

## Cultivating learning quality with E-training, principal leadership, teachers' competences and *mujahadah*

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### Abstract

This study aimed to analyse the effects of e-training, madrasah principals' leadership and teachers' pedagogical competence on learning quality through teachers' *mujahadah* using descriptive and path analysis with the help of Amos 24. The data were collected from 382 madrasah teachers who have participated in e-training in 2021 using a 4-point Likert scale questionnaire. The results showed that (1) teachers' *mujahadah* affected learning quality; (2) teachers' pedagogical competence affected teachers' *mujahadah*; (3) e-training affected learning quality (4) madrasah principals' leadership affected teachers' *mujahadah*; (5) madrasah principals' leadership affected e-training; (6) madrasah principals' leadership affected teachers' pedagogical competence; (7) e-training affected teachers' *mujahadah*; and (8) e-training affected teachers' pedagogical competence. In conclusion, improving the learning quality of madrasahs in Central Java is determined by teachers' *mujahadah*, e-training, madrasah principals' leadership and teachers' pedagogical competence. Stakeholders are suggested to consecutively provide more courses and trainings to keep teachers vogue of any adjustments, innovations and modifications in education.

Keywords: Learning quality, e-training, *mujahadah*, pedagogical competence, principal leadership.

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## Introduction

### *Theoretical Framework*

The ranking of the 2019 student ability survey released by the *Programme for International Student Assessment* (PISA) in Paris showed that Indonesia is still in a place that is not yet encouraging. The PISA survey is a reference in assessing quality of education in the world, it includes reading, math and science skills (Avvisati et al., 2019). The accreditation carried out in 2018 by The National Accreditation Board of Schools/*madrasah*) showed the result of accreditation ratings for each district/city, namely, for A (Excellent) there were 2,037 schools/*madrasah*, for B (Good) there were 3,911 schools/*madrasahs*, for C (Enough) there were 568 schools/*madrasahs*, and there were 40 schools/*madrasahs* (Provinsi Jawa Tengah, 2018) with an unaccredited rating.

The quality of *madrasahs* in Central Java still needs to be improved continuously. Until now, there are still 68.93% of *madrasahs* in Central Java whose accreditations have not yet achieved the predicate of excellence (A). Generally, there is still a gap in the quality of *madrasahs* in Central Java. This is indicated by the fact that there are *madrasahs* with good accreditation, others that are adequate, and some are lacking in quality. The accreditation data also show that the quality of *madrasah* is below that of public schools. The key factor in the success of high-quality education is the teacher who is the direct provider of education in the education unit.

Professional development for teachers is pivotal to improve teaching quality, learning opportunities and *student* achievement (Tran et al., 2021). The Government of Indonesia employ continuous professional development activities to increase the quality of teachers. One type of professional development activities is functional training activities (Ministerial Regulation No 16, 2009). The lack of education and training for *madrasah* teachers in Central Java is also an obstacle to the progress and development of *madrasahs* towards becoming high-quality schools. Participating in education and training in the form of functional training or substantive technical training are very difficult for teachers who are state employees or non-permanent teachers. In 2020, the number of *madrasah* teachers in Central Java was 98,000 while *Religious Education and Training Centre of Semarang* (RETC Semarang) only had the capacity to train 5,896 of them (RETC Semarang, 2020), even though the implementation of training in 2020 was carried out remotely because of the COVID-19 pandemic.

High-quality education is reflected through the educational services that are in accordance with the expectations of the community. For this reason, education providers must be able to understand the needs of the community – the beneficiaries of educational services – so that the outcomes of education are in accordance with the demands of the community (Fredy et al., 2019). *Madrasahs* embody a culture of high Islamic character rooted in the Qurán and Hadith and which is massively developed in the *madrasah* environment.

Teachers and students are required to carry out religious activities in order to get the blessings of life both in this world *and* thereafter. By implementing *mujahadah* (*acts of piety and devotion*) in the school environment and individual, teachers are expected to increase commitment and motivation so that teacher performance is better. By applying good *mujahadah*, teachers are expected to have sincerity in carrying out their duties in teaching and guiding students. *Madrasahs* need to make adjustments to all aspects attached to themselves, to achieve efforts to improve the quality of *madrasahs*. Quality improvement cannot be done separately or in parts; instead, each component and system is integrated with each other and cooperates in efforts to improve the quality

of *madrasahs*. In the context of education, the notion of quality includes educational inputs, processes and outputs (Ardiansyah et al., 2018).

Factors affecting learning quality include teacher formal education and teacher training experience. However, there are other factors, namely organisational culture (Baird et al., 2011), teacher's competence (Susanto, 2013), work ethic (Afifah, 2014; Ekasari, 2019) and work performance (Hartono & Anshori, 1995). There is research Tholkhah (2017) that has stated that the main aspects that can improve the quality and competitiveness of *madrasahs* is their principals' leadership, learning innovations, teachers and the quality of *madrasah* facilities. Likewise, the variable of effective leadership will determine the formation or change in organisational behaviour. This organisational behaviour is a demand for behaviour or organisational culture that is strong and in harmony with its environment (Robbins & Judge, 2013). Schein (1991) suggests that leadership in an organisation will shape and change the culture in an organisation or institution.

The experience of religious teachings also creates piety towards Allah which is manifested by always engaging in *mujahadah*, as the word of Allah in Surah Al-Baqarah verse 63 which says: And (remember), when we took a promise from you and we raised the mountain (Sinai) above you (while we say): 'Hold firmly on what we give you and always remember what is in it, so that you become pious' (Ministry of Religion of the Republic of Indonesia, 2017).

The verse above states that *mujahadah* will form favourable human beings both individually and socially. *Mujahadah*, in this regard, includes worship activities that are performed in work activities. Accordingly, the main point from the description above is that *mujahadah* has various forms based on its implementation. Thus, people who hold deep faith in Allah,; people who hold back their lusts; people who strive in the way of Allah; and people who work earnestly can also be called *mujahadah*.

The framework utilised by Rapp et al. (2006) recommends several things for future research. For example, our model is not overly complex in considering all the foregoing thoughts regarding 'work smart' and 'work hard'. Future research could further broaden the scope of the potential concept. Working 'smart' and 'hard' affects performance. By the understanding of the possibilities that affect the relative importance of working in these ways, a more appropriate choice of a motivational programme can be made (Klehe & Anderson, 2007).

In relation to this conception, Madrasah *Ibtidaiyah* (Islamic Primary School), *Madrasah Tsanawiyah* (Islamic Middle school) and *Madrasah Aliyah* (Islamic High school) are units under the auspices of the Ministry of Religion of the Republic of Indonesia. Meanwhile, the motto of the Ministry of Religion is 'Sincere Charity'. The motto is to implement the organisational culture in *madrasahs*. It is hoped that with the implementation of this motto in the organisational culture, daily learning activities through hard work, smart work and sincere work are also implemented.

Sabet et al. (2012) stated that the factors affecting the effectiveness of the implementation of quality management in industrial education are dominated by financing, training, rewards, commitment, teamwork and employee involvement. These are factors that must be considered to achieve success in the implementation of quality management so that the goals of the organisation or institution can be achieved well. The leadership by their principals is certainly the main factor that makes these educational institutions able to continue to compete and excel among other educational institutions (Mubarok, 2020). Leadership is the key to the management and administration of an organisation (Maxwell, 2001). Based on the above background, our research was conducted with the title Cultivating Learning Quality with *e-training*, *principal leadership*, *teachers' competences* and *mujahadah*.

### *Research Questions and Purpose of study*

The research problems in this article are as follows: (1) What is the effect of teachers' *mujahadah* on learning quality? (2) What is the effect of teachers' pedagogical competence on teachers' *mujahadah*? (3) What is the effect of e-training on learning quality? (4) What is the effect of madrasah principals' leadership on teachers' *mujahadah*? (5) What is the effect of madrasah principals' leadership on e-training of madrasah teachers? (6) What is the effect of madrasah principals' leadership on teachers' pedagogical competence? (7) What is the effect of e-training on teachers' *mujahadah*? (8) What is the effect of e-training on teachers' pedagogical competence?

### *Madrasah Learning Quality*

Indicators of learning quality can be seen in, among others, teacher behavior, student behavior, learning climate, learning materials, and learning media. Each of these indicators can be briefly described as follows: 1) On the teacher's side, quality can be seen from how optimally the teacher can facilitate the students' learning process; 2) on the students' side, quality can be seen from the behavior and impact of learning that can make students motivated, active, and creative; 3) on the aspect of learning climate side, quality can be seen from how much the learning atmosphere supports the creation of interesting, challenging, fun and meaningful learning activities for students; 4) in terms of learning media, the quality can be seen from how effectively learning media are used by teachers to increase the intensity of student learning; 5) meanwhile, in terms of the material aspect, quality can be seen from how suited it is to the objectives and competencies that must be mastered by students (Haryati & Rochman, 2012).

The learning quality variable is everything carried out in achieving learning objectives that produces optimal learning outcomes from students. The measurement variable indicators are as follows: (a) Teachers' learning behavior; (b) behavior and learning impact on students; (c) teachers' learning climate; (d) learning materials; (e) quality of learning media; (f) the learning system in madrasahs (Haryati & Rochman, 2012).

### *Teachers' Mujahadah*

There are three stages that people must go through so that work performance increases and their work has worship value. The three stages are hard work, smart work, and sincere work (Narulita, 2008). *Mujahadah* in its broadest sense, as defined earlier, is to mobilize all available power and capabilities in realizing any good work (Muntoha, 2016). Working with *mujahadah* or working with the spirit of jihad is the obligation of each Muslim in the context of tawakkal before submitting (tafwidh) the final result to Allah's decision (Nuzha, 2014).

The *mujahadah* variable is working with all of one's potential to the fullest in fulfilling the obligation to worship Allah. The measurement variable indicators are: (a) Smart work; (b) hard work; (c) sincere work. The *mujahadah* variable in previous studies has been very closely related to the concept of work ethic, performance, work spirit, and religious values. *Mujahadah* is a sincere effort and work and exerts all abilities to fight the enemy by hand, verbally, or with whatever he can, as well as a means of worshipping Allah.

The results of research by Zakhroh (2013) and Handayani & Suryani (2019), using hypothesis analysis and path analysis, showed that there was an indirect relationship between employee performances on community satisfaction through service quality. Work ability, work spirit (Afifah, 2014), work ethic, and religion (Sulaeman, 2016) either partially or simultaneously will affect service

quality and work quality. With the analogy that work ethic, performance, morale, and religion affect the quality of service and quality of performance, the researchers suspect that learning quality will be affected by teachers' *mujahadah*.

### Hypothesis

H1: Teachers' *mujahadah* has a positive effect on learning quality

#### *Teachers' Pedagogical Competence*

Competence is defined by Lyle M. Spencer (1993) as a characteristic that underlies a person and is related to the effectiveness of an individual's performance in his work. The definition of teacher's competence is a set of mastered abilities that must exist within a teacher to realize his performance appropriately and effectively (Hasibuan, 2016). As professional educators, according to Indonesian Law No. 14 of 2005 teachers are mandated to have four competencies, one of which is pedagogical competence. The variable of teachers' pedagogical competence is the teachers' ability to manage student learning.

The measurement variable indicators are: (a) Understanding insight or educational foundation; (b) understanding of students; (c) curriculum or syllabus development; (d) lesson design; (e) implementation of educational and dialogical learning; (f) utilization of learning technology; (g) evaluation of learning outcomes; and (h) development of students to actualize their various potentials.

Pedagogical competence is one type of competence that must be possessed by teachers in addition to personality competence, social competence, and professional competence. Pedagogical competence is the ability of teachers to manage student learning. One aspect of pedagogical competence is the understanding of students. Understanding students is an activity that must be carried out by teachers, including before preparing lesson plans, because the learning process is essentially directed at teaching students. All decisions that must be taken in designing learning should be based on the conditions of the students and the available learning facilities. The learning provided by teacher is expected to be able to develop the potential of students optimally. Learning in educational units should be conducted interactively, inspiring, fun, challenging, motivating students to participate actively, and providing sufficient space for initiative, creativity, and independence according to the talents, interests, and physical and psychological development of students. The demand that a teacher must have good pedagogical competence will affect teachers' *mujahadah* through a pattern of smart work, hard work, and sincere work.

Research conducted by Shandi, Arie (2019) stated that teacher's competence affected the work ethic of teachers. The research of Shandi, Arie (2019) also showed that the level of competence of teachers' personality had a significant effect on the work ethic of teachers. Supriyono's research (2017) proved that the higher the pedagogical, professional, and work motivation competencies, the higher the teachers' performance in achieving educational goals. Pedagogical competence also significantly affects teacher performance Nurdianti (2017) and Mulyadi, (2011). Researchers suspect that teachers' *mujahadah* is affected by teachers' pedagogical competence.

### Hypothesis

H2: Teachers' pedagogical competence has a positive effect on teachers' *mujahadah*

#### *E-training*

The e-training variable is a system of learning activities at Religious Education and Training Center of Semarang based on ICT (Information and Communication Technology) which is held to speed up the training cycle, increase the intensity of using ICT in the world of education and training, and mitigate the limitations of distance and time between training providers, tutors and training participants. The measurement variable indicators are: (a) Content standards; (b) learning design; (c) assessment standards; (d) technology standards.

Character education is important for students' character development for the future. However, the current situation because of the Covid-19 pandemic has created new problems regarding character education which should be instilled in students directly in real life. The current condition has prevented teachers and students from meeting face to face and interacting directly, so teachers have found it difficult to provide character education to students. However, character education is important in the mental formation and development of students (Thohir et al., 2021). The learning process, including training, helps participants to know about ethics and responsibilities through learning models or good character learning. The values of religious education, moral development in the life of the nation and state need to be implemented through education. Therefore, teacher trainers (*widyaiswara*) must be able to create an ideal learning environment in an effort to develop ethics, morals, and character for madrasah teachers.

Research conducted by Nugent (2009) and Yanto (2016) used the context of learning on campus. In the online context, the interaction of lecturers and students likely has a significant effect on competence. Indeed, there is criticism that student engagement during online learning is much lower than during traditional learning (Chen et al., 2008). However, this does not mean that the interaction of teachers and trainees during online learning does not have an impact on the perceived competence of the trainees. The results of one study (Yanto et al., 2021a) showed that online learning has little effect on operational accounting competence. The increase in their operational accounting competence was mostly obtained from asynchronous learning in terms of active, collaborative, and enrichment learning. Online classroom involvement, or synchronous learning, contributed little to students' perceived operational accounting competence. Thus, the researchers suspect that e-training affects teachers' competence which will contribute to improve learning quality.

#### Hypothesis

H3: E-training has a positive effect on learning quality

H7: E-training has a positive effect on teachers' *mujahadah*

H8: E-training has a positive effect on teachers' pedagogical competence

#### *Madrasah Principals' Leadership*

The variable of leadership of madrasah principals is a collective effort in thinking, acting, and solving problems faced by the institution together so that the planned goals can be realized properly. The measurement variable indicators are: (a) Madrasah principals' leadership in personality and social changes; (b) madrasah principals' leadership in learning change; (c) madrasah principals' leadership in changing the development of madrasah; (d) madrasah principals' leadership in resource management changes; (e) madrasah principals' leadership in entrepreneurship changes; (f) madrasah principals' leadership in changing the supervision of learning; (g) madrasah principals' leadership in technology and information change.

The effectiveness of madrasah principals' leadership also has a very strong effect (70.06%) on teachers' competence (Hasmayanti, 2011). The results of a study by Ginanjar et al., (2018) showed

that there was a significant effect of principals' leadership on increasing the pedagogical competence of Islamic education teachers at SMPN 3 Karawang. Therefore, efforts are needed to improve task-oriented leadership (initiating structural) to increase the principals' leadership effectiveness variable so that it becomes better (Hasmayanti, 2011). Principals' leadership has a positive effect on the pedagogical competence of Islamic Education teachers to realize learning effectiveness (Ginanjari et al., 2018). Principals' leadership has a linear relationship with teachers' pedagogical competence (Nellitawati & Boo, 2015). The results of research by Efendi & Suib (2014) showed that leadership behavior and work motivation of school principals together have a significant effect on increasing teachers' competence. Therefore, the researchers suspect that madrasah principals' leadership has an effect on teachers' *mujahadah*, e-training, and teachers' pedagogical competence.

### Hypothesis

H4: Madrasah principals' leadership has a positive effect on teachers' *mujahadah*

H5: Madrasah principals' leadership has a positive effect on e-training

H6: Madrasah principals' leadership has a positive effect on teachers' pedagogical competence

The development of the model developed for this research is the variable of e-training and madrasah principals' leadership with the mediator variables of teachers' pedagogical competence and teachers' *mujahadah* that affect learning quality, using 27 measurement indicators. Based on these indicators, a research instrument was developed which would later be used for research on respondents. This study uses a Likert scale of 1-4 with the following criteria: (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree.

Based on the problems and theoretical framework given above, the research model that has been developed is nomothetic explanation, prediction and control. The development is visualised in a flow chart, as shown in Figure 1.

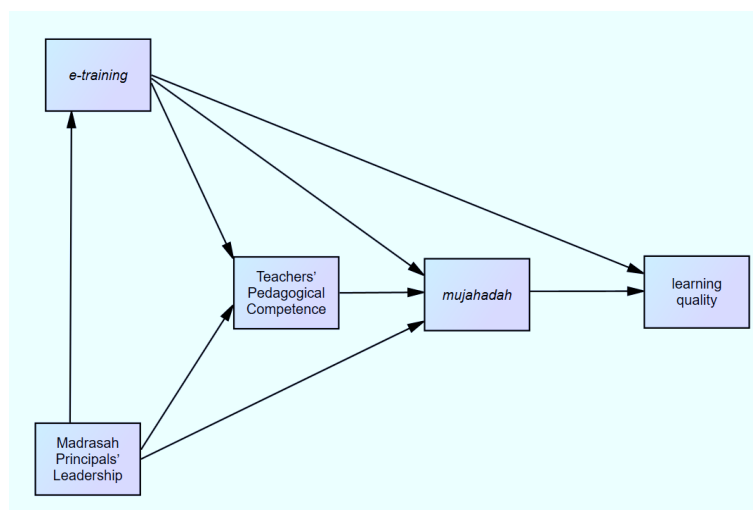


Figure 1. Thinking Framework Model

## Method

### Research Design

This research design is a combination of survey research and development research with a quantitative approach. According to Creswell and Creswell (2017), survey research can collect data directly from the subject under study and make generalizations to the population. The variables in this study consisted of: (1) Endogenous variables: (a) learning quality; (b) e-training; (2) exogenous variable, i.e. madrasah principals' leadership; (3) mediator variables which are (a) teachers' pedagogical competence and (b) teachers' *mujahadah*.

### *Sample and Data Collection*

The population in this study is *madrasah* teachers in Central Java. The objects of the research are the alumni of e-training in 2021. The underlying consideration of choosing the population is that the population has received remote training services provided by RETC Semarang. The population in this study were state-employed (PNS) teachers and non-state-employed teachers at 7,622 Public or private *madrasahs* in Central Java with a total of 84,695 *madrasah* teachers.

The research sample is the part that represents the population to be studied, Sugiyono (2010, p.91), while the sample is part of the number and characteristics possessed by the population. Because the method and data analysis use Structural Equation Modeling (SEM) for path analysis, the sample size must meet the minimum for the application of the SEM model. In general, the sample size for the SEM is at least 200 observations (Kelloway, 1998 in Bacharuddin and Harapan, 2003: 68). According to Hair, Anderson, Tatham, and Black in Kusnendi (2005) the minimum sample size for SEM analysis is between 100 and 200.

The number of samples are expected to be 100% representative of the population, so there is no generalization error as it is the same as the number of members of the population itself. The calculation of the number of samples from a known population uses the following Isaac and Michael formula.

$$s = \frac{\lambda^2 \times N \times P \times Q}{d^2 \times (N - 1) + \lambda^2 \times P \times Q}$$

This study has a population of 84,695 teachers, so, if the error rate is 5%, then the difference between the sample average and the population average = 0.05. With the Isaac and Michael formulas, the result is 381.96 which is rounded up to 382. The sample in this study is 382 *madrasah* teachers who have participated in e-training in 2021.

### *Validity and Reliability Instrument*

Path analysis needs to confirm beforehand that the measuring instrument used has been tested for validity and reliability. The step taken by the researchers before the instrument was given to the respondent was to test the instrument first on 28 trial respondents. Furthermore, the results were tested for validity and reliability using corrected item total correlations with SPSS 25.0.

The number of samples used for testing the instrument is 28 respondents. According to Appendix 1 regarding the corrected item total correlations output in reliability statistics, it shows N = 28 and is 100% valid, no data are empty. The excluded value is 0 because all data are used. According to Ghazali (2016, p. 48), the questionnaire is said to be reliable if the value of *Cronbach alpha* ( $\alpha$ ) > 0.70. According to Table 1, the *Cronbach alpha* for all variables is as follows:



**Table 1.** Summary of Cronbach's Alpha Values

Variable	Cronbach's Alpha	N of Items
Teachers' <i>mujahadah</i>	.973	20
Teachers' pedagogical competence	.902	7
E-training	.937	13
<i>Madrasah</i> principals' leadership	.953	12
Learning quality	.835	12

Based on Table 1, which provides a summary of the value of the Cronbach Alpha value and information about the reliability of the questions, it can be concluded as reliable. Overall, the variable X (teachers' *mujahadah*, pedagogical competence, e-training, madrasah principals' leadership) and variable Y (learning quality) showed reliable results.

In the validity test, the corrected item-total correlations value is also called the r-count. If the value of r-count > r-table product moment then the item is declared valid. The r-table product moment is examined for the distribution of the r value of the statistical table based on the df value (degree of freedom) in the study. The formula for df is  $df = 28 - 2 = 26$ . The value of r-table product moment for n 26 at 5% significance is 0.388. Next, the researchers compare the calculated r-count with the r-table as the basis for making decisions in the corrected item total correlation validity test. The result is that all items have a value above 0.388 which can be interpreted as meaning all question items are valid.

#### Data Analysis

Path analysis has advantages when compared to other analytical techniques. Path analysis is relatively simple and easy to perform. In addition, with path analysis, we can analyze many variables with a relatively small number of samples when compared to other analytical models, such as the full model in SEM. In comparison to SEM, this path analysis only uses the total score of the variables, while the full model in SEM uses the latent score. Because the total score is used, it is assumed that there is no measurement error in one variable. Path analysis can be carried out by software such as SPSS. Unfortunately, if the model is too complex, we have to carry out the analysis many times. The advantage of doing path analysis with Amos is that we can do the analysis together. Therefore, the tool used for the path analysis process in this study is Amos 24.

#### Goodness of Fit Test

The goodness of fit evaluation aims to test the overall feasibility of the model (Full Model) by taking into account the results of the calculation of the Goodness of Fit Statistics index (Muji Gunarto, 2018). Structural model testing is used to test the research hypothesis. The stages in the structural model testing include the structural model formation stage, the structural model feasibility test, and the significance test of the effect of exogenous variables on endogenous variables.

## Results

#### Descriptive Analysis

Respondents in this study were *madrasah* teachers in Central Java who had attended e-training conducted by *RETC Semarang* in 2021. Table 2 shows the characteristics of respondents in this study.

**Table 2.** Characteristics of Respondents

Characteristics	Frequency	Percentage (%)
Position Level		
<i>Madya Teachers</i>	67	26.69
<i>Young Teachers</i>	89	35.46
<i>Teachers (non-state-employed)</i>	43	17.13
<i>First Teachers</i>	51	20.32
<i>Main Teachers</i>	1	0.40
Madrasah Levels		
<i>Madrasah Ibtidaiyah (Primary)</i>	66	26.29
<i>Madrasah Tsanawiyah (Middle)</i>	67	26.69
<i>Madrasah Aliyah (High)</i>	118	47.01
Ex-Residency		
Ex-Residency of Banyumas	48	19.12
Ex-Residency of Kedu	33	13.15
Ex-Residency of Pati	44	17.53
Ex-Residency of Pekalongan	55	21.91
Ex-Residency of Semarang	31	12.35
Ex-Residency of Surakarta	40	15.94
Years of Teaching		
> 20 years	31	12.35
>15 - =20 years	16	6.37
>10 - =15 years	55	21.91
5 - =10 years	105	41.83
< 5 years	44	17.53
Age		
> 50 years	23	9.16
> 45 - =50 years old	21	8.37
>40 - =45 years old	38	15.14
>35 - =40 years old	76	30.28
30 - =35 years old	54	21.51
< 30 years old	39	15.54

The descriptive analysis shows that the minimum score for the e-training variable is 37 and the maximum score is 52, which means the madrasahs utilized the e-training. The implementation of e-training is still at 45.89 from a maximum score of 52, namely the number of items (13) multiplied by the maximum score for each item (4). In other words, the average implementation of e-training is good. The number of items in teachers' *mujahadah* is 20 with 4 points as the maximum score for each item. So the maximum score is 80. The average teachers' *mujahadah* score is 67.97. Likewise, learning quality score is at least 33, meaning that learning quality in madrasahs is quite good. Table 3 provides more detailed information about the results of the descriptive analysis

**Table 3.** Descriptive Analysis

Variable	Min.	Max.	Mean	Std. Deviation
E-training	37	52	45.89	4.640
Teachers' pedagogical competence	17	28	23.08	2,609
<i>Madrasah</i> principals' leadership	29	48	40.80	4.914
Teachers' <i>mujahadah</i>	51	80	67.96	7,688
Learning quality	33	48	42.06	4,557

### Correlation Analysis

The results of correlation analysis show that learning quality is affected by teachers' *mujahadah* and e-training by 81.6%; the remaining 19.4% was affected by other factors besides teachers' *mujahadah* and e-training. teachers' *mujahadah* variable is affected by e-training variable, pedagogical competence and madrasah principals' leadership by 70.5%. The remaining 29.5% is affected by other factors besides e-training, teachers' pedagogical competence and leadership. Teachers' pedagogical competence is affected by e-training and leadership by 56.2%. The remaining 43.8% is affected by factors other than e-training and madrasah principals' leadership. The e-training variable is empirically affected by madrasah principals' leadership variable by 42.5%. The remaining 57.5% is affected by factors other than leadership.

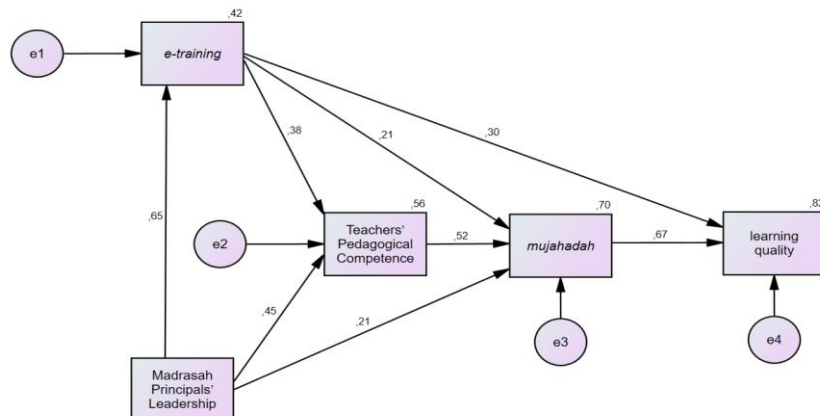
### Path Analysis

The path analysis shows that learning quality is affected by teachers' *mujahadah* by 67.2% and e-training by 29.8%. Teachers' *mujahadah* variable is affected by teachers' pedagogical competence by 51.6%, madrasah principals' leadership by 20.9%, and e-training by 21%. The variable of teachers' pedagogical competence is affected by madrasah principals' leadership by 44.5% and e-training by 37.9%. While e-training is affected by madrasah principals' leadership by 65.2%. For more details, see the Table 4 and Figure 2:

**Table 4.** Summary of Path Analysis

Hypothesis	Variable Y		Variable X	Estimate	P	Information
H1	QUAL	<---	MUJAHADAH	0.672	***	Accepted
H2	MUJAHADAH	<---	PEDAGOGY	0.516	***	Accepted
H3	QUAL	<---	ETRAIN	0.298	***	Accepted
H4	MUJAHADAH	<---	LEADERSHIP	0.209	***	Accepted
H5	ETRAIN	<---	LEADERSHIP	0.652	***	Accepted
H6	PEDAGOGY	<---	LEADERSHIP	0.445	***	Rejected
H7	MUJAHADAH	<---	ETRAIN	0.210	***	Accepted
H8	PEDAGOGY	<---	ETRAIN	0.379	***	Accepted

The path model below is the output of the Amos 24.0 software as a result of the path analysis as follows:



**Figure 2.** Learning Quality Improvement Model in *Madrasah*

### Goodness of Fit Test

The path model above is the output of the Amos 24.0 software as a result of the re-specification of the SEM model that is already fit. Based on the results above, the results of the evaluation of the goodness of fit can be summarized in the table 5:

**Table 5.** Results of Evaluation of Goodness of Fit

Goodness Of Fit	Condition	Results	Conclusion
CMIN	> 0.90	5,641	Fit
P	> 0.05	0.060	Fit
CMIN/DF	> 0.90	2,820	Fit
GFI	> 0.90	0.991	Fit
AGFI	> 0.91	0.933	Fit
NFI	> 0.90	0.995	Fit
RFI	> 0.90	0.974	Fit
IFI	> 0.90	0.997	Fit
TLI	> 0.90	0.983	Fit
CFI	> 0.90	0.997	Fit
RMSEA	< 0.08	0.086	Fit

### Discussions

This study found that teachers' *mujahadah* had a positive and significant effect. Research using variables in the form of *mujahadah* character in madrasah teachers has never been conducted. Therefore, this fact serves as the novelty of this research as it shows the needs for *mujahadah* character in madrasah teachers to improve the quality of learning. This is corroborated by the results of previous studies that have been carried out on *mujahadah* and quality variables, which, in those previous studies, were very closely related to the concepts of work ethic, performance, work spirit, and religious values.

*Mujahadah* is a sincere effort and work that exerts all abilities to fight the enemy by hand, verbally, or with whatever one can, as well as a means of worshiping Allah. The results of research by Zakhirah (2013) and Handayani & Suryani (2019) with hypothesis and path analysis showed that there was an indirect effect of employee performances on community satisfaction through service quality. Work ability, work spirit (Afifah, 2014), work ethic, and religion (Sulaeman, 2016) either partially or simultaneously will affect service quality or work quality.

Pedagogical competence is one type of competence that teachers must possess in addition to personality competence, social competence, and professional competence. Pedagogical competence is the ability of teachers to manage student learning. The demand that a teacher must have good pedagogical competence will affect teachers' *mujahadah* through a pattern of smart work, hard work, and sincere work. Empirically, pedagogical competence contributes to teachers' *mujahadah* in madrasahs. This corresponds the study by Siregar, Fauziati, and Marmanto (2020) elaborating that as one of the most substantial competencies, pedagogical competence is not merely about how teachers can delicately use teaching techniques or methods. However, it includes the acquisition of routines which every teacher undoubtedly needs to save time and energy for more significant aspects of the works.

Research on the effect of pedagogical competence on the *mujahadah* character of madrasah teachers has never been carried out. However, several studies have been conducted with variables that are in line with the nature of *mujahadah*, namely the work ethic variable. Previous research conducted by Shandi, Arie (2019) stated that a teacher's competence will also affect his or her work ethic. The research of Shandi, Arie (2019) also showed that the level of competence of a teacher's personality had a significant effect on the work ethic of that teacher. Supriyono's research (2017) proves that the higher the pedagogical, professional, and work motivation competencies are, the higher the teachers' performance in achieving educational goals is. Pedagogical competence also significantly affects teacher performance (Nurdianti, 2017; Mulyadi, 2011).

The definition of e-training in this study is a system in learning activities at BDK Semarang based on ICT which was held to speed up the training cycle, increase the intensity of using ICT in the world of education and training, and mitigate the limitations of distance and time between training providers, tutors and training participants. Empirically, e-training contributes to learning quality in madrasahs.

E-training is training that is conducted online. Not many studies have examined the effect of e-training on the quality of teachers' learning. The variables used in previous studies have been education and training variables; the novelty of this research is that the variables used are online training. In order to adjust to the pandemic conditions, online training was preferred to offline training because it is more efficient in protecting the health of the trainees in conditions where face-to-face meetings could not be held.

A study by Indriani et al. (2020) is one that supports the results of this study; in their research, it was found that education and training and the welfare of state elementary school teachers in Jamblang District, Cirebon Regency, had a great effect on the quality of teachers' learning. The results of other previous studies that have also been carried out on the variables of e-training and learning quality in madrasahs, were very closely related to the concept of education and training. Roesdi's research (2008) showed the magnitude of the effect of education and training variables on the quality of performance is 30.69% and the remaining 69.31% is the effect of other factors

In line with the results of the research by Bachtiar et al.(2019), these results show that due professional care, audit experience, continuing education and training, and organizational commitment affect the audit quality of the Lhokseumawe City Government Internal Supervision Apparatus Inspectorate. The results of the study partially showed that each variable—due professional care, audit experience, continuing education and training, and organizational commitment—affects audit quality, while organizational commitment also moderates each effect of due professional care, audit experience, continuing education, and training on audit quality.

The results of Sumiati's research (2019) showed that the effect of training on learning quality is quite adequate, with an increase of 5.76% in the quality of teachers' learning. Training affects the formation of teacher awareness and attitudes in dealing with teaching tasks. This is because from the training obtained, teacher will increase his insight, knowledge, and experience in terms of teaching and will make it easier for teachers to realize quality learning (Sumiati, 2019).

The definition of madrasah principals' leadership in this study is a collective (joint) effort in thinking about, acting upon, and solving problems faced by the institution so that the planned goals can be realized properly. Through examples of exemplary and caring social sensitivity carried out by madrasah principals' for madrasah residents, encouragement for teachers to work creatively and innovatively as well as providing facilities and activities and giving appreciation for teachers who excel will certainly contribute to the successful implementation of teachers' *mujahadah* in madrasahs.

Previous research that supports the results of this study is in line with *mujahadah*, namely the work spirit. The results of Tarlis' research (2017) that leadership affects employee morale, research by Suhadi et al. (2014) and Damanik, Efendi (2019) showed that leadership partially had a positive and significant effect on work morale. Principal decision-making, organizational commitment and school climate as part of management at the school level contribute positively to improving teacher performance (Indra et al., 2020).

Through the pattern of madrasah leadership, with one of the efforts being changing technology and information, it would contribute to the successful implementation of e-training. One indicator of the success of e-training is that trainees have access to information and teaching materials that can enrich learning. Of course, these two things are interrelated, through the efforts in terms of technology and information carried out by madrasah principals, and this will also have an impact on the success of the implementation of e-training. Permission granted by madrasah principals so that teachers could participate in e-training activities was also necessary for the success of e-training.

Supported by the results of the descriptive analysis that has been carried out in this study, several efforts that can be made to improve madrasah principals' leadership including to increase the creativity and innovation of madrasah principals in utilizing the potential of madrasah in order to develop madrasah, to increase the foresight of madrasah principals in identifying problems and formulating solutions; to carry out outbound activities or capacity building activities that are made by the head or the principal of madrasah; to improve the ability to distribute work to several people or sections according to their competence and expertise; and to increase the reactivity and innovation of madrasah principals in turning madrasahs' weaknesses into advantages.

With respect to the principal leadership, this study is confirmed by the results of Hasmayanti (2011) and Ginanjar et al., (2018b) asserting that the leadership of the principal affects the pedagogical competence of teachers. Principal leadership has a positive effect on the pedagogical competence of Islamic Education teachers to realize learning effectiveness (Ginanjar et al., 2018). Principal leadership has a linear relationship with teachers' pedagogical competence (Nellitawati & Boo, 2015). The results of research by Efendi & Suib (2014) showed that the results of leadership behavior and work motivation of school principals together had a significant effect on increasing teachers' pedagogical competence.

Empirically, e-training contributes to teachers' *mujahadah*. The implementation of e-training is carried out in full online without any face-to-face meetings between teachers, who, in this study, were *widyaiswara* (education trainers) and trainees, who in this study were madrasah teachers in Central Java. During the e-training, participants are required to be able to learn independently, because the intensity of meetings with resource persons is also limited. Therefore, *mujahadah* is needed so that the implementation of e-training can work better.

However, there are not many studies that examine e-training and there is no research that discusses *mujahadah* as a variable. This is the novelty of this research. The principle of implementing e-training by RETC Semarang is fully online, face-to-face using video conference application, a knockout system, and the number of hours of lessons was 60-100. The rules that must be obeyed by participants are: (1) They must take part in scheduled video conference activities; (2) after the video conference, all activities are uploaded to YouTube; (3) participants must complete tasks according to the predetermined deadlines; (4) if the assignment is late, the participant cannot follow subsequent trainings; (5) the participant is prohibited from discussing things that are not

relevant to the education and training in the WhatsApp group, and (6) if there is a change in the learning schedule, the administrators will notify the participants 1 day before the e-training.

Obviously, in order to pass, e-training participants must comply with the rules and understand the principles of e-training. Therefore, it is necessary to have an unyielding spirit and the desire to always learn from the failures that are experienced to complete a series of e-training activities from beginning to end. In previous research, the variables studied were related to education, training, and performance. The results of previous studies that support the results of this study are from the research of Dartha, (2010). The results of that research indicate that the education and training variables had a significant effect both simultaneously and partially on the performance of the Malang City Regional Secretariat employees and the training material variable was the most dominant. The research of Yunus et al., (2020) is one of the previous studies that used a variable that is in line with the nature of *mujahadah*, namely the work ethic variable; the results of this study prove that training that is carried out continuously will be able to improve the work ethic of teachers.

The e-training carried out by *RETC Semarang* in 2021 consisted of substantive technical training that aimed to improve the attitudes, knowledge and skills of *madrasah* teachers and improve pedagogical competence. The Long-Distance Training conducted included multimedia-based learning media, learning methodology, thematic for *Madrasah Ibtidaiyah*, chemistry for *Madrasah Aliyah*, physics for *Madrasah Aliyah*, mathematics for *Madrasah Ibtidaiyah*, economic for *Madrasah Aliyah*, Geography for *Madrasah Aliyah*, HOTS assessment and others.

In addition, the results of the descriptive analysis in this study indicate that the e-training conducted by *RETC Semarang* for *madrasah* teachers in Central Java Province are good but still need improvement in several aspects. With the increase in e-training, it is hoped that the pedagogical competence of teachers will increase. The results of this study are supported by the results of previous studies such as that by Khayatun et al. (2017) and Ayuni (2019) acknowledging that there is a positive and significant effect of training on teachers' pedagogical competence. Another research finding is that training methods and persistence have significant effects on the pedagogical competence of early childhood education teachers (Ciptaningtyas et al., 2020).

Furthermore, the results of another study (Yanto et al., 2021b) also show that online learning has little effect on operational accounting competence. The increase in their operational accounting competence was mostly obtained from asynchronous learning in terms of active, collaborative, and enrichment learning. Online classroom involvement, or synchronous learning, made little contribution to students' perceived operational accounting competence. Thus, the researchers suspect that e-training affects teachers' competence which will contribute to improve learning quality.

## **Conclusion**

The e-training was a form of training carried out during the Covid-19 pandemic by *RETC Semarang* for *madrasah* teachers in Central Java. It showed results in increasing teachers' pedagogical competence, teachers' *mujahadah*, and learning quality in *madrasahs* in Central Java. If the implementation of an e-training is good, then the pedagogical competence, teachers' *mujahadah*, and learning quality in *madrasahs* in Central Java will also improve.

Conversely, if the implementation of e-training is not good then teachers' pedagogical competence, teachers' *mujahadah*, and learning quality in Central Java will also decrease. E-training is affected by *madrasah* principals' leadership. The support from *madrasah* principals is important because it will affect the success of e-training which will ultimately affect learning quality.

It turns out that *Mujahadah*, which is the teacher's character in terms of the ability to work hard, work smart, and work sincerely as a manifestation of worship of Allah, will affect learning quality in Central Java. If madrasah teachers have good character in terms of *mujahadah*, learning quality in madrasahs will also increase. The teachers' *mujahadah* variable itself is affected by teachers' pedagogical competence, e-training, and madrasah principals' leadership.

Furthermore, the results of the study can serve as an empirical fact that the concept of *mujahadah* can assist teachers to maximize their potential and capabilities in executing their responsibilities. The variable '*mujahadah*' can be a meaningful innovation to be used as a model of teachers' attitudes in encountering the responsibility demands as educators who always need to improve their quality. In other words, such a principle could be adapted as one of the key elements to successful professional development.

Finally, *mujahadah* is assumed to be applicable for all teachers in the world, not only in Indonesia. Moreover, it is critical to raise awareness about the importance of technology through e-training or others in everyday life as early as possible. Without a doubt, technological awareness is essential for a teacher in today's world.

### **Recommendations**

This research is limited a condition in which sample are from schools. Further research can undertake a study under the similar topic in regard to higher education students or educators. Considered fruitful in terms of teachers' professional development area, this study can be a citation or reference for others, particularly those with limited teaching experience to strengthen their pedagogical quality. In regard to the findings of this study, responsible stakeholders are suggested to continuously provide more courses and practices about the e-training to keep teachers fresh and vogueish of developments, innovations, and adjustments in education. At last, such courses and trainings will be essential for developing teachers' professionalism in conducting the learning process.

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