

The design and implementation of a performance measurement system to pursue school excellence: the integration of Indonesian National Accreditation Standard into Baldrige Education Criteria

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Abstract. In order to measure the school performance, Indonesian educational institutions used to pay attention only to the result of National Accreditation by the Government. However, it is not sufficient if they want a higher performance achievement. In pursuit of excellent school, educational institutions also need to make continuous improvements to enhance its performance and strive to deploy any initiatives that can help the schools to reach their excellent performance. This research aimed to develop an assessment tool for measuring the performance of excellent school, in which the design integrated the current measurement system (i.e. National Accreditation System) into the existing performance excellence model (i.e. Malcolm Baldrige Education Criteria for Performance Excellence). The integration is necessary due to the needs that the current measurement system should be upgraded with any performance excellence models, but the design itself will retain the local content that exists in National accreditation System. The first outcome of this research was a performance measurement model which is packaged into an online software called *KiSekul v.1.0* (first edition). Then, the implementation of the design was done in two Indonesian high school institutions, namely SMAN 15 Surabaya and MAN Lamongan. The results showed that both schools have performance at advanced stage level. In terms of maturity level, SMAN 15 Surabaya was at the stage of benchmark leader, whereas MAN Lamongan was categorized as a world leader. As the final result, the evaluation was also made to the design and results of the implementation, hence its revision, *KiSekul v.2.0* (second edition) was designed as a form of continuous improvement to revise the initial design of *KiSekul*.

Keywords: performance excellence, excellent school, National Accreditation Standard, Baldrige Education Criteria, Indonesian high school institution

1. INTRODUCTION

In the competitive world and globalization era, to have excellence performance is important as one of the prerequisites of sustained success. Therefore, to learn and apply performance excellence model in an organization, which contains a management philosophy, a set of principles, criteria and approaches, will produce the best overall results in the medium and long term, to support the organization spirit of continuous improvement [1]. There are various performance excellence models that are implemented worldwide, which aim to establish guidelines and criteria for the evaluation and improvement of

organizational excellence performance, such as MBNQA, EFQM, ISO 9001, ISO 9004, etc [2]. In Indonesia, Quality Management System Standard (ISO 9001) is applied in various organizations, both for manufacture and service organizations. For service organizations, ISO 9001 has been deployed in various education institutions because its ability to conjunct with Indonesian National Accreditation Standard which is published by the National Accreditation Body.

A preliminary study was done towards the results of ISO 9001:2008 audit at several high school institutions at about ten cities in East Java, Indonesia, which showed that those schools have already deployed ISO 9001:2008 for their management system. Problems mostly arise when those schools, which have already been certified by ISO 9001:2008 and even have reached the excellent accreditation level from National Accreditation Body, are mainly getting stuck in routines for documentation or procedural processes in order to meet ISO 9001:2008 requirements but neglecting the achievement of excellent school vision [3]. A frequently asked question (or a challenging one) is that, “*After being certified by ISO 9001 and accredited with the excellent level, what else should a school do to achieve excellent performance?*”.

There are some initiatives that can be done by those schools in pursuit of excellent school performance. One of the approaches to adopt some of performance excellence model that can lead the organization to higher performance stage [4], such models as ISO 9004, Total Quality Management [5], Malcolm Baldrige National Quality Award [6], and European Foundation for Quality Management [7].

Malcolm Baldrige National Quality Award (MBNQA) model is a performance excellence model that contains seven criteria for an organization to assess and map its maturity level towards performance excellence. MBNQA can identify any quality management of best practices as well as provide the framework of world-class performance in a comprehensive manner, so that it is widely used as a reference model for process and organization performance improvement [8]. In accordance with ISO 9001, MBNQA can help an organization increase its competitiveness by delivering value to customer and improving overall operational performance [9], meanwhile ISO 9001 focuses on providing confidence to customers that the organization conforms to customer requirement and maintains documented quality system [10].

The purpose of this research was to develop a self-assessment model derived from the criteria of National Accreditation Standard for schools and Baldrige Education Criteria. The strength of MBNQA is mainly in identifying the factors of people, cultures, and its organizational values that cannot be fully captured by models such as ISO 9001 standards or education standard [9]. Furthermore, compared with ISO 9004, Baldrige Education Criteria is easier for education institution to adopt and integrate it into its current assessment model (i.e. National Accreditation Standard). In that way, Baldrige model and its framework was selected in this research in order to enhance current performance measurement system [10]. Hence, an assessment model was developed by the integration between National Accreditation Standard and Baldrige Education Criteria with the benefit that it was able to support the schools to evaluate their performance and to know their maturity level of organization. The assessment was developed into an application software named as *Ki-Sekul* (abbreviation of Indonesian terms of “*Kinerja Sekolah Unggul*” or meaning of “*Excellence School Performance*”). The software would not only reduce time for analyzing the performance excellence criteria but also be able to find the strengths and weaknesses of schools at a time. Therefore, the schools can prepare the corrective action needed accordingly. The databases and performance score would also be recorded in this software periodically and the performance result could be compared among periods and the trend of continuous quality improvement could be analysed.

2. METHODS

The background of this research was done due to a number of high schools that have been accredited with good results (“A” rank by National Accreditation Body) and have deployed ISO 9001:2008 as their Quality Management System, as well as their purpose of pursuing continuous improvement efforts toward performance excellence institutions. The research framework in Figure 1 shows that the

quality of education institutions that has been measured and evaluated need to be improved in pursuit the excellent school performance while performance excellence of an institution can be evaluated using Baldrige Education criteria for Performance Excellence ([6], [11]).

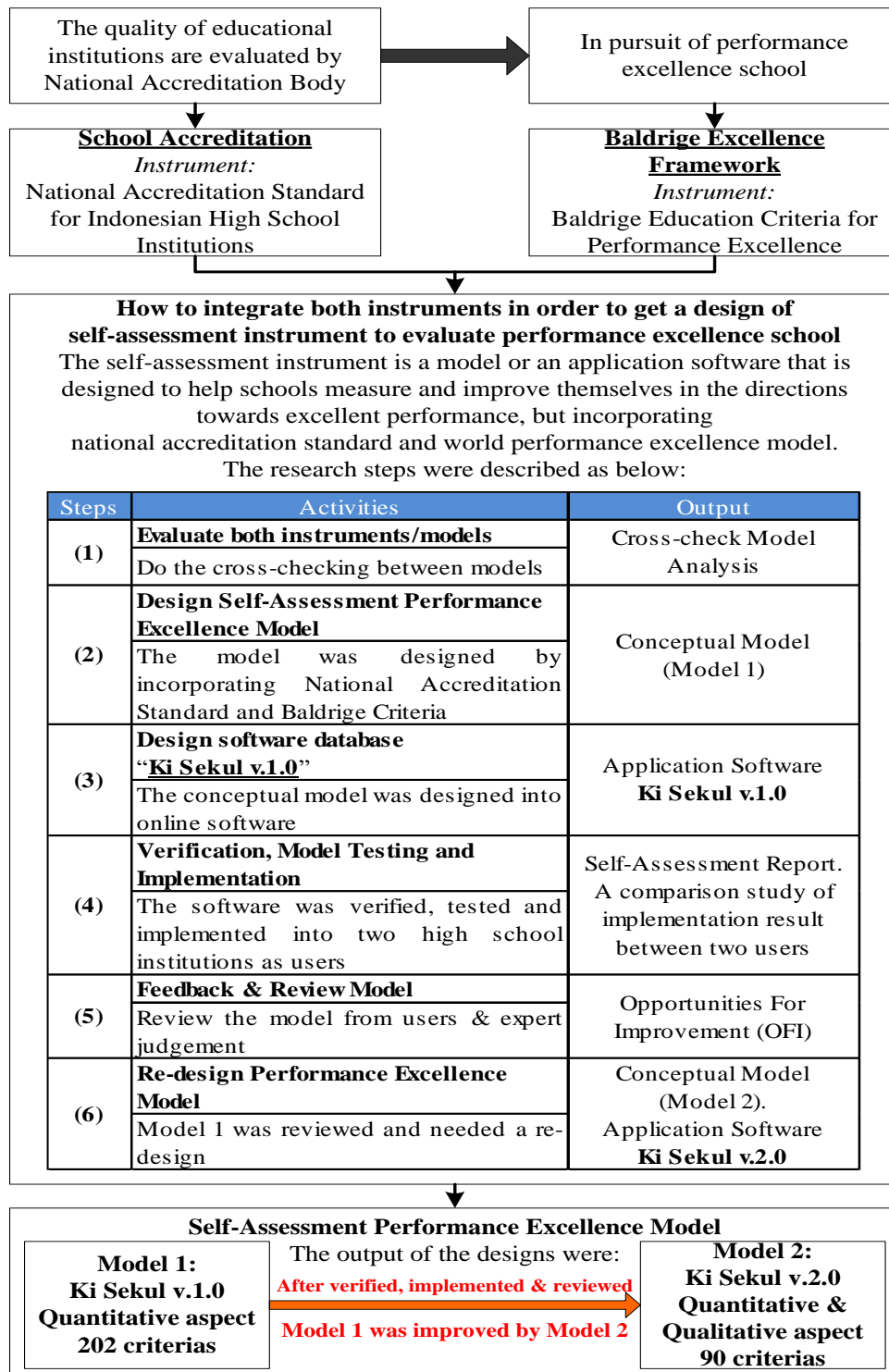


Figure 1. Research Framework: The integration of National Accreditation Standard into Baldrige Education Criteria

In order to achieve performance excellence, it is necessary for the schools to do self-assessment periodically by using certain instrument [12]. The research would integrate two models, National Accreditation Standards (NAS) and Baldrige framework, to obtain a self-assessment instrument which contains the criterias from both models; but maintain the measurement method in NAS which the schools are familiar with. Therefore, as shown in Figure 1, the research steps would be:

- Evaluate each model and do the cross-checking between NAS and Baldrige framework, so the analysis would be resulted on the shortages of NAS which can be covered by Baldrige criterias in order to provide the assessment of performance excellence stage or maturity level
- Design the conceptual model
- Translate the conceptual model into an application software namely *KiSekul v.1.0*. It is an online self-assessment for Performance Excellence School, first edition with no revision yet (refer to the term of v.1.0).
- Implement *KiSekul v.1.0* in two high school institutions as real users; the users were selected using convenience sampling. The outputs were self-assessment reports that would be used for comparison study.
- Evaluate users' feedbacks and expert judgment which resulted on opportunities for improvement for the assessment model.
- Revise, improve and re-design the model; this step was actually repeating the second and third steps above. It began by designing the conceptual model then continued by the design of *KiSekul v.2.0* (the application software of improved model).

3. RESULT AND DISSCUSSION

3.1. Cross-check Model Analysis

The assessment of NAS used 8 standards and 165 items of measurement, whereas Baldrige framework used 7 criteria and 90 items. The analysis of cross-checking model was done by comparing 165 points of NAS across each criteria/sub criteria in Baldrige Framework. For instance, an assessment item in NAS, i.e. *students gain the learning experience so that they can develop self-confidence and responsibility* (NAS item no. 36 in *Competences of Graduates Standard*) was confirmed to Baldrige sub-criteria of *Student Learning and Student-Focused Process Results* (one of Baldrige criteria no. 7 related to *Results*). The result of cross-checking model (see Table 1) showed that there was about 55.8% of NAS assessment items centered on Baldrige criteria no. 6 (namely *Operation Focus*) and 15.8% of them centered on the Baldrige criteria no. 7 (namely *Results*). The analysis indicates a focal issue that, in pursuit of performance excellence school by using current performance measurement system, NAS will have a shortage on three previous criterias, i.e *Leadership, Strategic Planning* and *Customer Focus*.

Table 1. Cross-check assessment (NAS vs. Baldrige)

No	National Accreditation Standard (NAS)	Assessment items	Conformity with Baldrige Education Criteria						
			1	2	3	4	5	6	7
1	Content	18	-	-	-	-	-	18	-
2	Process	9	-	-	-	4	-	4	1
3	Competences of Graduates	25	-	-	-	1	-	2	22
4	Educators and Supporting Staffs	20	-	-	-	1	16	3	-
5	Facilities	30	-	-	-	-	-	30	-
6	Management	20	5	3	1	3	1	7	-
7	Financial	24	4	1	-	-	-	19	2*
8	Assessment of Education	19	-	1	-	6	-	9	3
Total		165	9	5	1	15	17	92	26
Percentage of Conformity (%)			5.5	3	0.6	9	10.3	55.8	15.8

Although the evaluation points of NAS item were mostly centered on *Operation Focus* and *Result* in Baldrige criteria, throughout a more detailed breakdown analysis (in Figure 2), the cross-checking result showed that the conformity level of NAS was dominant only on few Baldrige sub-criterias. As an illustration, for Baldrige criteria no. 6, there was 100% conformity level of NAS item on Baldrige sub-criteria 6.1 (*Work Process*) but 20% to sub-criteria 6.2 (*Operational Effectiveness*). Another one was that there was 100% conformity level of sub-criteria 7.5 (*Budgetary, Financial dan Market Results*) but zero percent conformance on sub-criteria 7.2 (*Customer-focused Results*) and 7.3 (*Workforce-focused Results*).

There were 11 out of 17 Baldrige sub-criterias that had low conformity level which reinforced the need for the integration between NAS and Baldrige criteria in order to have a better self-assessment instrument.

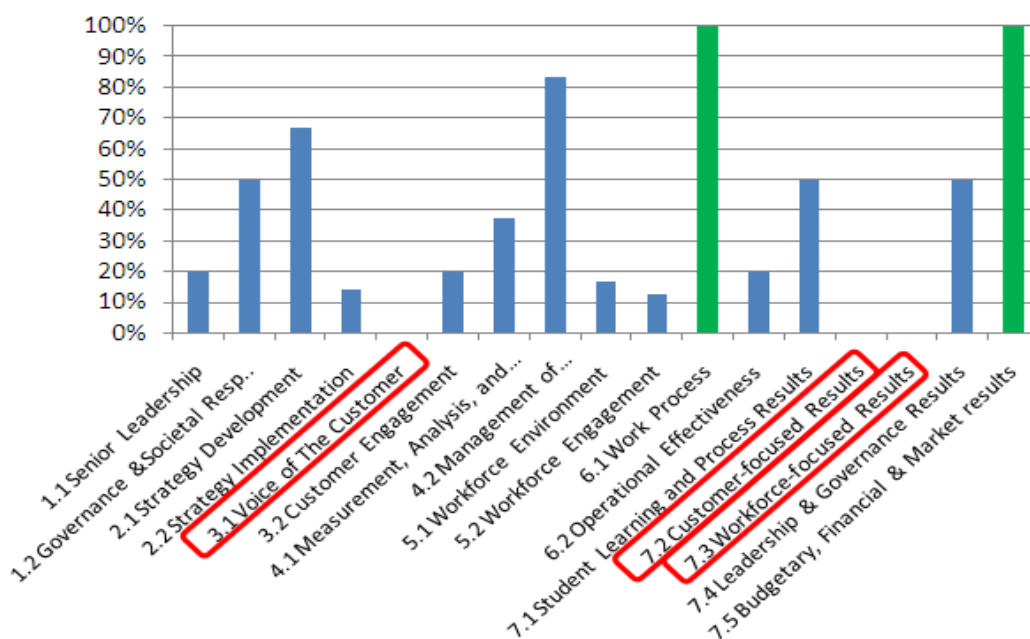


Figure 2. Conformity Levels of NAS in Baldrige Criteria

3.2. Conceptual Model & Application of KiSekul v.1.0

Regarding the shortages of NAS, the evaluation points of NAS was expanded from 165 items to 202 items for the proposed self-assessment model (by maintaining 165 existing items and adding 37 new items that derived from the requirements in Baldrige criterias/sub-criterias). The evaluations method for the proposed instrument was as same as the one in NAS i.e. using multiple choice questions. It was assumed that all Indonesian high schools (as potential users) are already familiar with it. The answer of each multiple question contained five options which were structured as similar as possible to the any existing questions. An example of the multiple choice question was arranged as below in KiSekul (it was derived from Baldrige sub-criteria 3.2*Voice of Customer*):

In addition to identify the voice of customer (from students and stakeholders), it is important for the school to measure customer satisfaction in such ways as: (1) measure the customer satisfaction periodically, (2) use customer feedback as inputs for planning, (3) compare the customer satisfaction level with its competitor, (4) identify customer dissatisfaction, along with corrective action.

- A. Customer satisfaction is measured using (1), (2), (3) and (4)
- B. Customer satisfaction is measured using (1), (2), and (3) or (4)
- C. Customer satisfaction is measured using (1) and (2)
- D. Customer satisfaction is measured using (1) only
- E. No measurement of customer satisfaction

The conceptual model has been translated into manual instruction and its application software, namely *KiSekul v.1.0*, which can be accessed online through web. The interface of the application software *KiSekul v.1.0* consists of three main pages: (a) Home page, including login menu, menu for Baldrige criteria and sub-criteria (adding, editing and deleting), (b) Assessment page, consisting full questionnaires and (c) Reporting page, displaying the self-assessment report.

The self-assessment model developed into an online software *KiSekul v.1.0*, was then implemented in two public schools, which were selected by using purposive sampling, namely Sekolah Menengah Atas Negeri (SMAN) 15 Surabaya and Madrasah Aliyah Negeri (MAN) Lamongan. The characteristic of these two users are explained as below: (a) SMAN 15 is a public senior high school which is located in Surabaya, East Java-Indonesia. It has been accredited “A” (the highest achievement) using National Accreditation Standard. In 2015, SMAN 15 had 1.440 students and 83 teachers, and it is one of the region school; (b) MAN, which is located in Lamongan, East Java-Indonesia, is also a public school but a specific type of religious school with Islamic religion as foundation. The school which has about 80 teachers, is also accredited A and certified by ISO 9001:2008. Every evaluation point was done by examining the supporting required data, and then, the headmaster and its management team verified the level of achievement, from the grade of E (the worst) to A (the best).

Meanwhile, the highest achievement of SMAN 15 was on *Measurement, Analysis, and Knowledge* criteria. It was because SMAN 15 is a public school which needs to be accountable to the government operations so that the school management is accustomed to controlling through measurement and analysis based on the data. In addition, the five-yearly NAS also requires documentation of measurement data stored neatly and easily accessible. Lowest achievement of SMAN 15 was on *Customer Focus* criteria, where the criteria is composed of two sub-criteria, that is, *Customer Engagement* and *Voice of the Customer*. The analysis showed that SMAN 15 Surabaya had not measured its customer satisfaction including: (1) identifying the process to measure customer satisfaction, (2) taking advantage of customer satisfaction information as inputs for planning, (3) using the comparison between its customer satisfaction and its competitors/ as important information, and (4) identifying customer dissatisfaction, their feedback and follow-up treatment. In addition, the SMAN 15 Surabaya has not prepared any media for students to access the school program as well as the necessity to create activities frequently that involve the community and building partnerships with other relevant institutions.

Table 2. Assessment Result by *KiSekul v.1.0*

No	Assessment Criteria in <i>KiSekul v.1.0</i>	Items	Max Score	Assessment Score		% Assessment to Max. Score		Baldrige Score	Maturity Score	
				SMAN15	MAN	SMAN15	MAN		SMAN15	MAN
1	<i>Leadership</i>	27	108	77	103	71%	95%	120	85.6	114.4
2	<i>Strategic Planning</i>	8	32	25	29	78%	91%	85	66.4	77.0
3	<i>Customer Focus</i>	7	28	17	27	61%	96%	85	51.6	82.0
4	<i>Measurement, Analysis, and Knowledge Management</i>	15	60	56	56	93%	93%	90	84.0	84.0
5	<i>Workforce Focus</i>	19	76	68	74	89%	97%	85	76.1	82.8
6	<i>Operation Focus</i>	95	380	293	371	77%	98%	170	131.1	166.0
7	<i>Result</i>	31	124	102	121	82%	98%	365	300.2	356.2
TOTAL		202	808	638	781	79%	95%	1000	794.9	962.3

To determine the maturity score from each school, then it was calculated by multiplying the percentage of achievement with scores of Baldrige assessment system. The result (Table 2) showed that SMAN 15 gained Baldrige score of 794.9; while MAN Lamongan got the score of 962.3. If these two values are plotted on a graph Maturity Score, as shown in Figure 3, the two schools are both classified into the stage of maturity as leader education institutions. SMAN 15 is classified as a benchmark organization leader in which a stage of a school that has maturity in management schools

and programs. SMAN 15 deserves to be the benchmark leader for some facts such as SMAN 15 is also one of the partner schools working with the Federal Republic of Germany in a joined program (or a partner school), and the school becomes a benchmark reference and is visited by outstanding teachers from West Sumatera, Indonesia. Meanwhile, MAN Lamongan was at the highest maturity stage i.e. *World Leader*.

Based on the results of the mapping on the maturity scale graph, the implementation *KiSekul v.1.0* as a self-assessment can be scattered so that the performance of the various schools can be seen. With this important information, the government can figure out the mapping and the composition of maturity levels among the schools whether the majority of schools are in early stages/beginning, emerging or advanced/leader level. Thus, regulations, policies and guidance for managing those schools can be customized.

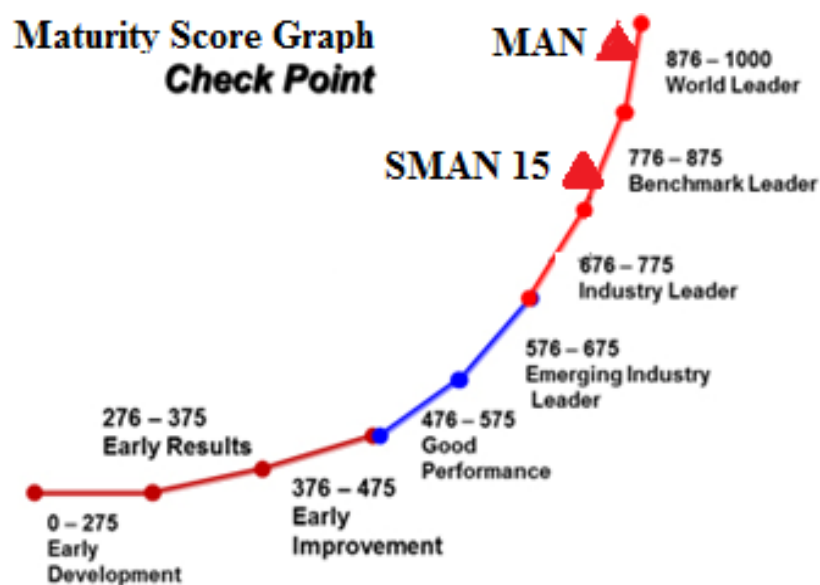


Figure 3. Maturity score of those two schools

After *KiSekul v.1.0* software is done through a series of structured and systematic planning, then tested and implemented, and evaluated the results of implementation, then some focal issues for opportunities for improvement that could be done include: (a) reducing the evaluation points that arise due to factor redundant, (b) simplifying the questions, and (c) using quantitative as well as qualitative measurement. The improved assessment model, re-designed into *KiSekul v.2.0* (second version), resulted on the reduction of evaluation points from 202 points to 96 points.

4. CONCLUSION

The design of a self-assessment model becomes an important part of evaluation system for school performance and it can be used to identify the maturity level of its quality management system and organizational performance. The designed model integrates two models between a worldwide-known model and a local content-based one, i.e. between Baldrige Education Criteria for Performance Excellent Model and National Accreditation Standards for Indonesian education institutions. The integration resulted on an assessment model that could not only cover the limitation of National Accreditation Standard that focuses mainly on operations or process management but also incorporate leadership, customer focus and strategic planning factors to pursue the school management to achieve performance excellence. The assessment model was built in application software called as *KiSekul*. The usage of information technology gave mutual benefits for the schools as users and accreditation body so that they can use the data and information simultaneously without having to re-enter similar data.

For future research, more public or private Indonesian high schools with a wider geographic coverage should be selected as potential users for implementing the designed model. Therefore, the maturity level of schools located regionally can be mapped and analysed.

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