Quality Improvement in Increasing Public Trust Using the Failure Mode and Effect Analysis (FMEA) Method

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ABSTRACT. This article discusses Quality Improvement in Increasing Public Trust in MI Ihyauddiniyah. This study used a qualitative case study approach, with the research subjects consisting of the school principal and several deputy heads. Data collection techniques using interviews, documentation, and observation. Data analysis techniques using data reduction, data presentation, and concluding. This research focuses on describing Quality Improvement in Increasing Public Trust using the Failure Mode and Effect Analysis (FMEA) method of researchers at MI Ihyauddiniyah. The research data was obtained through interviews and observation, and documentation. In the next stage, the researcher checked the validity of the data, which was carried out by extending participation, persistence in observation, triangulation, and questionnaires to parents of students. To get more accurate and accountable results, the researchers interviewed the Deputy Head of Student Affairs, Deputy Head of Infrastructure, and Teachers at MI Ihyauddiniyah. The results showed that quality improvement using the FMEA method increased public trust. The FMEA measurement process is focused on three main things, which are the main components in the management process of educational institutions. The three components are a quality assurance system for teaching staff, a quality assurance system for learning facilities and infrastructure, and increasing support from the community, through this process.

Keywords: Improvement, Failure Mode and Effect Analysis, public trust


INTRODUCTION

Government policies in education are constantly changing (Nurdiaysyah & Hudriyah, 2021). Demands for process quality at every type and level of education have increased, in line with the higher standards of global education quality (Liu, 2020; Sasmito et al., 2020). Madani (2019) said that the main challenge of education now lies in the ability to formulate quality indicators and evaluation tools for ideal educational conditions among countries, significantly less developed countries. To answer these challenges, schools must develop quality standards and innovate to produce output ready to compete in the global job market. Every school must prepare well, realizing quality, adaptive, innovative school management, and appropriate management strategies. Quality is a condition that meets and exceeds customer expectations until the customer is satisfied (Stracke, 2019).

The quality of education is the ability of madrasahs or schools to manage operationally and efficiently the components related to madrasas to generate added value to these components according to the prevailing norms or standards (Hasan et al., 2022). In Islamic education, indicators of the quality of education can be guided by the context of educational outcomes, which refer to
the achievements of schools in a certain period. At the same time, the achievements can be in the form of results of academic ability tests or non-academic achievements.

Many educational institutions have carried out many innovations in improving quality or quality to attract public trust, such as Madrasah Ibtidaiyah (MI) Ihyauddiniyah, which is in the small area of the Besuk sub-district, Probolinggo district. As stated by Muzammil as Head of MI Ihyauddiniyah, that in increasing public trust, many programs have been carried out from aspects of strengthening religious activities and da'wah (Tahfidz Program, Sullam Extracurricular, Ihyaul Muslimin Council and Hadrah Extracurricular), Strengthening general education (English tutoring) and developing skills and interests and talents (Drum Band Extracurricular, Karate Extracurricular, and Scout Extracurricular.

The concept of quality, apart from being absolute, is also relative to society as a customer (Harmonis et al., 2021). Absolute quality refers to a product or output from educational institutions. A specific size determines it, how they set standards for customer needs, and their expectations of educational institutions. If service performance is not of good quality, customers will leave the institution because they can choose other alternatives. Suppose the product or output of an educational institution wants to continue and even exist. In that case, quality improvement in educational institutions will continue to be improved according to the needs and expectations of customers (Kurniawan, 2017). Nastiti also believes that the quality of an institution can have an essential role in the world of education because it can have a valuable symbol of trust in the eyes of society. The efforts of educational institutions to achieve a good name for themselves are influenced by their quality (Angkotasan & Watianan, 2021). Today, many educational institutions carry out the process of quality improvement to build public trust (Salamah et al., 2022). It was also done by Madrasah Ibtidaiyah Ihyauddiniyah, which aims to increase its existence as an institution that can answer community expectations for these educational institutions. However, educational institutions must also see the other side of quality improvement. Educational institutions need to pay attention to the potential that will cause failure and take preventive steps to maintain the existence of these institutions. One tool that offers to determine an educational institution's potential failure in giving birth or producing a better quality is the FMEA method "(Failure Mode and Effect Analysis)." From this method, it is hoped that educational institutions can read the potential for failure and take preventive steps.

Research on quality improvement has been carried out a lot, as Saeful Kurniawan said in his research that the role of stakeholders and shareholders determines the quality improvement in educational institutions (Kurniawan, 2017). In addition, Arif and Ferida explained that quality control could be done by maintaining or increasing the output of an educational institution by knowing the things that will cause failure and fixing them using the Failure mode and effect analysis method (Wicaksono & Yuamita, 2022). According to Mahadi et al., in their research entitled "Analysis of Project X Using the FMEA Method" (Failure Mode and Effect Analysis)," in implementing the FMEA method, the first thing that needs to be done is to read or analyze all aspects of the program in improving quality in an institution. Education carefully to know the following steps if they encounter things that can potentially cause program failure (Wicaksono & Yuamita, 2022). In addition, Yumaida said that the FMEA method is a structured procedure for identifying and preventing as many failure modes as possible with a priority scale with new steps so that the goal of building the quality of educational institutions is what is expected (Anastasia & Yuamita, 2022).

From the explanation above, the author wants to research improving the quality of MI Ihyauddiniyah in increasing public trust, focusing on how MI Ihyauddiniyah improves quality to increase public trust by reading potential failures and efforts to be made to prevent this. MI Ihyauddiniyah has implemented many new programs to build the institution's quality. It must be done because many other educational institutions are also increasingly enthusiastic about improving their quality, especially in gaining public trust. The community will only choose
Quality Improvement in Increasing Public Trust Using the Failure Mode and Effect Analysis (FMEA) Method

Educational institutions that are by their wishes, therefore, in order to answer this (Faiz & Rahwiniyanto, 2019; Marpaung & Sazali, 2022; Maulana et al., 2022; Soim et al., 2022). MI Ihyauddiniyah has carried out various kinds of programs that are religious, artistic, and scientific; this is done to balance the wishes of the people who currently want an educational institution that can provide knowledge of a religious nature and science so that it can keep up with the current and future times. However, this cannot be maximal in improving quality and significantly increasing public trust; this can be seen in how the community's evaluation of MI Ihyauddiniyah has yet to become a priority. In other words, the program is still not running perfectly or experiencing a failure that needs to be resolved with the next step using the Failure Mode and Effect analysis method. This study aims to get an overview of quality improvement through the method of failure mode and effect analysis to improve madrasah governance. In particular, this study aims to: identify and determine improvement priorities to eliminate potential failures and reduce the occurrence of failures from madrasa governance, teacher performance, program implementation, and learning activities. The implications of quality improvement sustainably encourage community trust at MI Ihyauddiniyah.

METHOD

This study used a qualitative case study type method with a multi-site design. The case study in this research is an in-depth study of individuals, a group, an organization, and an activity program, at a particular time. Data collection techniques in this study were carried out circularly using three approaches, namely; 1) participant observation; 2) in-depth interviews with eight people (Principal, Deputy Head of Curriculum, Deputy Student Affairs, Deputy Head of Facilities and Infrastructure, Deputy Head of Public Relations, Teachers, Head of Administration and Student Guardians; and 3) documentation. Data analysis was done through data reduction, presentation, and conclusions or verification (Munif & Baharun, 2018).

This study describes the implementation of several problem-solving procedures studied by presenting data about the FMEA measurement process. It focuses on four main components in educational institutions' management process for improving quality in increasing public trust. The four components are learning facilities and infrastructure, curriculum development, competent human resources, and community support for educational institutions. The following is a research instrument for Quality Improvement in Increasing Public Trust through the Failure Mode and Effect Analysis Method at MI Ihyauddiniyah Kecik.

RESULT AND DISCUSSION

Result

Failure mode: Potential

The current problem is that many educational institutions still need to succeed. The problem of failure in education is not only a local or regional level problem but an international problem...
(Nasser et al., 2021). Failure in education (dropout) is not only caused by students but many things that can potentially cause the failure of educational institutions to affect public trust. Several things have the potential to fail educational institutions 1. HR, 2. Community Support 3. Institutional facilities (Muharam et al., 2022).

FMEA - Failure Mode & Effects Analysis

1. **Human Resources.** Phiffner Jonh F. and Presthus Robert V. (1960) cites the opinion of Harrington Emerson that refers to the human resources (HR) owned by the organization. Based on increasing the value of educational institutions, more or less is determined by the role of human resources who are innovative, creative, professional, and able to read wishes and increase public trust (Purworini, 2014). However, in practice Madrasah Ibtidaiyah Ihyauddiniyah at this time, there is still a lack of understanding in improving or providing qualified human resources, as conveyed by Muzammil as the head of the Ihyauddiniyah Elementary School that, for all this time, we still emphasize the existing students to the people who want to go to school here without any selection. Meanwhile, in recruiting teachers, we have yet to conduct recruitment by the rules. It can be seen that the human resources there are still not good; they are still not competent.

2. **Community Support.** In addition to human resources, educational progress should lead to better quality; this is also one of the essential roles of community support which will be used as the foundation for educational institutions to carry out developments by reading the community's wishes. Communities are people in direct contact with the world of education, and society and parents have an essential role in advancing education. With the support of the community, education will work optimally (Sa'diyah, 2022). Developments at Madrasah Ibtidaiyah Ihyauddiniyah, especially regarding community support, are still unclear because, as explained by Hayyi, Deputy Head of Student Affairs for Madrasah Ibtidaiyah Ihyauddiniyah, the community around the institution is still indifferent to the institution because the people around it has middle to lower education. They think that continuing education is only a formality, and they send their children to school to be like children nowadays, so our difficulties in development are also hampered by society.

3. **Completeness of Institutional Facilities.** Obtaining output quality from learning outcomes certainly requires completeness in the learning system which will also affect students' comfort in participating in learning, so complete facilities must be developed (Benu et al., 2019). The institution's complete facilities are one factor in improving the quality of educational institutions. However, the facilities at Madrasah Ibtidaiyah Ihyauddiniyah still need to be in the inadequate category. Salehuddin, head of facilities at the Ihyauddiniyah Elementary School, clarified it. He explained that the existing facilities at this institution were still modest, and the limitations of
space and the available learning tools still needed to be improved. This statement proves that the availability of facilities for Madrasah Ibtidaiyah Ihyauddiniyah needs to be improved.

4. **Curriculum Development.** Educational activities that are expected to run well must pay attention to the conditions of the curriculum because the experience given in the classroom in implementing education will refer to the curriculum. A curriculum is a set of learning experiences students obtain if they follow an educational process. The curriculum is designed to be able to achieve the expected goals in the educational process (Julacha et al., 2021). Curriculum development or innovation requires firm foundations based on the results of in-depth thoughts and research; what educational institutions are currently facing is the frequent change in direction from the current curriculum in Indonesia. Romli also conveyed this as deputy head of the Madrasah Ibtidaiyah Ihyauddiniyah curriculum. In developing a curriculum that applies to the national education curriculum, we often need clarification and must adapt or readjust ourselves.

<table>
<thead>
<tr>
<th>Table 1: Identify Potential Failures</th>
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<tbody>
<tr>
<td>No</td>
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<td>2</td>
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<td>3</td>
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<td>4</td>
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</table>

**Discussion**

**Modes: Types, Ways, Possibilities**

Based on the results of observations made during the data collection process, various results of failure modes that occurred in educational institutions, especially MI Ihyauddiniyah, were collected. From the results of identifying the potentials that cause failure in improving the quality of MI Ihyauddiniyah, a failure mode is obtained that will occur in the institution, which is influenced by several aspects as follows:

<table>
<thead>
<tr>
<th>Table 2: Factors of potential failure</th>
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<tbody>
<tr>
<td>No</td>
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<tr>
<td>1</td>
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<td>3</td>
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</table>

From the table above, it can be concluded that; 1. Recruitment and acceptance of students at random, 2. People who are still lay or do not know about the importance of education, 3. Lack of funds from the government and the allocation of existing funds, 4. Directions of curriculum policies that often change cause potential failure in educational institutions. Some of the factors above are one of the reasons why the quality of educational institutions has remained the same. The recruitment of teaching staff and student acceptance must go through a process that is not convoluted to get a clear output. Improvement and development of human resources are always carried out with several objectives, including obtaining human resources who are experts in their fields, who have specific qualifications, both pedagogic, personal, professional, and social qualifications, as well as other qualifications that are tailored to the vision, mission of the madrasa. Educational institutions must form quality human resources to increase public trust, influenced by students, employees, and teachers as seen from learning outcomes and in carrying out their duties (Sa’diyah, 2022).

The selection or recruitment process is a tool to decide which applicants will be accepted. This process begins when the applicant applies for a job and ends with the acceptance decision. The selection process must consider three essential things: job analysis, HR planning, and recruitment (Cahyo, 2017). Not only that, public understanding of educational institutions is equally
essential because considering community support is one of the foundations for the progress of these institutions. According to Made Pidarta (1995), Madrasah and community relations are a communication process between educational institutions and the community to develop community understanding regarding educational needs and practices and encourage interest and cooperation in improving educational institutions (Endroyo, 2006). Apart from being an object to be reckoned with by their institutions, the community also acts as a subject with the right to judge and determine their own choices. However, the community around Madrasah Ibtidaiyah Ihyauddiniyah still needs to learn about education important because most people still need to study.

No less important than the others, the completeness of educational institutions must also be considered considering that incomplete facilities in institutions can reduce the quality of these institutions. The equipment for these facilities is influenced by the clarity of the funds available at the institution; if the allocation of existing funds is not used to improve school facilities or educational institutions, it will also be difficult (Muslimin & Kartiko, 2021). Apart from the several factors above, which are no less critical in terms of the failure of an educational institution in quality assurance to increase public trust, the direction of the national curriculum policy changes frequently. Undeniably, curriculum changes always lead to improvements in the education system. These changes were made because they were considered not to be by the desired expectations, so there was a need for curriculum revitalization. This effort must be made to create a future generation with a character who understands their national identity and creates superior children who can compete internationally (Yanuarti, 2017). However, the educational institutions below must also consider the expected changes in curriculum reform.

Effects: Negative Effect on Process under Study

In determining the potential and causal factors of the decline in quality in an educational institution, it will be obtained or can be known adverse effects or impacts can be seen from the following table:

<table>
<thead>
<tr>
<th>Potency</th>
<th>Factor</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompetent HR</td>
<td>Recruitment and acceptance of students perfunctory</td>
<td>output that is unclear and not in accordance with the goals of educational institutions</td>
</tr>
<tr>
<td>Lack of support from the community</td>
<td>people who are still lay or do not know about the importance of education</td>
<td>Lack of cooperation between the community and educational institutions</td>
</tr>
<tr>
<td>Inadequate institutional facilities</td>
<td>Lack of government funding and allocation of existing funds.</td>
<td>Ineffective learning</td>
</tr>
<tr>
<td>Curriculum development</td>
<td>The direction of the national curriculum policy is often changing</td>
<td>Decreasing student achievement</td>
</tr>
</tbody>
</table>

The Discovery of risks from several factors and potential failures will be faced by educational institutions, especially Madrasah Ibtidaiyah Ihyauddiniyah. In accepting or recruiting teaching staff or students who wish to study at these institutions, they must be selective; if this needs to be done, it will produce output that needs to be clarified and not by the objectives of establishing an educational institution. Output or human resources produced by institutions is also one factor in improving educational institutions' quality. Active students will quickly understand the lessons competent teachers teach; conversely, it will only produce effective learning if the two are connected to teachers and students (Mu'minin, 2018). Another influence that causes the development of educational institutions and the decline in the quality of these institutions is the need for more cooperation between the community and educational institutions. For an educational institution to live, there must be a role for the community. Many people need to see the roles and fundamental roles. For this reason, educational institutions must have a form of relationship with the community so that there is no gap between educational institutions and the
community; using institutions must understand the community’s wishes and the community must provide full support for the development—of educational institutions (Endroyo, 2006).

Besides these two things, another factor that affects the ineffectiveness of learning carried out by educational institutions is the completeness of the facilities owned by educational institutions, especially *Madrasah Ibtidaiyah* Ihyauddiniiyah. No less important than the others, the completeness of facilities in educational institutions must also be considered considering that incomplete facilities in institutions can reduce the quality of these institutions. It was also emphasized by Kartiko, who said that procuring educational facilities and infrastructure is providing all types of facilities and infrastructure according to needs to achieve predetermined educational goals (Muslimin & Kartiko, 2021).

Following some of the risks above, with the regular curriculum changes made by education in Indonesia until now, an independent curriculum has been formed; this has a negative impact which leads to teacher anxiety and decreased student achievement. It is because all students must pursue independent learning in many aspects. In contrast, they were previously accustomed to the spoonfed method, in which the teacher gave many explanations, and the students listened. Erin Aprilia also emphasized that the education curriculum is central to teaching and learning activities. However, some experts say that the curriculum is the heart of education, and the success of a curriculum must be balanced with the suitability of the students and teachers who will implement it (Aprillia et al., 2023).

**Analysis: Study Risk and Reduce it**

After making a table of potential factors and risks, the ranking is given. The RPN value of each problem from a failure is calculated using the formula; $RPN = \text{Severity} \times \text{Occurance} \times \text{Detection}$ The rating value of the RPN for each potential problem. It can then be used to compare the causes of the risks identified during the analysis. RPN is rated between the established limits; countermeasures can be taken or proposed to reduce the risk. When conducting a model risk assessment, it is essential to know that the value of the RPN rating is relative to a particular analysis. For this reason, an RPN analysis can be compared with other RPNs if it has the same analysis.

**Table 4: RPN**

<table>
<thead>
<tr>
<th>No</th>
<th>Potency</th>
<th>Occurance</th>
<th>Factor</th>
<th>Severity</th>
<th>Risk</th>
<th>Education</th>
<th>RPN</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Incompetent HR</td>
<td>7</td>
<td>Recruitment and acceptance of students perfunctory</td>
<td>output that is unclear and not in accordance with the goals of educational institutions</td>
<td>4</td>
<td>252</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Lack of support from the community</td>
<td>8</td>
<td>People who are still lay or do not know about the importance of education</td>
<td>Lack of cooperation between the community and educational institutions</td>
<td>5</td>
<td>200</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Inadequate institutional facilities</td>
<td>7</td>
<td>Lack of government funding and allocation of existing funds.</td>
<td>Ineffective learning</td>
<td>4</td>
<td>196</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Curriculum development</td>
<td>8</td>
<td>The direction of the national curriculum policy is often changing</td>
<td>Decreasing student achievement</td>
<td>4</td>
<td>224</td>
<td>2</td>
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</table>

The results of the analysis of the table above show that the problem is to improve quality in order to increase public trust. Incompetent human resources obtained the highest priority risk score (RPN) of 252. This figure is identified in the ability of teaching staff active in *Madrasah Ibtidaiyah* Ihyauddiniiyah in that their acceptance needs to be through proper recruitment. For educational institutions to prevent high risk, it is necessary to recruit appropriately by prioritizing the shortage of teaching staff according to the needs of subject teachers.
While the second highest risk priority is the lack of support from the community, the risk priority number (RPN) is 200. This figure is identified due to the need for more community support for Madrasah Ibtidaiyah Ihyauddiniyah caused by a lack of public understanding of the importance of education in life.

The third highest risk priority number is inadequate institutional facilities, resulting in a risk priority number (RPN) of 196. It is caused by a lack of funds from the government and the inaccuracy in allocating existing funds. Madrasah Ibtidaiyah Ihyauddiniyah, because inadequate educational institution facilities will decrease student enthusiasm for learning. Meanwhile, the fourth highest risk priority is Curriculum Development. It obtained a risk priority number (RPN) of 224. This number is identified because Indonesia’s education curriculum often experiences changes that hurt student achievement.

Quality Improvement Efforts to Increase Public Trust

Departing from several failure factors found using the FMEA method (Failure mode & Effects Analysis) is undoubtedly extensive homework for Madrasah Ibtidaiyah Ihyauddiniyah in improving quality to increase public trust.

First, the Madrasah must form quality human resources to prevent failure from lacking qualified human resources at Madrasah Ibtidaiyah Ihyauddiniyah. We need to make improvements for students, teachers, and employees because these three elements are human resources in the Madrasah so that they can increase public trust in the Madrasah. In recruiting teachers and staff at Madrasah Ibtidaiyah Ihyauddiniyah, several steps must be carried out, considering this is very important, such as recruiting teaching staff according to the needs at Madrasah Ibtidaiyah Ihyauddiniyah. Recruitment is one of the essential activities in human resource management because as the beginning of the activities carried out by madrasah organizations to find and attract job applicants with motivation, ability, expertise.

Second, to deal with the education movement in Indonesia, which is currently experiencing frequent changes, educational institutions, especially Madrasah Ibtidaiyah Ihyauddiniyah, must innovate. In carrying out curriculum innovation, it must be based on five basic foundations, including 1) philosophical foundations, 2) social, cultural, and religious foundations, 3) science, technology, and art foundations, 4) community needs foundations, and 5) community development foundations, so that the intent of the curriculum innovation is as expected, not the other way around. Innovation and curriculum development are carried out because curriculum development is dynamic and must adapt to the needs of those who learn (students).

Third, in minimizing the failure rate caused by a lack of support from the community for Madrasah Ibtidaiyah Ihyauddiniyah, madrasah are required to improve the relationship between Madrasah and the community. In this case, the Madrasah must include school members in correctional activities. The school residents here are students, teachers, and employees. In correctional activities, students can be directly involved with activities with the community so that they understand and understand what social interaction outside of school is like from an early age. So that later students feel comfortable when dealing with the broader community. In addition, with the participation of teachers and employees in community activities, it will be easier to find out what the community wants for the institution to be, creates a reciprocal relationship between the community and the Madrasah, and know each other's needs and desires.

Fourth, the last factor in the failure of educational institutions is the lack of availability of institutional facilities caused by a lack of funds. Here Madrasah Ibtidaiyah Ihyauddiniyah has a big responsibility in obtaining or allocating funds in their way. For now, Madrasah Ibtidaiyah Ihyauddiniyah must be able to estimate the need to improve the lack of facilities from incoming funds from organizations such as the Majlis Ihyaul Muslimin, Jam‘iyah Hadrah Ihyauddiniyah which is currently one of the reasons for the inflow of funds to the institution.
CONCLUSION

This research shows that, in general, respondents view the implementation of the quality of teaching staff and students in the teaching and learning process, facilities and infrastructure, and curriculum development as a "possibility of failure" and "possibility of failure" in a rare amount." It shows that the research field, in general, could be of better quality and needs improvement. This condition is the initial capital for school managers to improve quality even better so that it is equivalent to the quality of education, which can increase public trust.

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