The Influence of The Head of Madrasah and Infrastructure Facilities on The Quality of Education Through Teacher Competence

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Abstract

This study aims to analyze whether teacher competence is able to mediate madrasa heads and infrastructure on the quality of education. This study uses a quantitative approach, which consists of two exogenous variables of madrasa heads and infrastructure, one endogenous variable of education quality, and an intervention variable, namely teacher competency. The data obtained is primary data obtained directly from the respondents by dividing the questionnaires among the respondents. The research instrument used a Likert scale of 1-5, while data analysis used SEM diagram analysis which was processed using Amos Structural Equation Modeling. The results of the study show that teacher competence is able to mediate madrasa heads and infrastructure on the quality of education through teacher competence. These results indicate that teacher competence is able to mediate exogenous and endogenous variables.

Abstrak


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INTRODUCTION

The problem of a shortage of school principals still occurs today, facilities and infrastructure also have quite complex problems in Indonesian education, especially in remote areas. In addition to these two things, there are also problems regarding the competence of the teaching staff at the school. The three problems above greatly affect the quality of education in Indonesia. The quality of education is an inevitability that will increase the dignity of a nation through quality human resources. The quality of education in Indonesia is still very low in the world because Indonesia’s ranking is one of the lowest. Other data showing the low quality of education through the World Population Review in 2021, Indonesia is ranked 54th out of a total of 78 countries. Based on the facts mentioned above, there is sufficient reason to formulate a comprehensive action plan to address problems related to school principals, infrastructure, competence, and quality of education in Indonesia.

The principal is a teacher who is given the additional task of being the head of a school or madrasah to lead and manage the school/madrasah in order to improve the quality of education. The principal determinant of the quality of education is related to knowledge and understanding of management and leadership. Research conducted by Muflihah found that school principals must have three bits of intelligence, namely


professional intelligence, personal intelligence, and managerial intelligence. Based on research conducted by Amon the principal is able to supervise education through teacher presence, teacher performance, student development, lesson plans, and syllabus. Suwanda said the indicators of the school principal consisted of school planning, school organization, school implementation, and school control, while in this study using indicators of personality, knowledge, vision, and mission of the school, the ability to make decisions, and the ability to communicate.

In addition to the school principal, infrastructure is an important component in improving the quality or quality of education. In this study infrastructure facilities have a positive influence on the quality of education. Educational facilities are facilities that directly support the course of the education production process, namely teaching and learning activities, while educational infrastructure is indirect facilities such as parking lots, school gardens, and others. Infrastructure has an influence on the quality of education, with indicators of land, room, furniture, practical materials, teaching materials, and sports support funds, while this study uses indicators of learning facilities, worship facilities, service facilities, and school infrastructure. Factors that greatly affect the quality or quality of education are influenced by teacher competence. Competence is an instrument to determine the classification of a teacher's abilities. Teacher competencies include pedagogic, personality, social, and professional. The quality or quality of education is a pillar for developing human resources (HR), in which the nation's future lies in the existence of quality education in the present.

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The purpose of this research is to test the consistency and complement previous research. The researcher asks questions that will be answered by people who have deep knowledge and competence about the variables studied in this study. The first question is how the influence of school principals and infrastructure on teacher competence, this question is asked of respondents who have knowledge of school principals, infrastructure, and teacher competence. The second question is how the influence of the head of the madrasa and infrastructure on the quality of education, this question was asked to respondents who understand the head of the madrasa and infrastructure and the quality of education. The third question is how the influence of teacher competence on the quality of education, is posed to those who are directly involved in looking at teacher competence and the quality of education, and the fourth is how the influence of school principals and infrastructure on the quality of education through teacher competence, this question is posed to obtain an analysis of how the role teacher competence in mediating madrasa heads and infrastructure on the quality of education.

Based on the research objectives above, the first hypothesis is that the head of the Madrasah and infrastructure facilities have a significant influence on teacher competency. The second hypothesis is school principals and infrastructure with indicators of learning facilities, sports facilities, worship facilities, service facilities, and school infrastructure of educational quality. The third hypothesis is that teacher competence has a significant influence on the quality of education. The fourth hypothesis is the competency of mediating school principals with infrastructure on the quality of education. The relationship is presented in Figure 1 below.
RESEARCH METHOD

This research uses a quantitative method with an explanatory research approach\textsuperscript{14}. Explanatory research is explaining each variable used in this study. In this study, it consisted of two exogenous variables consisting of the principal of the school/madrasah (X1) and infrastructure (X2), 1 intervening variable of teacher competency and one endogenous variable of education quality.

This research was conducted at Madrasah Aliyah Negeri 1 Mojokerto which later became the population in this study which had 93 teachers and 18 staff. Furthermore, the entire population is taken to be the sample because the population is relatively small so that it is better able to represent the real reality. The data in this study uses primary data. Primary data is data obtained directly from respondents\textsuperscript{15}. The data collection technique in this study used a questionnaire which was distributed directly to the respondents. The questionnaire or questionnaire contains statements that have been tested for validity and reliability so that they can be used in this study and the instruments used use a Likert scale of 1-5\textsuperscript{16}.

To test the instrument using the validity test which is useful as the validity of a data using the Pearson product moment by looking at the correlation of each question item with the following formula\textsuperscript{17}:

$$r = \frac{N(\Sigma X) - (\Sigma X \Sigma Y)}{\sqrt{[N \Sigma X^2 - (\Sigma X)^2] - [N \Sigma Y^2 - (\Sigma Y)^2]}}$$

Keterangan :
- \(r\) = Coefficient Corellation
- \(X\) = Item Value
- \(Y\) = Total Item Value
- \(N\) = Total Sample (responden)

After the validity test is carried out, a reliability test is carried out, which serves to measure the reliability and consistency of the answers from the respondents, with the following formula\textsuperscript{18}:

$$r_i = \left[ \frac{k}{k - 1} \right] \left[ 1 - \frac{\Sigma ab^2}{\sigma t^2} \right]$$

\(r_i\) : Instrument reliability
\(k\) : Number of questions


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\[ \sum ab^2 : \text{Number of item variances} \]
\[ \sigma t^2 : \text{Total variances} \]

This study uses a causality model to examine the effect of exogenous variables on endogenous variables. To test the hypothesis that will be proposed in this study, the technique used is the SEM analysis technique with the AMOS (Analysis of Moment Structure) and SPSS (Statistical Product and Service Solutions) program packages. The steps in SEM analysis are: developing a theory-based model; build path diagrams; turning path diagrams into structural models; select the input matrix; evaluate the fit index; interpret and modify it\(^\text{19}\).

RESULT AND DISCUSSION

Result

The questionnaire in this study consisted of 46 statement items as a whole, and each variable had an Rcount value higher than the Rtable value, this indicated that all questionnaire items were reliable and able to measure variables. Based on the total number of respondents in the study, namely 113, an Rtable value of 0.176 was obtained. If a construct or variable has a cronbach alpha value greater than 0.60, then it is considered reliable. Table 1 below lists the findings of the research correlation test. Table 1.

<table>
<thead>
<tr>
<th>No</th>
<th>Variabel</th>
<th>Cronbach’s Alpha  &gt; 0.60</th>
<th>Keterangan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X1</td>
<td>0.885</td>
<td>Reliabel</td>
</tr>
<tr>
<td>2</td>
<td>X2</td>
<td>0.837</td>
<td>Reliabel</td>
</tr>
<tr>
<td>3</td>
<td>Y1</td>
<td>0.764</td>
<td>Reliabel</td>
</tr>
<tr>
<td>4</td>
<td>Y2</td>
<td>0.744</td>
<td>Reliabel</td>
</tr>
</tbody>
</table>


After the validity and reliability checks were completed, a confirmatory factor analysis of the study variables was performed. This is done using the SEM analysis shown in Table 2 below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Loading Factor</th>
<th>Loading Factor Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personality</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>School Vision and Mission</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>Decision-making</td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>Communication Skills</td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>Learning facilities</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>Sports facilities</td>
<td>0.92</td>
<td></td>
</tr>
</tbody>
</table>

Exogenous Variables

Facilities Infrastructure (X2)

- Place of worship 0.94
- Service facilities 0.92
- School infrastructure 0.25

Intervening

Teacher Competence (Y1)

- Pedagogical Competence 0.89
- Professional competence 0.93
- Personality Competence 0.90
- Social competence 0.87

Endogen

Education Quality(Y2)

- Educational Input 0.88
- Educational Process 0.90
- Educational Outputs 0.91

Hasil Full structural equation model tersaji pada gambar berikut:

Figure 2 Result Full Model SEM

The results of the analysis of the full SEM model show that the magnitude of the standard regression coefficient, the coefficient of influence of the madrasa head on teacher competence is 0.18, the coefficient of infrastructure on teacher competence is 0.35, the leadership coefficient of the madrasa head on education quality is 0.50, the school principal's coefficient on the quality of education is 0.80, while the coefficient of influence of teacher competence on the quality of education is 0.03.

The results of the fit model test show that the Chi-Square value is 160.508 while other results show that the CMIN/DF, Probability, TLI, CFI, RMSEA, and GFI, and all of them are in accordance with the predetermined cut-off value. So based on the value of the results that have been obtained it shows that in general, the SEM model used is in the good category so that it can be used to describe causality relationships through the factors used.

The results of the hypothesis testing in this study can be obtained through the critical ratio value and the sig level, which is $cr \geq 1.96$, and the sig level $\leq \alpha = 0.05$. 
which is a condition for accepting the hypothesis test. The results are presented in table 3.

<table>
<thead>
<tr>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1 &lt;--- X1</td>
<td>0.728</td>
<td>0.132</td>
<td>6.232</td>
<td>*** Significant</td>
</tr>
<tr>
<td>Y1 &lt;--- X2</td>
<td>0.515</td>
<td>0.233</td>
<td>2.219</td>
<td>*** Significant</td>
</tr>
<tr>
<td>Y2 &lt;--- X1</td>
<td>0.423</td>
<td>0.186</td>
<td>2.377</td>
<td>*** Significant</td>
</tr>
<tr>
<td>Y2 &lt;--- X2</td>
<td>0.622</td>
<td>0.172</td>
<td>3.574</td>
<td>*** Significant</td>
</tr>
<tr>
<td>Y2 &lt;--- Y1</td>
<td>0.610</td>
<td>0.194</td>
<td>3.132</td>
<td>*** Significant</td>
</tr>
</tbody>
</table>

Sumber: Data primer yang diolah, 2023

The table above shows that the statistical hypothesis value is above 1.96, which means that there is a significant influence between Servant Leadership Style on loyalty, Servant Leadership Style on empowerment, and empowerment on loyalty.

**Hypothesis h1 There is an influence of the head of the madrasa and infrastructure on teacher competence**

Based on Table 3, the critical ratio value for the madrasa head variable (X1) is 6.232, the infrastructure variable is 2.219 and the teacher competency variable (Y1) is 3.132. Where all these variables have a critical ratio value of more than 2 as a condition for accepting the hypothesis. And all of these variables have a smaller p-value of 0.05 as a condition for accepting the hypothesis. So based on the results of the values possessed, the first hypothesis states that the influence of the head of the madrasa and infrastructure on competence has been verified.

**Hypothesis 2 There is an influence of madrasa heads and infrastructure on the quality of education**

The critical ratio value for the madrasa head variable is 6.232, the infrastructure variable is 2.219 and the quality of education is 3.574. Where all these variables have a critical ratio value of more than 2 as a condition for accepting the hypothesis. And all of these variables have a smaller p-value of 0.05 as a condition for accepting the hypothesis. So based on the results of the values possessed, the second hypothesis states that the influence of the head of the madrasa and infrastructure on the quality of education has been tested.

**Hypothesis 3 There is an effect of teacher competence on the quality of education**

In the third hypothesis, the critical ratio value for the teacher competence variable is 3.132 and the education quality variable is 3.574 which is greater than 2 as a condition for acceptance of the hypothesis results, while a p-value of 0.000 is less than 0.05 as a condition for accepting the hypothesis. So based on these results in the third
hypothesis, it is stated that teacher competence has a significant effect on the quality of education.

**Hipotesis 4 The Influence of Madrasa Heads and Infrastructure on Education Quality Through Teacher Competence**

In the fourth hypothesis, the influence of madrasa heads and infrastructure on the quality of education through teacher competence can be seen through the direct influence and total influence contained in the following table:

<table>
<thead>
<tr>
<th></th>
<th>X2</th>
<th>X1</th>
<th>Y1</th>
<th>Y2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standarized direct effect</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1</td>
<td>0.353</td>
<td>0.180</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Y2</td>
<td>0.78</td>
<td>-0.046</td>
<td>0.032</td>
<td>0.000</td>
</tr>
<tr>
<td><strong>Standarized total effect</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1</td>
<td>0.353</td>
<td>0.180</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Y2</td>
<td>0.89</td>
<td>0.040</td>
<td>1.756</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Sumber: Data Primer Diolah, 2023.

Based on the table above, it can be seen that the results of the Standardized Direct Effect have a higher total effect value than the results of the value of direct influence so the fourth hypothesis states that the effect of madrasa heads and infrastructure on the quality of education through teacher competence has been tested.

**Discussion**

**The Influence of School Principals and Infrastructure on Teacher Competence**

Based on the results of madrasah leadership research, there are two indicators that get the most positive response, namely the indicators of decision-making and communication skills. This means that a school principal can improve the competence of teachers who are able to make decisions and have good communication skills.

In this study, the madrasah principal's decision-making in making decisions asked for a lot of consideration from the members of the organization he led. In addition, when the head of the madrasa is not in place, such as when getting additional assignments outside the madrasa such as meetings with departments or attending training workshops and the like, the head of the madrasa gives confidence to the vice madrasa to provide the flexibility to make decisions on incidental issues.

In order to increase the competency of the madrasah head, it is hoped that he will be able to develop personality and knowledge, because even though he gets a positive score from the respondents, he is ranked the lowest. This is very relevant to increasing teacher competence. The personality of a good madrasa head such as being able to be a role model, having a high level of honesty, or never having defaulted on members of the organization will foster a positive view of the members of the organization he leads. Whereas in the field of knowledge, it will be linear with teacher competence, this is due to the experience and extensive knowledge possessed by the principal of the madrasa.
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fostering self-confidence and confidence from the teacher and his staff that they are led by the right people and are able to guide and develop the competencies they have.

These results support previous research that school principals have an influence on teacher competence. The results of this study prove that the principal's management influences teacher competence with indicators of pedagogical competence, personality competence, social competence, and professional competence at quite high criteria. Besides that it is also in accordance with the research conducted by Banani entitled The Effect of Principal Leadership on Teacher Competence in Realizing Learning Effectiveness. Infrastructure facilities obtained the greatest results on the indicator of worship facilities, meaning that members of the organization wanted a private or private area to carry out worship while at the work location.

This is very relevant considering the empowerment indicator is the biggest reflection of the respondent’s responsibility. The results of this study are in line with previous research which revealed that infrastructure directly had a positive and significant effect on teacher competence.

The Influence of School Principals and Infrastructure on The Quality of Education

The head of the madrasa in this study has a positive and significant influence on the quality of education because the head of the madrasa has knowledge, and personality and carries out good communication with members of the organization he leads. This reinforces previous research which states that madrasa heads have a good impact on the quality of education.

Infrastructure on the quality of education in this study can be seen from how adequate infrastructure is available not only in the completeness of teaching and learning activities but also in the availability of infrastructure in the form of places of worship that are easily accessible and in good condition, places of worship that are part of one's privacy in carrying out human religious relations with creators have a significant influence on the quality of education in these institutions.

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The Influence of Teacher Competence on The Quality Of Education

Based on the results of the study, it shows that teacher competence has a positive effect on the quality of education, meaning that it has been agreed that teacher competence in MAN has good teacher competence. This can be proven by the teacher's competency variables on the indicators of pedagogical competence, personality competence, and social competence which have high scores reflected in the results of the many achievements obtained by students through ability and understanding in mastering the material to be conveyed by the teacher, personality attitudes and being able to communicate well is very important for a teacher to be able to interact with the community, parents, work partners, and students. The above shows that teacher competence has a significant effect on the quality of education.

A theory of teacher competence put forward by Danim competence is a set of basic knowledge, skills, and values that are reflected in the habits of thinking and acting of a professional educator. Related to this, teacher competence has indicators that researchers take and use, namely: Pedagogical, Personality, Social, and Professional Competence. A teacher must have extensive knowledge and skills in order to create well-established students, the role of the teacher in school institutions is not only to provide learning material to their students, but a teacher must also be able to set a good example for their students.

As for the influence of teacher competence on the quality of education in this study, it has a positive and significant influence. This is the same as the statement from the results of the previous research conducted by Baridin entitled the effect of teacher competence and learning strategies on the Quality of Education at MTs Negeri 2 Brebes, which stated that the teacher competency variable had an influence on the high category in his research reaching 75%.23 Other research that supports this research is research conducted by Auliah et al, at Public Middle Schools throughout the City of Bima.24

The influence of school principals and infrastructure on the quality of education through teacher competence.

The results of this study indicate that there is a positive and significant influence between the madrasa head variables on the quality of education, infrastructure on the quality of education, and also teacher competence on the quality of education. Based on test results obtained teacher competence as an intervening variable also produces positive and significant results in improving the quality of education. So that the teacher competency variable as an intervening variable is successful or able to contribute to this research.

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Teacher competence is able to mediate madrasah heads and infrastructure facilities on the quality of education. This is an important and new finding for the results of this study, where previous research had not been conducted research on the variables of madrasah heads and infrastructure on the quality of education through teacher competency at the same time by previous researchers.

CONCLUSION

An important finding of this study is that teacher competence as an intervening variable is able to mediate between madrasa heads and infrastructure on the quality of education. So it is hoped that in improving the quality of education not only pay attention to the factor of the head of the madrasa and infrastructure but must also pay attention to the competence of teachers according to the needs of the organization. Basically, teacher competence is not the only way to improve the quality of education but teacher competence is one of the important factors in producing the best quality education, with the support of madrasah heads who have the ability and infrastructure which are expected to be able to improve the quality of education in these institutions.

With the discovery of competence to mediate madrasa principals and infrastructure on the quality of education, this research offers a new concept in the world of research that needs to be re-examined for its consistency. This research is a small part of the scope of the scientific sources of human resources, so the results of this research are still felt to be necessary to be re-examined in the future in order to obtain consistent results. The limitations of this study lie in the research location and the relatively small sample, so further research is needed that accommodates larger cases in order to obtain more in-depth results.

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