

# Developing School Performance Index for Assessing Innovation Capability of School in Quality Improvement

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**Abstract**—Measuring the school performance becomes an important issue in education. In line with the increasing demand from stakeholders for better transparency, accountability and excellent services had made it a key component in the planning, development and effective management of school. This paper presents the preliminary results of study on developing School Performance Index (SPI) as a tool for assessing innovation capability of school in quality improvement. Specifically, the purposes of this study are (1) developing instrument for measure of school performance, (2) establishing key performance indicators to asses innovation capability of school in quality improvement. The paper applies a research and development approach to develop the instrument for school performance index. The preliminary result of this study has outlined a simple framework of performance index, which was comprising four main indicators: management and organization, learning and teaching, student support and student performance. Based on the preliminary findings of this study, a conceptual framework of school performance index will be provided in order to collect, analyze measure and define innovation capability of school in quality improvement. In addition, a description of the scorecard of school performance index is also covered in the framework.

**Keywords**—performance, school, index, measure, innovation, quality

## I. INTRODUCTION

Measuring school performance is an import issue in a School Integrated Development (SID). [1] Since the demand of the society towards better transparency, accountability and services rapidly increases, school performance measurement becomes the key component in school planning, development and management. [2] [3]

Performance indicators can be used to provide information about effectiveness and efficiency of school designed programs in encountering issues. They can also be important to measure how good a school can improve its quality and efforts that shall be committed for an ongoing quality improvement. [4]

There have been various efforts in developing related education performance measurement system in Malaysia, England, USA, Australia and other countries. [5] One of the system applications is School Performance Measurement Indicators (SPMI). SPMI not only focuses on assessing exam

results or student achievement but also school management effectiveness and efficiency. [6]

Assessing school performance index shall be intensively carried out as a means of monitoring and evaluation of school development planning. [7] It also plays an important role to determine logging and leading indicators of school main dimensions and strategic objectives so that the school can summarize the formulation of achieved performance success towards ongoing changed and improved school. [8]

Attention towards public organization performance measurement, schools are included, has been significantly increased, as best public services are required. [9] Bouckaert (1992) who has reviewed the history of organizational performance measurement indicates the emerge of different efforts initiated by organizations in assessing their performance by developing certain indicators. [10] The efforts are mainly aimed at improving the organizational competition and innovation values. Another research study by Ammons (2001) indicates various issues encountered by public organizations when putting in efforts to develop and implement performance assessment. [11] However, it is intensively carried out as the key instrument in measuring the success level of an organization. Moullin (2004) states that performance assessment system is a very important element in determining measured and assessed performance indicators. [12]

Performance has a wide range of definitions. It can be defined as the ability of an entity (individual, group or organization) to generate something related to the set objectives. [13] [14] It is also defined as the real condition of work or outputs of a unit or entity. It refers to measurable achievement performed by someone or a group/organization.

Assessment or measurement refers to competence and process of measuring and monitoring an activity. Yaghi and Neely define performance measurement as a process of measuring effectiveness of efficiency of an action or activity. [15] Performance measurement system can be defined as the collection of criteria/indicators (metric sets) used to measure effectiveness and efficiency. [16] In general, performance assessment identifies effectiveness and efficiency as the important parts of performance measurement system.

Measurement and assessment of school performance play a strategic function in the integrated school development. Harlen (2014) argues that school performance assessment provides information about achieving key aspects of an education system. [17] This information is a crucial element of accountability that enables an organization to: (1) Assess and report progress to capture what has been and shall be improved, (2) Determine priorities to improve and determine targets, objectives, and outputs, and (3) Develop programs and decisions to maintain good performance and make necessary improvement as need be.

School Performance Assessment Framework is a comprehensive system to help schools more focus on strengths to be sustained and weaknesses to be improved. [18] There are various methods and steps of performance assessment used to measure the extent to which schools have improved, e.g. school performance in facilitating student progress and supporting them to succeed, and have collaborated with student parents. [19]

Performance measurement is generally classified into two categories: (1) outcomes measurement: providing information about progress against the set outcomes. This measurement/assessment focuses on program effectiveness and its impact on the users. (2) Mid-term outcome measurement: considering mid-term assessment of outcomes. Even though the measurement results might not yet provide clear and measurable information, they are valuable to measure mid-term steps and strategies, e.g. outputs and targets of the expected outcomes. [20]

This research aimed at develop an instrument of School Performance Index, which will be used for assessing the innovation capability of school in quality improvement.

## II. METHODOLOGY

This research is carried out at selected elementary schools in the city of Gorontalo, Gorontalo Province, Indonesia. In the initial stage, the developed instrument is implemented at two selected schools as the preliminary samples. Instrument development procedures of the School Performance Index apply development research approach, which adopted from Borg and Gall and Cennamo and Kalk. [21] [22]

## III. RESULTS AND DISCUSSION

School performance indicator development in this research refers to the one implemented by Grossman, et.al, [23], i.e. through mapping on current school condition and efforts for school improvement [24], covering six process dimensions of education management process: (1) school leadership implementation [25] [26] (2) quality of school teaching and learning practice; (3) staff development program; (4) program on providing conducive, academic learning environment; (5) student performance achievement program; and (6) parent involvement improvement for education governance.

Indicators of School Performance Index instrument are adopted from the Baldrige framework – Education Criteria for Performance Excellence. [27] [28] [29] they include seven school performance measurement indicators, i.e. (1)

Leadership [30]; (2) School strategic plan; (3) Student, stakeholder, and focus market; (4) knowledge management; (5) staff development; (6) management process; and (7) result orientation.

The School Performance Index Instrument is the integration of four school performance instruments applied at schools and other instruments adopted from different countries. [31] [32] Summary of the indicators to be considered when developing School Performance Index Instrument is highlighted in figure 1 below:

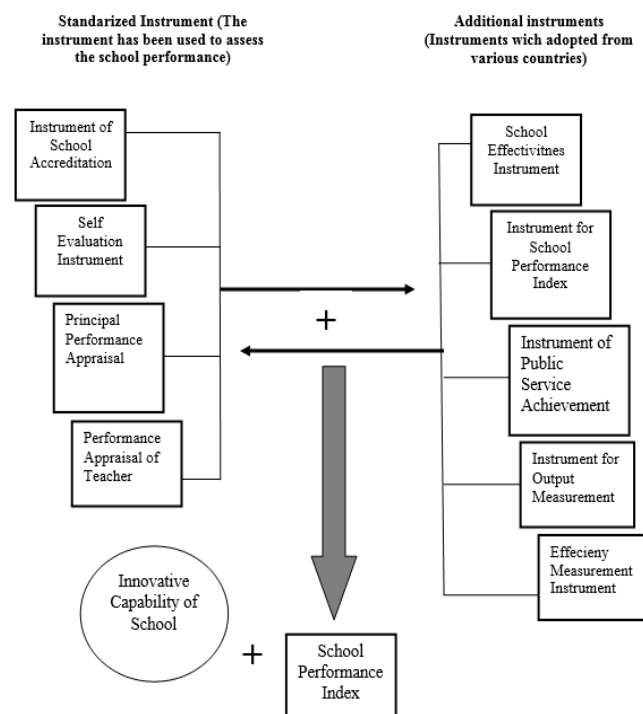


Fig. 1. Element of School Performance Index Instrument

The School Performance Index development scenario is implemented through several stages: Instrument development through theoretical and conceptual review, discussions with the research team, literature review on school performance, conceptual review, and description of school performance conception detailed with descriptors, indicators, and question items. The next step is to present review results or resume to the education stakeholders (principals, supervisors, teachers and school committee representatives) to obtain inputs on the drafted instrument. These will be discussed and revised in accordance with the obtained inputs from the Focus Group Discussion and Brainstorming sessions conducted at the research sample schools.

Results of Focus Group Discussion and Brainstorming with education stakeholders (supervisors, principals, teachers and school committee representatives) lead to proposing some additional components and aspects integrated into the Performance Index Instrument development (Input, Process and Output) as follows:

TABLE I. PROPOSED ADDITIONAL COMPONENTS AND ASPECTS TO BE INTEGRATED INTO THE PERFORMANCE INDEX INSTRUMENT

INPUT	PROSES	OUTPUT
Educational Policy Student attributes (socio-economic, cultural background of the students)	Parent Involvement Implementation of policies (e.g., admission, grading, promotion, etc.)	Retention/dropout rates College enrollment and completion rates

Inputs on the proposed draft of the School Performance Index Instrument are revised for finalization before the field trial. A trial at two sample schools is carried out to identify the extent to which the question items are aligned on the drafted School Performance Index instrument. The trial results indicate scores on the question items as presented in the following table:

TABLE II. PERFORMANCE INDICATORS FRAMEWORK

Domain / Aspect		Score			
		School sample 1		School sample 1	
Input	Human resources	Points Earned	Points Eligible	Points Earned	Points Eligible
	• Teacher	53	60	44	60
	• Principal	25	28	25	28
	• Staff	13	20	14	20
	<i>Sub total I</i>	<b>91</b>	<b>108</b>	<b>83</b>	<b>108</b>
	Student				
	• Accomplishments (e.g., graduation rates, college attendance)	23	24	16	24
	<i>Sub total II</i>	<b>23</b>	<b>24</b>	<b>16</b>	<b>24</b>
	School facilities				
	• Classroom	24	24	17	24
	• Library	34	36	23	36
	• Principal room	24	24	23	24
	• Teacher room	28	28	19	28
	• Administration room	24	24	20	24
	• Toilette	36	36	29	36
	• Supporting facilities	54	60	40	60
	• School environment	12	12	7	12
	<i>Sub total III</i>	<b>236</b>	<b>244</b>	<b>178</b>	<b>244</b>
	Finance				
	• Financial resources	12	20	10	20
	• Budget allocation	72	72	71	72
	• Budget accountability	12	12	12	12
	<i>Sub total IV</i>	<b>96</b>	<b>104</b>	<b>93</b>	<b>104</b>

Domain / Aspect		Score			
<i>Summe of score of Input dimension</i>		<b>446</b>	<b>480</b>	<b>370</b>	<b>480</b>
Proses	Curriculum				
	• Curriculum	48	48	37	48
	<i>Sub total I</i>	<b>48</b>	<b>48</b>	<b>37</b>	<b>48</b>
	Teaching learning process				
	• Teacher readiness	28	28	22	28
	• Teaching methodology	12	12	8	12
	• Classroom management	9	12	9	12
	• Using media in teaching and learning process	12	12	6	12
	<i>Sub total II</i>	<b>61</b>	<b>64</b>	<b>45</b>	<b>64</b>
	Assesment				
	• Teacher readiness	12	12	10	12
	• Process of assesment	20	20	18	20
	• Using the result of the assesment	24	24	18	24
	<i>Sub total III</i>	<b>56</b>	<b>56</b>	<b>46</b>	<b>56</b>
	Leadership & management				
Output	• Planning	40	40	29	40
	• Program implementation	44	44	37	44
	• Supervising	32	32	30	32
	• Leadership	16	16	14	16
	• Partnership	14	20	18	20
	<i>Sub total IV</i>	<b>146</b>	<b>152</b>	<b>128</b>	<b>152</b>
	<i>Summe of score of Process dimension</i>	<b>311</b>	<b>316</b>	<b>256</b>	<b>316</b>
	Academic achievement				
	• Exit exam	22	24	16	24
	• Non academic achievement	24	24	7	24
	• Attitudes	28	28	22	28
	<i>Sub total I</i>	<b>74</b>	<b>76</b>	<b>45</b>	<b>76</b>
	<i>Summe of score of Output dimension</i>	<b>74</b>	<b>76</b>	<b>45</b>	<b>76</b>
	School Performance Index (SPI)	<b>831</b>	<b>872</b>	<b>671</b>	<b>872</b>
	<i>% SPI</i>	<b>95%</b>	<b>100%</b>	<b>77%</b>	<b>100%</b>

The table II above shows that Sample School 1 has a higher School Performance Index score than Sample School 2. Verification and field visits at the two schools indicate that Sample School 1 is a model and favorite school of the city of Gorontalo whereas Sample School 2 is under the supervision of Sample School 1.

The trial results lead to the research team assuming that the instrument can be implemented to assess school performance. However, further verification and finalization shall be made through two focus group discussions and brainstorming sessions with some elementary school supervisors and principals of the two sample schools.

The second focus group discussion and brainstorming provides additional information, correction, and finalization of the first draft of the School Performance Index. The collected inputs from the teachers, principals and supervisors are reviewed by the research team to align and revise the question items to be finalized.

After determining the score weighting of every aspect, indicator and question item, the next step is to determine the school performance level. In this research, the school performance classification is determined by "Star" system adapted from the hotel system, classifying hotels by star.

The following table informs the School Performance Index scores of the three aspects [33], i.e. Input, Process and Output and their respective achieved, maximum range - for example, for the aspect of Input, the maximum, achieved score by school is 480 points; for the aspect of Process, the achieved, maximum score is 316; and for the aspect of Output, the achieved, maximum score is 76 points. Therefore the combined score of the three aspects is 872 and the lowest score obtained by school is 193.

TABLE III. GRADING SYSTEM OF SCHOOL PERFORMANCE INDEX

INPUT	PROSES	OUTPUT	Sume of (Input+Proses+Output)	Clasification (Star rating)
1-95	1-64	1 -15	174	<b>*</b>
96-191	65- 129	16 -31	351	<b>**</b>
192-287	130- 194	32 - 47	528	<b>***</b>
288-388	195 - 259	48 - 63	710	<b>****</b>
389-480	260 -316	64 - 76	872	<b>*****</b>

School performance level classification criteria is set as follows:

TABLE IV. SCHOOL PERFORMANCE LEVEL CLASSIFICATION CRITERIA

Score range	Range of Percentage	Star rating
0-173	0 - 20	<b>*</b>
174 - 348	21 - 40	<b>**</b>
349 - 523	41 - 60	<b>***</b>
524 - 698	61 - 80	<b>****</b>
699 - 872	81 - 100	<b>*****</b>

An applicative illustration of school performance instrument at school – for example, the assessment results indicate the score for Input is 300 (62%), Process 160 (51%)

and Output 66 (87%). Accumulation of the three performance aspects is 526 points, which is equal to 87%. The school performance assessment results indicate that the school is under four-star category. Detailed illustration is shown in the following table:

TABLE V. AN EXAMPLE FOR SCHOOL PERFORMANCE INDEX MEASUREMENT

Performance Indicators	Index Score	Points Eligible	Percentage of Index score		
Input	300	480	62%		***
Proses	160	316	51%		***
Output	66	76	87%		***
Total IKS	526	772	67%		***

#### IV. CONCLUSION

The preliminary results on school performance assessment indicate the followings: (1) Conventional school performance assessment merely based on output indicators is invalid performance assessment since it does not describe school performance comprehensively; (2) School performance assessment that has been carried out is not yet in line with the quality management principles, particularly on the quality services of for customer (customer focus) and (3) School performance assessment through school accreditation has covered quite comprehensive assessment components, yet it has not yet described school life mode and school performance in the process dimension since it only focuses on process supporting documents.

It can be concluded that this research will lead to developing School Performance Index Instrument integrated with synergy improvement of school management quality and innovation independence.

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