

# Adopting Quality Standard from Industry to Education: Which Stages Need to be Adjusted?

Rr Sri Kartikowati<sup>1</sup>, Gimin Gimin<sup>1</sup> and Lei Suang<sup>2</sup>

<sup>1</sup>Faculty of Education, Universitas Riau, Jl HR Subrantas KM 12, Pekanbaru, Indonesia

<sup>2</sup>Mutiara Harapan Schools, Pelalawan, Riau, Indonesia

tikowati@lecturer.unri.ac.id, gim\_unri@yahoo.co.id, lei\_suang@yahoo.com

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**Abstract:** Numerous concepts of quality standards, originally from the industry, have long been successfully adopted by education. The success by educational administrators is used to improve quality within the organization. However, does the implementation in education get the same sequence of stages as it is derived from the industry? Which stages need to be adjusted? This study discusses two concepts of quality standards – ‘Suggestion System’ (SS) and ‘Customers–Suppliers Relationship’ (C-SRs) – that have been adopted in the educational organization. This study aims to provide decision-makers within organizations with a deeper understanding of the adjustment that need to be considered in managing quality standard of SS and C-SRs. The results of previous study become the main data; then the data is analysed through FGDs. The discussion focused on some particular stages, as a fact finding, that cannot be treated the same stage as in industrial world. We found that the stages need to be adjusted appropriately in accordance with local circumstances. Those adjustment might consequently shift the customary practices that have long been recognized in the industry.

## 1 INTRODUCTION

Term of quality has been discussed long time ago, especially in industrial environment. It has been generated many concepts of quality standard. When we review the evolution of quality, there are many concepts of quality standard emerged.

Some literatures of quality evolution might start from the era of without quality where the product was made without respect to quality. It was the era of inspection by which quality was determined by inspectors who have authority to decide the product would be accepted or rejected.

Next evolution was the era where the measurement of quality need more control and more tools to guarantee products accepted. Some quality concepts have been emerged, such as, quality control, statistical process control, and others. This was what we called the era of Statistical Quality Control introduced by Shewart, (1930).

The third era is quality assurance where the concept of quality was extended to service product, such as units of Maintenance and Logistics. A quality cost concept was recognized as prevention in which reduce expenditure is better rather than

corrections on the defects occurred. Feigenbaum (1950) introduced his paper about the concepts of 'total quality' that referred to the sentence of 'right from the beginning'.

Nowadays, the latest era is known as Total Quality Management (TQM). The TQM requests involvement of top management to make quality as the power of organizational competitiveness. This TQM approach was understood as a strategic and integrated management system that involves all members of the organization in order to improve organizational process in a sustainable manner to meet customer expectations (Nasution, 2001; Sallis, 2002; Tjiptono, 2005; Dahlgard et al., 2007; and Knowles, 2011).

Through the evolution, enormous concepts of quality standard have been initiated and discovered. Concept of quality standard is defined as guidelines or characteristics that able to meet its quality within the product in order to meet the purpose of the product, process or the service. Those quality concepts up to the present time are increasingly widespread and have been presented in many literatures as well as have been practicing in organizations.

Industrial world more contribute to the birth of new quality concepts. Some researchers are: Susan (2017) on her writing about health care service quality at hospital, TQM implementation in manufacturing organization (Ariful & Anwarul Haque: 2012), TQM and service quality in the banking sector (Talib et al., 2012).

To the world of education, acknowledged, quality achievement efforts are made by adopting the concepts of quality standard that come from the business world. Salis (2002). Many researchers have studied in TQM implementation in various educational organizations that published in journals. Familiar researchers Quinn, at., al., (2009) have been exploring in the area of service quality in higher education; implementing quality system in HE institution (Rosa at., al., 2012), and about compatibility and challenges of implementing TQM in education (Sohel-Uz-Zaman & Anjain: 2016). We believe there are more other research result of TQM in educational organizations.

The present study discusses two concepts of quality standard - Suggestion System (SS) and Customer-Supplier Relationship (C-SRs). Both quality concepts are examined based on the result research that have been conducted and have been published. The former was conducted in 2015 (Kartikowati & Lei, 2015), while the later was studied in 2016 (Kartikowati & Gimin, 2016).

Both studies described how the concepts of quality standards derived from industry undeniably could be applied to the world of education. The study also verified that the implementation stages of quality concepts that commonly applied in industrial world could normally adopt in educational world. However, the two previous researches were not examined yet on - are there any different stages (while the industrial quality concept was adopted by educational) that need to be adjusted.

Methodically, since industrial and educational in term of products (goods and services) have different characteristics, some dissimilarity could be happened. It is line with Lewis & Smith's (1994) statement that a framework for total quality can be derived from business experiences, but it requires more than adoption; it requires a major adaption in order to work. Therefore, it is important to know and understand stages that need adjustment when the concepts of quality standards derived from industry undeniably could be applied to educational institutions.

The objective of this study is to analyze some particular stages that should be adjusted when a concept of quality standard is applied in educational

institutions. Moreover, the study is aimed to propose decision-makers of educational institution with a deeper understanding of the adjustment that need to be considered in managing quality standard of SS and C-S Relationship.

## 2 LITERATURE REVIEW

This literature session reviews two concepts of quality standard discussed in this study – Suggestion System (SS) and Customer-Supplier Relationship (C-SRs).

### 2.1 Suggestion System (SS)

Miller (2003) writes down the meaning of the word 'suggestion system' from Japanese word 'soui kufuu seido'. The word 'soui' means creative ideas; 'kufuu' means find out or figure out; and 'seido' means system; so, the suggestion system or 'soui kufuu seido' is a suggestion system that contains creative ideas. Creative ideas are formally submitted by employees to the leadership or units assigned; and the Japanese call it as 'proposal'. The word 'proposal' is considered closer to the concept of Kaizen (continuous improvement).

Goetsch and Davis (2000) expresses the definition of suggestion system (SS) as any vehicle by which employees can channel their ideas for workplace improvement. While Bob Scharz's suggestion, cited by Goetsch and Davis, defines SS as the collection of processes used to solicit, collect, evaluate, and adopt or turn down suggestions. Similarly, Heath in Besterfield, et.al (2003) suggests that SS is designed to provide an opportunity for individuals to be involved in contributing to the organization.

There is a connection among the three definitions written above, Goetsch & Davis, Bob Scharz, and Heath, that the concept of SS indicates ideas generated from the thinking process, there are employee as initiators, and there are objectives or solutions for the problems occurred in organization or workplace.

The SS is being operated differently by one program to others and it can be carried out either by a unit or a committee. A certain process, scheme, or stage is developed mostly depend on typical program. Detterfelt et al., (2009) conducted a suggestion system to engineering designers by taking in the social and organizational context into the model. They advised three stages of SS: Encouragement, Organizational support, and

committed resources. The three stages was not a unilateral process from left to right, it is instead multilateral involving much interaction between earlier and later ideas.

These 3-step of SS is not much different from Keizan Teian-1 (1997) who suggested four stages of SS implementation: (1) Persuade people to Participate; (2) Motivate people to write proposals; (3) Review, evaluate, and guidance; and (4) Award payment.

More boarder view discussed by Goetsch & Davis (2000) who emphasized supports from all parties involved, such as management involvement within planning and implementing of the SS. According to them, there are seven steps in the management roles in the Suggestion System, namely: (1) Establish policies; (2) Set up the suggestion system; (3) Promote the suggestion system; (4) Evaluate suggestions and the system; (5) Implement suggestions; (6) Rewards employees; and (7) Refine and improve the suggestion system.

Additionally, Van Dijk (2002) presents three stages of it, that still link to three former suggestion - idea extraction, idea handling, and idea follow-up. The early stage always started by initiation of idea. This stage involves that the company must allow for employees be creative, think solution and generate ideas. The second one refers to the moment when the employee has to be supported to interface with the system. Last stage is implementation of the idea where employee who participates in the program will perceive a sense of satisfaction. Last but not least, Nase & Fadavi (2015) studied an SS process using software has showed that many professionals participated in problem solving replaced the old system where an SS was supported only by one professional's mind.

Based on various schemes suggested by Dettterfelt et al., Keizan, Goetsch & Davis, and Van Dijk, it is understood that certain scheme could be applied properly at specific organization as long as adjustments are made.

## 2.2 Customer-Supplier Relationships (C-SRs)

To Hoyle (2007), customer is an organization or person that consumes or receives a product. They are including client, end user, retailer, and purchaser. Consumers as one party outside organization who interacts with the company after the company finishes the process of production. On the contrary, external parties that also interact with the company before the production process begins, called

suppliers (Tjiptono & Diana (2003) .Thus, customers and suppliers alike interact with companies but they apparently interact separately.

Description about the concept of 'C-S Relationship' is very clear in the manufacturing environment; however, it does not exist in education. Consumers and suppliers meet and interact at the same time they mutually obtain and deliver the educational services.

Defining customer for educational institution is not easy because the term of customer and shopper in education is an unfamiliar term. The consumers, according to Supriyanto (1999), can be classified into primary, secondary and tertiary. Primary customers are actual customers (those buying services or goods directly from education), such as students. Secondary customers are parties who support our production process efficiently and effectively, such as parents and government; while the tertiary customers are those who indirectly have a role, but have an important role in education such as employees, government, and society. The problem is that education services are consumed during the education process in progress, and it is not consumed after the education process is considered complete. This means that the perceived quality of education services lies in the process when education is in progress.

Additionally, customer terms are more appropriate for those who consume educational services than the term consumer. According to Budi H. (2016) customers are individuals or organizations that have been effectively involved in the education process because they have funds, authority, desires, needs and information, while the consumer is an individual or organization that still has the potential to be involved in the education process. This is an exclusive of customer education, i.e.: customers consume education services during the education in progress. Therefore, quality exists as part of those process. Different views of customers between the business world and education takes a special attention from educational institutions about the desires of its customers. It is important to develop the mechanism of educational services provided.

Like other service organization, university normally has two major service components – core and supporting components. The latter, apparently is less interactive amongst stakeholders within university. The former, the core component which represent the essential activity of an educational higher education, i.e.: learning process or lecturing. This means, major interaction of educational mission where the quality standard carries on has moved into

the classroom. Having such way of thinking in a learning process there is a relationship between suppliers and customers. The learners are customers of the lecturers and receive directly the learning service. In this context, it is therefore possible to identify a chain of customers and suppliers.

How do they (students and lecturers) have their relationship in the learning process has proven in the study of Kartikowati & Gimin (2016). A relationship between students and lecturer in the classroom could be indicated through the pre-active, interactive, and post-active stages, the study also showed a gap of customer satisfaction.

In relation to previous research, this study highlights the concept of the quality standard of Customer-Supplier Relationship (C-SRs) to analyze whether some stages need to be justified or shifting if the concept is adopted in education.

To analyze, we refer to three governing principles C-SRs under total quality suggested by Evans RJ (2011). The first principle is recognition of the strategic importance of the customers and suppliers. Important to recognize that customers and suppliers are absolutely crucial to success where customer is the center of organization as well as suppliers because they make it possible to create customer satisfaction.

The second principle is the need to develop mutually beneficial relationship between customers and suppliers. The development itself should be resulted on win-win relationship between customer and suppliers. The third principle of effective CSRs is that they must be based on trust rather than suspension.

Most literatures of the concept of quality standards can be applied in education environment. The implementation of those concepts of quality standard has their own stages.

This study is interested in proposing a deeper understanding of the adjustment that need to be considered in managing quality standard of Suggestion system and Customer-Supplier Relationship (CSRs). The objective of this study is to analyze some particular stages that should be adjusted when a concept of quality standard is applied in educational institutions.

### 3 METHODS

This is a literature study where primary literatures was readily available from two research results conducted last years. Two concepts of quality

standard are Suggestion system (SS) and Customer-Supplier Relationships (C-SRs). Research result of SS was carried out by Kartikowati & Lei (2015), and the C-SRs was conducted by Kartikowati & Gimin (2016).

The study aims to propose decision-makers of educational institution with a deeper understanding of the adjustment that need to be considered in managing quality standard of SS and C-S Relationship.

The study highlights the sequence of stages at two concepts applied in education as it is derived from the industry. If the different existed, which stages need to be adjusted?

Data collected of the study is highly relied on informations provided from previous research reports including the materials, notes, and facts within the report. However, since the said research report was not the only literature that giving an understanding of research questions broadly, we collected other data classified as conceptually literature and from related journals.

Following data collected, data was analyzed through some group discussion (FGDs) activities. Prior to do so, the procedure was began with a secondary data review of readily available previous research results. It was followed by series activities of FGDs which was focused based on. By doing FGDs we determined which of the data we collected was associated with our research questions - to figure out the implementation stages of the SS and C-SRs then discussed issues for better understand on possible different stages.

Issues figured out during FGDs is linked up and connected to theories. Some articles relevance is used in this discussion process. We may find that some adjustment might consequently shift the customary practices that have long been recognized in the industry.

## 4 RESULTS AND DISCUSSION

The results of two cases of quality standards were discussed separately

### 4.1 Overview of Previous Study of SS

Previous study of the concept of quality standard focused on Suggestion System (Kartikowati & Lei, 2015). It was started with the assumption that the ways to achieve desired quality result in educational organization mostly inspired from commercial or industrial organizations. This assumption was not

doubt anymore. This study has an aim which is highly related to the current study - to provide an empirical evidence by drawing up on how the Suggestion System (SS) was being implemented.

The SS study was conducted at reputable school located in Pelalawan Riau Indonesia. Since the school is owned by a well-known pulp company it is normal that the implementation of the SS at school was adopted and based on daily practice in the company.

We found that the SS program was implemented on the basis of four major stages: Encouraging people to participate; Motivate employee to write proposals; Review, evaluate, and guidance; and Rewards. That said stages, in this current study, is displayed as part of important information that further will be reviewed, as displayed on Figure 1 and Figure 2.

Figure 1 is about Stages of SS Implementation at school suggested by a company. It was carried out by the specific team formed by school board and school coordinator. The stage started from received improvement ideas from the employee and staff. Prior to receiving ideas, there was some agendas of socialization or dissemination of SS policy program from the school board, the school coordinator, and the SS Team. Through dissemination, it was expected all employees' involvement – the teachers and staff –in contributing creative and innovative ideas, to optimize the quality and service of the school. Encouraging stage was a regular sharing session, intended as a stage to invite, encourage, and stimulate school community.

Following first stage is the stages which motivated people to write proposals, starting with the discussion about the idea of improvement with the SS facilitator until it is approved. The motivation stage is stopped when the idea was not approved (meaning STOP) or approved (meaning continue to the implementation step).

Stage 3 was Review, evaluate, and guidance, which was consisted of implementing the idea which was documented in the form of SS. Soon as the idea has been implemented, it was verified based on two aspects: originality and quality of the idea.

The next or last stage was Reward. Reward was assessed and approved with 4 considerations: a complete report of SS-version, creativity, adaptability of the idea, and effect of idea (quality, cost, time, volume, safety and moral).

The said assessment report is very crucial since it may request the initiator return to make a revision accordance with the values obtained; therefore a

second approval displayed was needed before deciding reward.

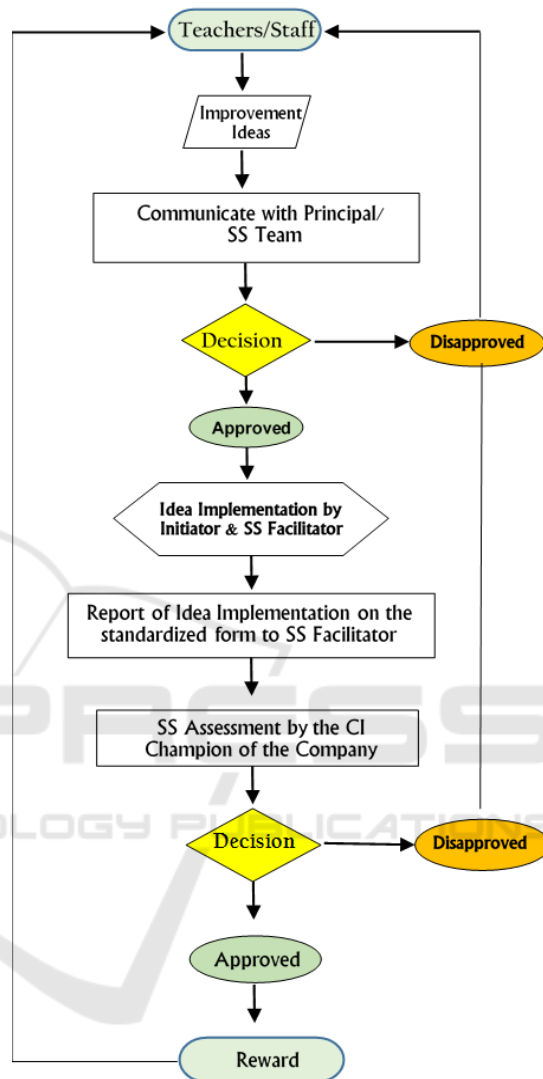


Figure 1: Phases of SS implementation at school suggested by company.

In general, the accepted idea will also be recorded for later to be included in the teachers/staff performance appraisal in the said semester

After the stages have been implemented, the research found the follow New Phases. See Figure 2.

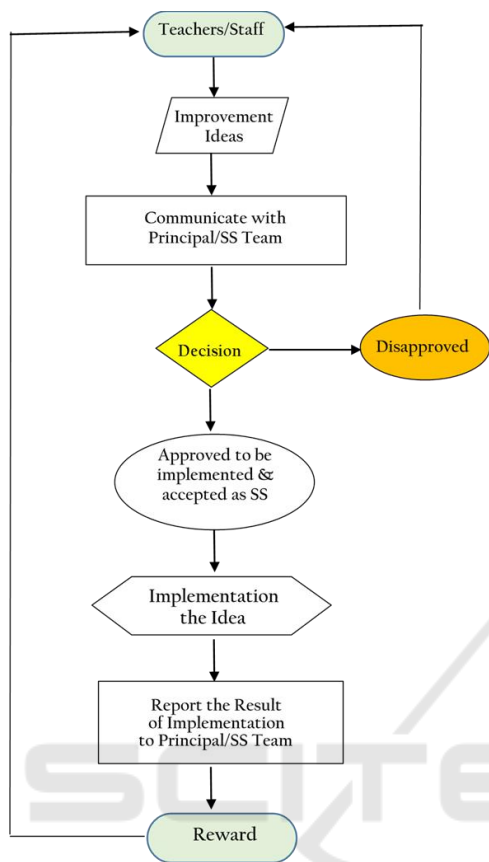


Figure 2: Phases of SS implementation at school suggested by researchers.

Figure 2 displays Phases of SS Implementation at school suggested by researcher. If it is placed next to Figure 1 then there will be a noticeable difference between the two.

#### 4.2 Discussion 1 (SS)

Figure 1 has two phases of Decision (approved or disapproved) while Figure 2 has one phase only of Decision. It means that there is a simplification step taken and thought by researchers. Phases on Figure 2 acquired based on empirical evidence analysis at previous study. Why does the phase of SS at school being simplified?

Simplification is a step of reducing the amount of something. Work simplification, for example, is common procedure at any organization. It is intended to reduce process cycle time or budget cutting; however, the simplification itself

supposedly keep direct to goal achievement efficiently.

In this study the discussion of the implementation of SS at school by adopting the best practice of SS carried out by the company needs to be simplified to some reasons:

##### 4.2.1 Simplification for a Strategic Idea

Ideally any improvement ideas should be well implemented and provide beneficial for the future of the institution. To do so, the idea should be calculated in detail; and practically the idea should pass a session of test, trial-error, or pilot project. This session is about activity in a small scale preliminary study in order to evaluate feasibility, time, and cost upon the ideas.

Work simplification is a normal way in industrial field as long as it continues to support primary goal, able to facilitate decision making, and allow reaching greater productivity.

Session of trial-error and pilot project in term of SS implementation at school would be considered as an over excessive. Improvement ideas submitted mostly are not addressed to influence the core activity of the school in which directly influence the institution strategically. Only a strategic idea that requires a pilot project first, and such idea usually need government rule or approval. One example is curriculum development. The improvement idea that is approved is the idea that contributes to the future of the school. Therefore phases constructed in SS implementation at school seems does need only one phase of Decision (to be approved or disapproved).

##### 4.2.2 Different Orientation of Quality Measurement

Measurement of company's quality can be identified from profit earned. Industry is more profit-oriented than educational. The success parameter is profitability. On the other hand, as a nonprofit organization, the main measure of quality in education is not merely financial but more to the level of human development (students). The concepts of quality standards used for the achievement of school performance are not only financial but also 'fitness for purpose, level of perfection, or achieve the standard level or above the standard.

With the difference in orientation of quality measurement between industrial and education, implementation stages in SS programs at school doesn't emphasize to the operational procedure

strictly especially if the improvement ideas are not highlighted strategic matters. Therefore step of simplification is needed in the implementation of SS program at school.

### 4.3 Overview of Previous Study of C-SRs

The previous study was attempted to describe how the relationship between customers and suppliers (C-SRs) in the educational context, to be precisely in the classroom within a university. Is it possible to define students as customers while lecturers as suppliers? In teaching process, two parties were involved – students are customers and lecturers are suppliers. To understand the relationship between them, the pattern of C-SRs was used.

Classroom in the universities atmosphere, two parties are being involved. Group of students is one party who attaining knowledge, obtain values of manner, and practicing some vocation, talent in the lab or sport field; on the other hand, a group of lecturer, a party who develop knowledge, values of attitude, and guidance skills/vocation of students.

Both students and lecturers engage each other to make learning process beneficial; there must be ‘a thing’ that make them working together side by side. The form of a thing ideally should be discussed together. That’s not merely a what (called material) but also a ‘how’ to do, to assess, and further.

Relationship between the two parties is proven in three stages of learning activities through the degree of dissatisfaction or satisfaction gap. First was planning or pre-active stage.

Secondly was execution or inter-active stage where it recorded as satisfaction gap on the aspect of Students-Centered approach. It means that the relationship between C-S was identified on low utilization of students-centered approach in lecturing process. For example, lecturers' more dominant. Thirdly was Feedback or Post-active stages. We noted dissatisfaction on the aspect of Feedback/Discussion. This means that bad relationships occur because of low information from lecturers about student achievement on certain competencies.

### 4.4 Discussion 2 (CSRs)

In term of the SS adoption, we displayed Figure 1 about the Phases of SS implementation at school suggested by company that was different with Figure 2 about the Phases of SS implementation at school suggested by researchers. We considered that

particular stage need to be adjusted appropriately in accordance with local circumstances of the school. The adjustment taken was a work simplification that was addressed to reduce process cycle time yet still support to goal achievement efficiently. We concluded that the implementation phases of the SS programs at school did not emphasize to the operational procedure strictly especially if the improvement ideas are not highlighted strategic matters. Therefore step of simplification is needed in the implementation of SS program at school.

In term of the C-SRs adoption, we figured out that a pattern of Customer-Supplier relationship was existed in the three stages of learning activities – pre-active, inter-active, and post-active – as reflection of lecturer and students interaction at class in the university. The said stages were identified through customers’ satisfaction gap. In this study dissatisfaction was recognized with the degree how students are being serviced using a sentence of *customer is the king*. Using three governing principles C-SRs under total quality suggested by Evans RJ (2011), we concluded that adopting the quality standard of the C-SRs was not entirely applicable because lecturers and students were equally demanding the fulfillment of mutually satisfactory. Students have to submit assignments on scheduled while lecturers were requested to discuss students’ achievement; this was to explain who actually the suppliers and customers in the class interaction between students and lecturers. We dealt with a shift the customary practices that have long been recognized in industrial about *customer is the king*.

## 5 CONCLUSIONS

Some of the findings in this study show that only a few parts of the industry quality component are used in education. Ideally the idea of improvement should be well implemented and benefit the future of educational institutions. To achieve this, a number of commitments from education managers are required. Besides, it is also necessary to adapt to local conditions that have an impact on cultural change.

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