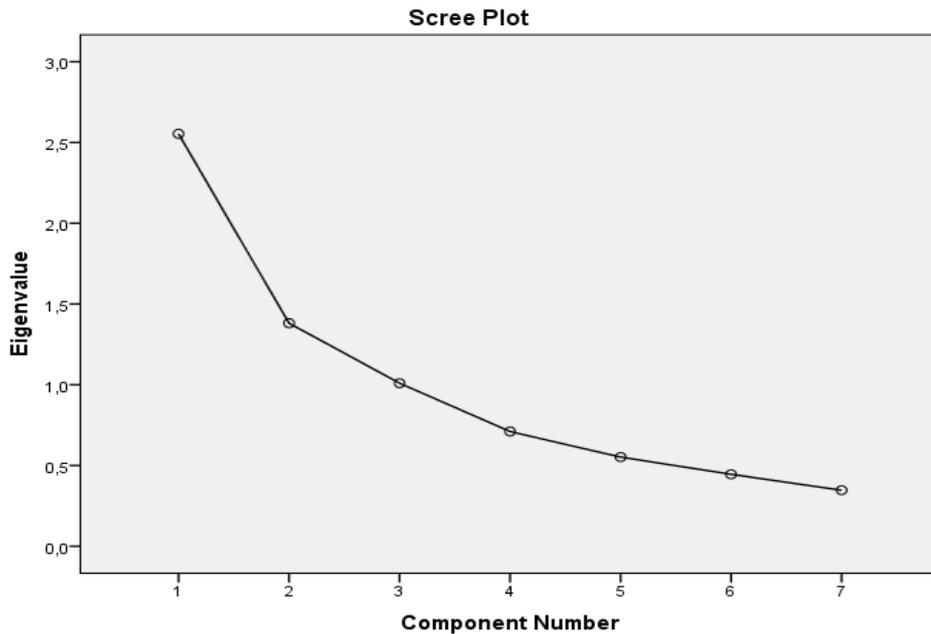


Fig. 1. A Diagram of Eigen Value

Then, after three components were calculated by varimax rotation, finally it was found all values of factor loadings which is shown on table 5 below. Based on this table it was found some variables that was only loading on one components if they have higher value than .30 (Hair, et.al., 2010). Less than .30 means that factor loading was low and it is assumed that its correlation between those variables (items being measured) were not significantly loaded on theoretical factors, that is why it should be omitted.

Based on this finding, factor related to students life skills and independency were perceived by teachers as it was not factor that could be involved in measuring what actually mean by quality of education based on teachers perception. The values of .669 loading at component 1 and also .449 loading at component 3 as shown on table 5, did not support empirically which should be merely loading at one component and logically tend to be uni dimensional as proposed theoretically. Therefore, in this study, in measuring and validating quality of education based on teachers perception, only six factors could be taken into consideration such as (1) students achievement, (2) accepted at higher level, (3) winning at any competition, (4) relevancy to job availability, (5) quality of teaching and learning and (6) teachers performances. Students life skills and independency has been omitted due to its double factor loading on two components. Moreover, all 5 items which measured number 6 factor, should be omitted as well. Therefore, finally it was only 27 items based on 6 factors still used as a valid instrument to measure teachers perception toward quality of education. Visually, it is shown on figure 2 below.

Table 5. Rotated Component Matrix^a

	Component		
	1	2	3
Y1	-,014	,825	,253
Y2	,113	,787	,221
Y3	,851	-,004	,082
Y4	,831	,156	-,062
Y5	,124	,188	,835
Y6	,659	,160	,447
Y7	,253	,663	-,396

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser

Normalization.

a. Rotation converged in 5 iterations.

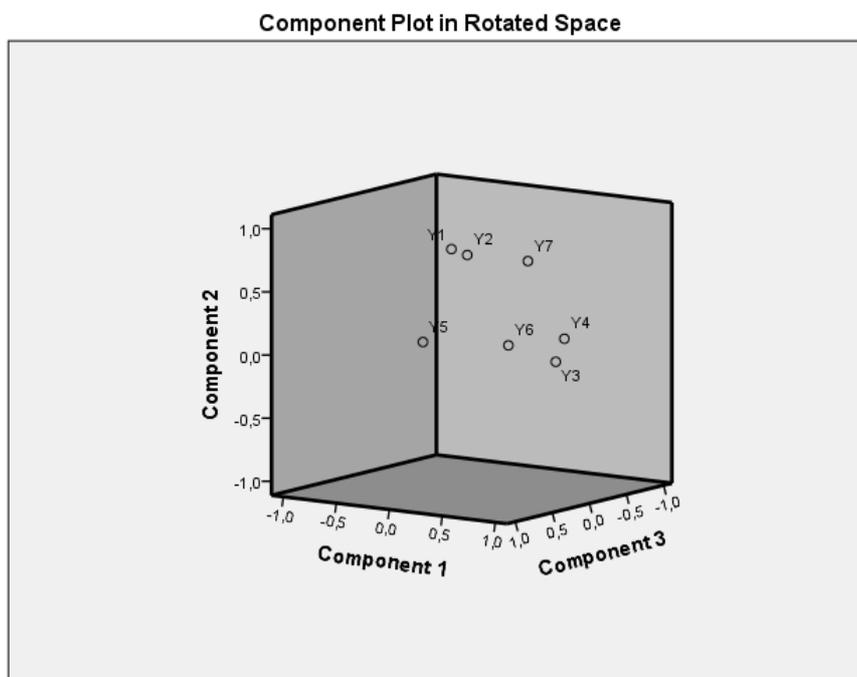


Fig.2. Factor Loading at three Components

Conclusion

Conclusions could be formulated as follows, (1) In validating teachers perception toward quality of education, there were 5 items were not valid (items no. 5, 26, 32, 35, and 36), and items number 27, 28, 29, 30, 31 have been omitted also due to factor 6 did not support as a factor with high and single factor loading. In this study, it was found only 27 valid items which were loading at 6 factors. Moreover, gender equality affect teachers perception toward quality of education due to there was no significant different of teachers perception between male and female teachers.(2) Teachers level of education and training experiences did not significantly determined teachers perception toward quality of education. This is what actually expected since in instrument development, all

factors which presumably affect on variable being developed should be not as determinant factors. (3) Temporary, it was found a uni dimensional instrument in measuring quality of education perceived by teachers, then since this is an exploratory study, it is invited to verify these findings by conducting a more comprehensive research. (4) Finally, based on those findings conclusions, it could be stated that quality of education has been perceived by teachers when it is related to high students achievement, accepted at higher level of education, students have high ability to compete, relevant to job availability, quality in teaching & learning process, and high teachers performances.

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