

Madrasah Ibtidaiyah Transformation Based on Pesantren in the Era of Industrial Revolution 4.0

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ABSTRACT

This paper describes the transformation of Madrasah Ibtidaiyah based on the Miftahul Ulum Kesamben Islamic Boarding School Wetan Driyorejo, a Madrasah Ibtidaiyah which is under the auspices of the Ma'arif but has quite a high community appeal; this is seen by the large number of students in the academic year 2019-2020 which reached 456 with 17 class. It is unique because madrasah ibtidaiyah can compete despite having a pesantren-based character but can show their excellence, such as one of the works of students who can penetrate the world of children's issues. This has become one of the benchmarks of parents in choosing education, especially in the era of the industrial revolution 4.0. then it is necessary to find out about how madrasah ibtidaiyah transformed in the era of industry 4.0, as well as the obstacles they experienced; this study uses qualitative case study pressors, interview techniques, observation, and documentation is a way of gathering data so that it can be tested using the data validity test from Miles and Huberman. The results showed several efforts undertaken by Islamic religious schools based on the Miftahun Ulum Kesamben Wetan Driyorejo pesantren, namely by strengthening all parties' synergy in the madrasah and outside the madrasah. From this strengthening of synergy, a new problem emerged, covering. First, increasing teacher professionalism, which includes four competencies, supported by technology in the era of the industrial revolution 4.0. The second is to develop from the curriculum's side by following trends in the era of the industrial revolution 4.0. Third, strengthening the character of students as set out in the madrasah mission. Fourth, promote literacy programs to address challenges in the industrial revolution era 4.0. Because by reading the world window opener insight.

Keywords: Transformation, Pesantren, Industrial Revolution Era 4.0.

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Introduction

A nation will progress and develop if one of the factors is fulfilled, namely education, to develop a nation. So, the essence of education is fixated on how to know, how to do, and how to live together. Still, the most important education is how to realize the transfer of culture and culture from a nation as the vision of national education, namely, as a social and authoritative institution and to make quality humans so that they can respond to changing times (Daulay, 2012). Wekke, in his book, explains that education functions as a successor, development, and transmission of cultural values to future generations; besides, education is required to be able to adapt to the development of knowledge and technology or often referred to as the agent of change (Wekke, 2018). So the establishment of educational institutions is a solution to the minimum transmission of cultural values of a nation. As the

establishment of educational institutions, especially in Indonesia, from the results of the twentieth-century reforms, namely madrasahs, because basically, madrasahs are a combination of schools and pesantren. The elements taken from school are the system, methods, strategies, and school management, while the elements taken from the pesantren are religious knowledge, morals, fiqh, etc. Islamic religious background. The education system used is a classical system for madrasah, elementary, middle, and upper levels. Also, the learning system that stands out in madrasahs is to prioritize religious education material but does not close the provision of general knowledge material that is appropriate at its level (Hanafi et al., 2018).

Pesantren have a history that is quite encouraging because they have the ability to adapt to the times and have been tested to be educational institutions

that can be accepted across societies. Because more than that, pesantren are required to play a role as producers of culture, as the community needs in the future (Hilmy, 2008). Pesantren is also one of the archipelago's original educational institutions where the main control of the pesantren is a kyai, a teacher, owner, and supreme leader. So, the integration of pesantren and madrasah is a necessity in the State of Indonesia. As explained by Anzar, writing history on January 31, 1946, a minister of religion appeared who was given the task of supervising and developing pesantren and madrasah education. In the regulation of the minister of religion, number 7 of 1952, which regulates the level of madrasah education, it consists of: First, lower madrasah (Madrasah Ibtidaiyah) taken for 6 years. Second, the first advanced level (Madrasah Tsanawiyah) is taken for 3 years. And the upper secondary madrasah (Madrasah Aliyah), which took 3 years. It is not enough that the Ministry of Religion has developed private madrasahs, either managed by public institutions or Islamic boarding schools, into State, such as Madrasah Ibtidaiyah (MI) to Madrasah Ibtidaiyah (MIN), Madrasah Tsanawiyah (MTs) into State Madrasah Tsanawiyah (MTsN) and from Madrasah Aliyah (MA) became Madrasah Aliyah Negeri (MAN) (Abdullah, 2013).

The central role of Islamic boarding schools and madrasahs in the 4.0 industrial revolution is needed, as Ghazali explained, who explained that the shift in the human lifestyle in the 4.0 industrial revolution is supported by the development of science technology today. For example, namely, the presence of the Internet of Things (IoT), cloud databases, big data, blockchain, massive internet access, e-commerce, online transportation, e-money, and others, are necessary life for humans. This development has had a very rapid impact on the State of Indonesia, as the results of analyzing the Internet world stats in 2018. Indonesia is ranked 5th with the highest internet users globally, after China, India, America, and Brazil. So the

existence of Islamic education, especially Islamic boarding schools, is a space that must develop in the era of globalization. Gus Dur's message is that students are required to reason with critical intellectuals about developments in the era of globalization (Gazali, 2018).

The explanation above is corroborated by several research results, which have been documented in the form of articles, as explained by Siswanto, which explains the concept of the superior pesantren-based madrasah, namely by inviting students to understand the reality of developments in knowledge and technology. However, it does not abandon moral and personality development, so it can be understood that superior pesantren-based madrasahs are intellectual platforms who are experts in religion, have morals and have expertise in facing challenges in the current era of globalization (Siswanto, 2014). A system built in a madrasah in collaboration with a pesantren makes it the best system for him. Three different components can be merged into one, starting from religion, knowledge (science), and art (culture). Because the important role of these three components is an obligation that must be owned by a person, both individually and in groups in the community (Styaningsih, 2016). Hidayat also explained that Islamic boarding school-based madrasah research is about the qualifications of Madrasah Aliyah Darul Arqam and Madrasah Aliyah teachers Pesantren-based Cipasung is of great concern, namely by implementing modern industrial-based management 4.0, starting from designing, organizing, implementing to evaluation. So that teachers can think critically and develop high-class mindsets and anticipate the times' challenges. Because after all, teachers are the main milestone in moving the wheels of education (Hidayat, 2013). Besides, Muhali also explained the importance of teachers in managing to learn optimally, because in the industrial era 4.0, teachers are strongly encouraged to form independent lessons, and have goals for students able to reason critically, think creatively, problem-

solving and habituation in communicating, collaborating and making team decisions. So, online learning models are highly recommended as an effort to face the industrial era 4.0 (Muhali, 2018).

From some of the research results above, the researcher was knocked to see it from another point of view, starting from a unique phenomenon in Kesamben Wetan, Driyorejo Subdistrict, Gresik. Namely, there is a Madrasah Ibtidaiyah Miftahul Ulum, which carries the concept of Pesantren (Pesantren-based Madrasah) with one of its superior programs, namely collaborating with surrounding Islamic boarding schools and requiring students for one month to live in the pesantren and participate in all pesantren activities. Madrasah Ibtidaiyah Miftahul Ulum is a Madrasah under a private foundation and is difficult to develop because there are 3 elementary schools in one village (2 Public Elementary Schools and 1 Madrasah Ibtidaiyah). However, gradually, this Ibtidaiyah Madrasah was able to evolve to make the Kesamben Wetan 2 Public Elementary School inactive. Because almost 75% of students and parents prefer Madrasah Ibtidaiyah to study at the basic level. The development has increased rapidly from early 2016 until now Madrasah Ibtidaiyah, which carries the base of Islamic boarding schools are flooded with many students. In the 2019-2020 school year, this ibtidaiyah madrasah has 456 students with 17 groups from grade 1 to grade 6. According to researchers, something very unique and specific research needs to be done because the industrial revolution 4.0 encourages schools to compete to advance and follow technological developments increasingly. However, surprisingly the Islamic Boarding School-based Madrasah Ibtidaiyah Miftahun Ulum made it an attraction for students and parents in responding to challenges in the era of the industrial revolution 4.0.

From the results of the above observations, the researcher wanted to do research specifically

about the developments that occurred in Madrasah Ibtidaiyah based on the Miftahul Ulum Kesamben Wetan Islamic Boarding School. This research is different from several previous studies, such as Siswanto's research, which focuses on madrasahs in general that are superior to pesantren (Siswanto, 2014), and Styaningsih's research focuses on a system used in Islamic boarding schools based on Islamic boarding schools (Styaningsih, 2016), focus on the qualifications of teachers in an Islamic boarding school-based madrasah (Hidayat, 2013), and Muhali focuses more on the movement to develop an education in the face of the industrial revolution 4.0 focuses on research on Islamic boarding schools-based Madrasahs in the face of the industrial revolution 4.0, through two focus problems. First, namely: How did Madrasah Ibtidaiyah base on the Miftahul Ulum Kesamben Wetan Driyorejo Islamic boarding school transformed in the era of the industrial revolution 4.0, and the second is about what are the obstacles experienced by Madrasah ibtidaiyah Miftahul Ulum Kesamben Wetan Driyorejo in carrying out the transformation in the era of industrial revolution 4.0.

Literature Review

Madrasah Transformation

The word transformation in the large Indonesian dictionary means change. Change here is a change for good; as Rose and Balley explained, change in education is to change the teaching, learning, and knowledge of a student, intending to be better than before. Because not all changes (transformation) lead to improvement because of several factors that are in it, such as internal and external factors in an educational institution (Rose and Balley, 1994). This is also strengthened from Supaat's study regarding the transformation of madrasahs, which legally have a share in the struggle. Many madrasahs have many problems and constraints in educational reality that require change, from systems, management, and several other aspects (Supaat, 2011).

Madrasah in history have made quite a lot of

changes, like the early madrasas in the pre-independence era, which were written by the team that compiled the history of Islamic education in Indonesia, stating that the first madrasah was established, Madrasah Adabiyah Padang, West Sumatra, founded by Syeh Abdullah Ahmad in 1909 AD, after entering the post-independence era, madrasahs have quite a place to expand their wings because madrasahs were legally recognized after the 1955 elections, madrasahs were included as one of the education used to educate commoners. Madrasahs are mandated to the minister of religion, so several levels of madrasahs and formal madrasahs have emerged, which include: 1) Roudhlatul Athfal, 2) Madrasah Ibtidaiyah 3) Madrasah Tsanawiyah, 4) Madrasah Aliyah; of these four studied, 70% general lessons and 30% religious lessons. Meanwhile, non-formal madrasah, better known as madrasah diniyah, have levels 1) madrasah awaliyah, 2) wustho, and 3) ulya. After that, madrasahs entered the New Order era, which legally formally decided madrasahs by the president through Presidential Decree no. 34 of 1972, which states that the ministry of religion no longer manages madrasahs are managed by the minister of education and culture (Kemendikbud). It was only in 1975, based on a joint decree from the minister of religion, minister of ministry, and culture. Minister of home affairs that in subjects (madrasah and umum) had the same level of diversity, formal madrasah diplomas were equivalent to public schools, madrasah graduates were allowed continuing the level in public schools, the highest madrasah graduates are allowed to continue to higher education, and the curriculum is divided into several sections. It is fully submitted to madrasahs (Syarifuddin, 2017). Based on the explanation above, it seems very clear that changes within the madrasa are carried out gradually and carried out continuously. So the role of change (transformation) in the madrasa must be done in a relay. Because in the era of the industrial revolution 4.0, everything is developing, starting from the world of education, economy,

culture, and others. So the existence of changes at the level of education under the auspices of Islam, represented by madrasahs, must take part in advancing and developing education in Indonesia as Hopkins said that there is a need for a different approach to education change (transformation) to increase student learning outcomes and strengthen the capacity of schools in managing change it self.

Madrasah Ibtidaiyah based Pesantren

The discussion about Madrasah cannot be separated from Pesantren. Pesantren became one of the traditional Islamic educations long before Indonesia's independence and before the Islamic kingdom's birth. Meanwhile, in terms of the pesantren's language, it is a place used by students or pesantren students. Meanwhile, the word santri is taken from the Sanskrit language, which means "literate" or "cantrik," which follows his teacher whenever and wherever the teacher goes. Meanwhile, Islamic boarding schools have three distinct elements: first, kyai, students, and dormitories. The kyai is the main actor and the only one who has an unreachable position as the highest leader in the pesantren. Meanwhile, according to the Tamil language, Santri is a Koran teacher, and a dormitory is a place of residence for students. There are several facilities, such as beds, mosques, libraries, etc. From some of the above definitions, it can be concluded that the pesantren is an Islamic educational institution, in which there is a dormitory that is occupied by the students and led by the highest leader named kyai (Herman, 2013)

Pesantren, as Islamic educational institutions endeavor to develop education through madrasahs, as in Law number 20 of 2003 concerning the national education system, to be precise in the early 20th century AD until now, the government recognizes the establishment of madrasahs as institutions born from pesantren and equivalent to public schools. However, in practice, Madrasah management is under the Ministry of Religion's auspices, while public schools are under the

Ministry of Culture. History records that madrasas were only underestimated during the New Order era, from the perspective of management, the learning process to an unequal quality with public schools. However, after the New Order, the development of Madrasahs to date has become schools that were born from the community, large and in line with the community, to the point of financing, madrasas have never been dependent on government grants or are independent. In its development, madrasas have very high quality and quantity that can outperform general schools. As with the current evaluation of madrasahs, which are equivalent, namely the National Accreditation Board for Schools/Madrasahs (BAN S/M) (Rosyada, 2017). In fact, madrasah renewal is inspired by the renewal of Islamic education in the Middle East. Besides, this renewal was a response to the Dutch colonial policy at that time.

Historically, madrasas in Indonesia were first established by Abdullah Ahmad under the name Madrasah Adabiyah in early 1909 in Padang; madrasahs were founded with a classical system and implemented substantial changes, namely by changing the surau system to classical, from lessons of religious domination to general domination, madrasah education only gets 2 hours a week. After that, the madrasa became familiar and was founded by several community organizations based on Islam, such as PERTI, Muhammadiyah, Al-Irsyad, and not to forget the big figure of the Nahdlatul Ulama community organization, KH.M. Hasyim Asy'ari, and KH. Wahid Hasyim, by updating the concept of Pondok Pesantren Tebu Ireng Jombang, was developed by adding general knowledge, such as arithmetic and natural sciences. KH.M. Hasyim Asyari founded the Salafiyah Madrasah in 1919 but was only fixated on religious education, including the knowledge of al-Qur'an, hadith, Jurisprudence, and several other religious sciences. The curriculum renewal period in the

early 1930s, namely the application of the curriculum in Islamic boarding schools based on the religious curriculum, became a collaborative curriculum between religion and the general public. (Maghfuri and Rasmuin, 2019) Mulyasa simplified several aspects behind the establishment of madrasas as the basis for Islamic education in Indonesia, namely:

1. Madrasas as a manifestation and renewal of Islamic education
2. Madrasah complemented the pesantren system so that later graduates have the same opportunities as public schools.
3. As a realistic way of taking education, especially the existence of students who are fixated only on the concept of western education. So pesantren have an equal solution.
4. Madrasas as a bridge between traditional and modern systems (Mulyasa, 2009).

Industrial Revolution 4.0

The development of the industrial revolution in Indonesia follows the world's development, starting from the industrial revolution from 1.0 to 4.0. The development of the industrial revolution 4.0 originated in Germany, which promoted computerized manufacturing. (Rohman and Ningsih, 2018) Industry 4.0 integrates Cyber-Physical Systems (CPS) and the Internet of Things and Services (IoT and IoS) into the process. Besides that, the industrial revolution 4.0 includes several technologies, namely: smart factory, CPS, IoT, and IoS. The existence of industry 4.0 makes a way of combining the real world and the virtual world, between technological and human development. Six principles in the 4.0 industrial revolution include Decentralization, interoperability, virtualization, real-time, and service-oriented (Prasetyo & Sutopo, 2018). The existence of the development of the industrial revolution as described in the table below:

Table 1 Industrial Development (Ibda, 2018)

No	Revolutionary Era	Years	Informations
1	Revolutionary Era 1.0	1800	Marked by the invention of the steam engine, and all industries use machines.
2	Revolutionary Era 2.0	1900	Marked by the discovery of electric power, industrial equipment was replaced by electricity.
3	Revolutionary Era 3.0	1970	The discovery of Programmable Logic Control (PLC), as a machine controller.
4	Revolutionary Era 4.0	Started from 2000	The emergence of smart factories and collaboration between Cyber-Physical Systems (CPS) and the Internet of Things and Services (IoT and IoS) into industrial processes.

In line with the development of the 4.0 industrial revolution, education in Indonesia has a greater responsibility with a greater need to bring education in a creative and innovative direction; in addition to education the industrial revolution 4.0 targets social systems, such as changes in demographics and social values, learning motivation, tolerance and analytical skills. Indonesia's education is that education managers in Indonesia still use conventional methods or focus more on students' intelligence and less attention to creativity. Besides being useful, students' state of creativity also functions as students' self-development in initiating the industrial revolution 4.0. Therefore, the main task for education managers at this time is to prepare students as individuals who can adapt wherever they are placed (Suwardana, 2018).

Methodology

The research method in this research uses the qualitative research method, as Denzin's and Lincon's description of qualitative research is a study that places a researcher doing activities in the place where he wants it. Because qualitative researchers study objects in a natural environment by interpreting and interpreting the viewpoints obtained from the community through field notes, interviews, conversations, photos, recordings, and personal notes (Creswell, 2013), The approach

used is a case study. As explained by Robert K Yin, a case study is an approach that focuses on contemporary phenomena in the context of real life (Yin, 2018). In this study, a case study in Islamic boarding school-based Miftahul Ulum Kesamben Wetan Gresik, with the first problem The efforts of pesantren-based madrasahs in developing themselves in the industrial era 4.0, and the second is about what are the obstacles that are experienced by Madrasahs in developing pesantren-based madrasahs in the industrial era 4.0. This research was conducted for approximately 3 months, starting from July to September 2019. The data collection methods used included: the interview method, interviews were conducted with five informants, namely: the head of the madrasah, the head of the foundation, and three classroom teachers, all of whom were exemplary teachers at the Miftahul Ulum Kesamben Wetan Driyorejo Islamic boarding school, observation, and documentation methods,

Data Analysis

The data analysis method used is Miles and Huberman data analysis in the form of data condensation, data exposure, data verification and conclusion (Arif, 2018).

Table 2 Data Analysis

No	Data Collection Technique	Type of Data	Source	Locations
1	Interview	The first is about pesantren-based madrasahs in making changes in the industrial era 4.0. Starting from the madrasah program and its implementation, the second is about what obstacles are experienced by Madrasahs in making changes to pesantren-based madrasahs in the industrial era 4.0.	The head of the madrasah, the head of the education foundation, two-class teachers (predicate of exemplary teachers) and one creative and outstanding student at the Miftahul Ulum Kesamben Wetan, Gresik Islamic Boarding School, Gresik.	Office of the Head of Madrasah Ibtidaiyah and Rumah Informa.
2	Documentation	Some of the processes and results of pesantren-based Madrasahs in making changes in the industrial era 4.0. such as the madrasah ibtidayah program and its implementation. Apart from that, some obstacles were experienced directly by the informants.	All activities at the madrasah ibtidaiyah based on the Miftahul Ulum Kesamben Wetan Driyorejo Gresik Islamic Boarding School, starting from what has been done, the process, and the ideas.	Madrasah ibtidaiyah Building Based on Miftahul Ulum Kesamben Wetan Islamic Boarding School Driyorejo Gresik.
3	Observation	The process running at Madrasah Ibtidaiyah based on the Miftahul Ulum Islamic boarding school is in making changes to the industrial era 4.0.	The head of the madrasah, the head of the education foundation, and three class teachers (predicate of exemplary teachers), as well as all teachers and students at the Miftahul Ulum Kesamben Islamic Boarding School, Wetan Driyorejo Gresik.	Islamic Islamic Boarding School Based on the Miftahul Ulum Kesamben Islamic Boarding School Driyorejo Gresik Building.

the paradigm reform step, by making several

Results

Islamic Boarding School Based on Miftahul Ulum Kesamben Wetan Driyorejo Islamic Boarding School in Transforming the Era of the Industrial Revolution 4.0

From several interviews at Madrasah based on the Miftahul Ulum Gresik Islamic boarding school in

efforts. Because as institutions under the auspices of Islamic boarding schools tend to be less able to accept changes in the industrial era 4.0, several changes and updates were described from the results of interviews with the principal of the madrasah ibtidaiyah, namely:

"In our madrasa, we are trying to make more changes with a system of renewal and development so that we can compete in the industrial era 4.0 because in doing so we need a preparation from an early age. An example in our madrasah is accelerating teachers because many in madrasah ibtidaiyah are afraid to do so. Still, in our opinion, the challenges of the industrial era 4.0 cannot be separated from teachers as mentors and companions of students. So the teacher is obliged to upgrade their knowledge, both academic and non-academic. As an example in this madrasah ibtidaiyah, collaborating with training institutions, to upgrade teacher skills in teaching, besides that we teach teachers who are not linear with their competence, besides collaborating with the Ma'arif NU institution, Driyorejo District, in terms of increasing their competence, through training, workshops, seminars to be able to answer the challenges in the era of the industrial revolution 4.0 apart from increasing teachers, we are also improving the madrasah curriculum, which is both equal and needed in this century because a curriculum is the heart of a madrasa that must be really good and evaluated. The existence of extras that are mandatory for students to follow, namely computers, because it cannot be denied that the industrial revolution 4.0 will be fixated on internet access, computerization and others. Therefore we include this extra as an answer that develops in society. Besides that, small children are now sophisticated. Just operating a smartphone is their activity every time until parents lose their ability to operate smartphones. Apart from these two things, we always try tirelessly in improving good character education (good morals) in students. Because of how smart they are in society, without good character (morals), it is still not a measure of the success of a

madrasah. This was written in the vision and mission of the Miftahul Ulum Islamic school. So, stay clever, and have a good attitude". This is the effort we make as head of the madrasa. Whereas the teachers, seek more application to students, such as habituation of literacy at the beginning of learning, with the target that students can get used to reading rather than playing smartphones, besides that the teachers strengthen the religious side of students, by establishing communication with the guardians of students in carrying out maktubah prayers via online.

In addition to the results of interviews with the principal, researchers tried to confirm with the head of the foundation about some of the efforts made by the Miftahul Ulum Islamic boarding school-based madrasah in responding to challenges in the era of the industrial revolution 4.0, as follows:

"There are quite a lot of efforts made by our institution, especially in madrasah ibtidaiyah. As reported to us, at madrasah ibtidaiyah, always try to innovate and develop their education as is the case with schools prioritizing teachers with a fresh graduate background to be recruited, because the young ones have fresh knowledge and they are now (millennial), intending to be more able to answer challenges in the community. Because nowadays all systems are online. So, our school is also obliged to follow its developments by increasing its human resources, namely teachers. Apart from teachers, in madrasah ibtidaiyah also promote literacy movements in students, there are reading books for students to read in every corner of the class. As madrasa wishes, students will be able to compete in the midst of the times' challenges. In addition to learning from the teacher, they are accustomed to reading, because reading will open up a lot of insight into students.

Besides, teachers at this madrasa have an obligation to foster a sense of belonging. How do teachers provide lessons to students in the best possible way, such as providing education to students using IT-based learning, because students who are not provided with education, when they get assignments that require students to open information via the internet, can be miss used?

A similar explanation was also conveyed by Mrs. SH, a class teacher at Madrasah Ibtidaiyah based on the Miftahul Ulum Islamic Boarding School, her explanation about the efforts made by the school includes several aspects, namely:

"The efforts made by madrasas in entering the era of the 4.0 industrial revolution include several aspects: first, what is being done is upgrading the knowledge of educators, namely teachers, so here teachers are obliged to attend almost every 1-2 months of training designed by the principal, usually framed by training, workshops, seminars and others. Besides, in this institution, teachers who do not yet have linearity in teaching are encouraged by the principal to go to college again. As we experienced, because we were previously non-educational undergraduate graduates, he motivated us to study in the appropriate department, namely the bachelor of education of madrasah ibtidaiyah teachers, besides that the teachers in this institution are very varied. Still, most young teachers (fresh graduates) want to develop their skills and knowledge. In addition to teachers, the madrasah also strengthens the character strengthening program, as stated in the madrasah's vision and mission. Because of how smart students are if they don't have good character, society also lacks respect. This character strengthening will later differentiate our madrasah graduates from other madrasas, as the hope is that students who can compete in the era of the industrial

revolution 4.0, who still have good character (morals). Another program is strengthening the literacy movement for students, on Monday-Thursday. With the aim that students like to read, however, reading will open students' minds from those who don't know to know. Alhamdulillah, students with the literacy program are delighted. Because his books are contemporary books, such as knowledge about technology, natural resources and others. Besides, we also have the task of providing new knowledge, especially about the benefits of current technological developments, such as the search engine "google", which contains everything students want to know, whether useful or not, well ... this is where the role of the teacher is a significant need, how to continue to provide education. Like the rampant use of youtube videos, we teachers continue to educate. Some good YouTube channels can be opened, and we occasionally give an example in learning by playing videos through youtube".

A similar presentation was also conveyed by Mrs. FT as class IV guardian, regarding some of the efforts that have been made by the Islamic boarding school-based madrasah in facing the era of industrial revolution 4.0, namely:

"The efforts made at our institution are: improving teacher competence, both pedagogical competence, professional competence, social competence and personality competence, through training, workshops etc. Meanwhile, to answer the challenges in the Industrial Revolution era 4.0, madrasah ibtidaiyah miftahun ulum conducted a 2013 curriculum development to promote government programs, namely literacy programs. Because in our opinion, the literacy program for students is very appropriate. Besides literacy being the beginning of world development, literacy is the main scientific milestone students must have. Besides, the teachers provide

knowledge about technological literacy, such as how students learn by using the internet, because in our opinion, in society it cannot be denied anymore, the internet is a necessity, so our students are taught how to use it properly, for example, when chapter pray, our students guide them to search for hadiths via the internet. Indeed, the madrasah ibtidaiyah here tries to synergize all elements, from the head of the foundation to students' guardian. Meanwhile, furthermore, it is to strengthen character education as an advantage that students must own in the era of the industrial revolution 4.0. Besides, character education is the Miftahul Ulum Kesamben Wetan Driyorejo Gresik Islamic school's vision and mission".

The researcher tried to triangulate the data, by interviewing class VI students on behalf of Mrs. WK about the efforts made by madrasah ibtidaiyah in facing the era of the industrial revolution 4.0 that is:

"As long as we are registered students this year, the school and teachers will strengthen the literacy movement program. So, we students are given time before lessons for approximately 15-20 minutes on Monday-Thursday, to read in the corners of the class. After that, the strengthening of technology was responded to by the existence of an extra computer that students must follow. Because in between lessons we were taught how to access positive internet, by directly assisting the subject teachers, alhamdulillah, I and my classmates at the madrasah ibtidaiyah, were able to operate computers well. Besides, we are taught to be as creative as possible in doing works, like in the past, I won a poetry competition and thanked God my poetry was published in children's magazines. Besides that, how do madrasas continue to make changes towards progress, seeing increasingly fast and sophisticated times, so teachers, students and guardians

continue to network, to maximize learning?.

Obstacles experienced by Madrasah ibtidaiyah Miftahul Ulum Kesamben Wetan Driyorejo in carrying out transformation in the era of industrial revolution 4.0.

In addition to the madrasa's several efforts, there may be several difficulties experienced by school principals and teachers in facing challenges in the era of the industrial revolution 4.0. However, the existence of obstacles that they experienced did not immediately make madrasas fail to develop. Due to the existence of obstacles, it is one of the motivations for madrasas to improve themselves further and achieve the vision and mission of madrasas. As the results of the interview with the principal, which mentioned several obstacles, namely:

"For the constraints, we don't think that stands out too much, because incidentally, the teachers at our institution are very enthusiastic when participating in training, seminars etc. Senior teachers learn a lot from new teachers who are still fresh graduates because their knowledge is still fresh. However, the obstacle that needs to be addressed and always looking for a way out is cultivating character in students. Our problem is that they are in a good school. However, when in a bad environment, they end up not doing well too. Therefore, our teachers and we never stop and get tired of reminding students and parents. For other things related to infrastructure, such as computers that we are still limited, maybe we want to have a computer with at least 2 children and 1 computer so that technology-related learning can really be absorbed properly".

As explained by the principal, the management, namely the head of the foundation, also conveyed the obstacles faced by madrasas, especially seeing the millennial era's challenges. That is:

"We think that almost 80% of the obstacles have been resolved, as are the obstacles

related to teachers, now the principal has provided solutions to increase their competence with training, seminars, and even some teachers are encouraged to study undergraduate degrees, as an effort to upgrade their knowledge in facing the era of the industrial revolution 4.0. Meanwhile, related to the literacy movement's constraints is the existence of a reading corner (a place for a collection of books) in each class which we see the need for additional facilities, such as bookshelves, books, and school library space will later be expanded. As the principal wishes, students can have a hobby of reading".

The interview results with Mrs. SH were also considered by researchers from several obstacles experienced by Miftahul Ulum Driyorejo Islamic school, in the industrial era 4.0.

"The obstacle for us, who are actually teachers, is that there are still ups and downs of motivation in learning and developing knowledge. So, it is still understandable that we only moved when the principal did not stop motivating us. Meanwhile, the obstacle is related to character strengthening as the mission of madrasah ibtidaiyah, more to the environment where students live. Because God willing, when in school, the teacher councils can still cope with and give an example to students. And the problem of the literacy movement is only related to infrastructure, which needs to be added".

In line with what was conveyed by Mrs. Sulistianah, Mrs. FT as the homeroom teacher gave information about the obstacles she experienced in developing herself in the industrial era 4.0.

"The obstacle that needs to be fixed is the infrastructure, because the progress of the literacy planned by madrasahs, requires the addition of reading books that are up to date, both about lessons and technological developments as well as the existence of a library as the heart of the school which

needs to be expanded and compacted with reference books, so that students like being in the library more. The constraints on strengthening character may only be in an environment where students live, which is sometimes less supportive".

Discussions

The Efforts of Madrasah Ibtidaiyah Based on the Miftahul Ulum Islamic Boarding School in Transforming the Industrial Revolution Era 4.0.

From several interviews, observations and documentation conducted by researchers, several findings cover several aspects that have been carried out by the Miftahul Ulum Kesamben Wetan-based Islamic school in transforming into the industrial era 4.0. As the explanation above, the changed aspect is the perspective of the Islamic boarding school based on the Miftahul Ulum Kesamben Wetan Driyorejo Islamic boarding school, by strengthening the synergy between policymakers starting from the head of the madrasa, head of the foundation, teachers, students and new student guardians then developing it in education lines outside the madrasa, such as the education office, Ma'arif organizational institutions, training institutions, etc. Because with the synergy between the lines it becomes a bold transformation to be carried out by the madrasah ibtidaiyah miftahulul kesamben wetan with its pesantren-based style, but claiming to compete and develop to answer the challenges in the era of the industrial revolution 4.0. from this synergy emerged several madrasah breakthroughs which included four significant changes, namely first, madrasah ibtidaiyah based on the Miftahul Ulum Kesamben Wetan Driyorejo Islamic boarding school which transformed increasing teacher competence. Because teachers are the key factor in developing education, especially in the industrial era 4.0. Some of the improvements started through training, seminars, IT-based learning workshops, and providing teacher coaching and encouraging at least teachers to take

undergraduate courses for those who are not yet linear with the field of study that is strong. This is reinforced by the research results from Syam, which explained that teachers were in the era of the industrial revolution 4.0. It is demanded to follow the development of technology that is currently developing because teachers have four roles in education: implementers, developers, harmonizers, and researchers who are upgraded through training and workshops to answer the challenges of the industrial revolution era 4.0 (Syam, 2019). In line with Syam, Yusra also said that improving human resources (HR) in professional teachers would bring maximum quality to students and schools. As government regulation number 19 of 2005 Chapter II, Article 2 Paragraph 2 which states that to guarantee and control the quality of education under national standards, evaluation, accreditation and certification are needed, including management of school principals, teachers and students (Datu, 2013). Several important roles for teachers in the era of the industrial revolution 4.0. also conveyed by Sepriyanti, who explained that the quality of schools depends on the quality of a professional teacher so that teachers need preparation in building the quality of education, including the development of information technology in the industrial era 4.0 (Sepriyanti, 2012) owned, lived and mastered, including pedagogical, professional, personal and social competences, and keeping up with the times (Saragih, 2008). HAR Tilaar in his book explains that a teacher in the 21st century should be able to master three aspects, including strong science and technology, having skills in attracting student interest and having an established and developing personality because these three aspects are experiencing very rapid development. In the 21st century (Tilaar, 2018).

In the second aspect, what is done by the Islamic boarding school based on the Miftahul Ulum Kesamben Wetan Driyorejo Islamic school is to develop the 2013 curriculum, such as adding extra computer material for students. And guided

directly by teachers who are experts in Technology Science, to answer the challenges of the industrial revolution 4.0 era. Besides that, the madrasah has a goal. Students get education about the use of technological literacy as the results of interviews have been proven by observation, namely the implementation of search-based learning via the internet, directly accompanied by the subject teacher. Because this is also the flagship program of madrasas, As Sujana explained that curriculum development would have an impact on changing its structure, which includes several components: 1) changes in components, related to the goals and views of life of the community, especially at this time regarding the demands of the industrial era 4.0. 2) changes to curriculum content and structure 3) changes to strategies in achieving goals 4) changes in curriculum facilities concerning methods, learning models and 5) curriculum evaluation systems (Shobirin, 2016, p. 3). The state of the curriculum structure has not been said to be complete if only in the completion of documents, but how can the curriculum in the form of documents be applied and contribute to broad attitudes, behaviour, skills and insights in students (Nasir, 2013). So this is what needs to be evaluated continuously in curriculum development in an educational institution. As Lase's explanation, curriculum development needs to be directed at students' abilities. Students can continue to learn independently "to continue, to learn, on his own" all institutions must understand this goal because how the curriculum is designed is not just a lot. Material, but further from that, is how the curriculum can reach students' experiences (Lase, 2015).

The third aspect, carried out by madrasah ibtidaiyah based on the Miftahul Ulum Kesamben Wetan Driyorejo Islamic boarding school, is strengthening character education. It is one of the missions of madrasas, namely to strengthen character education in students. Because students need character education itself in welcoming the

industrial era 4.0. Similar rights were conveyed by Aeni from the results of his research, which stated that at the primary school level students were very important to get character education, as mandated by law no, 20 of 2003. Besides, implementing character education to bring up the nature of responsibility, care for the surrounding and independent (Aeni, 2014). The application of character education cannot be separated from all the elements in schools, as explained by the results of Kosim's research, that the state of character education must be implemented by involving all school elements, starting from stakeholders, school principals, teachers and students. Simultaneously, the education component must also be involved in it, including the curriculum, the learning and evaluation process, classroom management, school management, improvement of infrastructure, and the work ethic of all residents in the school. Because this character education can be carried out and runs through three stages, namely: "knowing the good, loving the good and acting the good" (Kosim, 2012). Besides, Manullang's research explains the importance of implementing and developing character education in welcoming the golden generation in In 2045. It is necessary to build a positive attitude "positive thinking" in students because negative traits can bring out a pessimistic character even at the level of frustration. Normative commitment is a characteristic of loyalty in students with the norms that are enforced in an institution, such as madrasahs, organizations, etc. The essential mindset becomes a pattern that students should own, not fixated on theoretical approaches and practical approaches. However, students must arrive at the essential approach. While the competence of ability, it is necessary for students to carry out professional duties as a skill to have competence in understanding, technical and ability (Manullang, 2013).

The fourth aspect, carried out by the Miftahul Ulum Kesamben Wetan Driyorejo Islamic

boarding school-based madrasah ibtidaiyah, is the school literacy movement program one of the answers to the challenges of the 4.0 industrial revolution era. As the interviews and observations conducted by researchers, the Islamic boarding school based on the Islamic boarding school Miftahul Ulum Kesamben Wetan applies the literacy movement every Monday-Thursday. The literacy movement starts in the morning before learning starts with a duration of 15-20 minutes. As stated by Mardiyah, the importance of the literacy movement is that the literacy movement is one way for students to be able to think critically, be literate with technology, information literate, and have a sensitivity to their surroundings (Mardiyah, 2019). Likewise, the explanation from Hidayat and Basuki explained that the literacy movement for elementary schools it is an initial breakthrough for the government and needs to be preserved because Indonesia is one of the countries that are very disadvantaged at number 45 out of 48 countries (Hidayat & Basuki, 2018).

Constraints on Islamic Boarding School-Based Madrasahs in Transforming in the Industrial Revolution Era 4.0.

As the transformation that has been carried out by Madrasah Ibtidaiyah Miftahul Ulum Kesamben Wetan Driyorejo in facing challenges in the Era of the Industrial Revolution 4.0, Madrasah Ibtidaiyah Miftahul Ulum Kesamben Wetan Driyorejo still has homework that needs to be completed. As the results of interviews, observations and documentation obtained by researchers, it can be seen that the obstacles faced by Madrasah ibtidaiyah Miftahul Ulum, namely: 1) Constraints regarding facilities and prasarana, Madrasah Ibtidaiyah Based on the Miftahul Ulum Kesamben Wetan Driyorejo Islamic Boarding School is constrained by the aspect of developing the place, namely the state of the library which needs to be expanded. Meanwhile, in literacy activities, the problem is reading books that need updating and additions so that it can lead to reading interest in students. Several obstacles related to facilities are

not a secret for schools under the auspices of the foundation. Because madrasas are under the aegis of foundations, trying to develop themselves and ensure their eligibility only with student contributions and madrasah business entities, such as madrasah cooperatives. The existence of infrastructure that still needs improvement and addition, besides that the presence of prasara facilities requires good management, as Reza Pahlevi, Ali Imron and Devi explain the need to manage the infrastructure to improve the quality of learning. Management here includes planning, multiplication and use based on needs analysis (Pahlevi et al., 2016: 2). The next obstacle is the rising and falling state of teachers' motivation in increasing teacher professionalism as explained by Arif, who is expected to answer the challenges in the revolutionary era Industry 4.0 (Arif & Sulistianah, 2019). Baharun also explained that motivation in a person is divided into two, namely Instructional Motivation, which is the motivation in a person and should not be stimulated outside because intrinsic motivation is individual. While extrinsic motivation, is the motivation that arises as a result of the influence, invitation, order or even coercion is extrinsic motivation, so in this case, the role of the principal is needed, namely how the principal establishes closeness both directly and indirectly (Baharun, 2018). To be able to provide encouragement to the teacher and be able to have a positive effect in increasing one's intrinsic motivation. 3) Furthermore, there are obstacles from a student living environment that is very diverse and sometimes does not support a noble character.

Conclusion

Madrasah ibtidaiyah based on the Miftahul Ulum Kesamben Wetan Driyorejo Islamic boarding school has several efforts to develop itself in facing challenges in the Industrial Revolution era 4.0 as the results of the discussion above, the transformation used by the Miftahu Ulum Kesamben Wetan Islamic boarding school based on the transformation used to strengthen the

synergy between policymakers starting from the head of the madrasah, the head of the foundation, teachers, students and guardians of new students and then developing in education lines outside the madrasah, such as the education office, Ma; arif organizational institutions, training institutions, etc. With this synergy, four supporting aspects emerge, namely: First, increasing the competence of teachers. Because teachers are the key factor in developing education, especially in the industrial era 4.0, some of the improvements started through training, seminars, workshops, teacher guidance and encouraging teachers to take undergraduate courses for those who are not linear with their field of study. Second, develop the 2013 curriculum, such as adding extra computer material for students. And guided directly by teachers who are experts in Technology Science, to answer the challenges of the industrial revolution 4.0 era. Because the program is superior in an institution, it can be seen through the education system and its evaluation. Third, strengthening character education is very visible, because it is one of the missions of madrasahs, which is to strengthen character education in students. Because students need character education itself in welcoming the industrial era 4.0. Fourth, the school literacy movement program is one of the answers to the Industrial Revolution 4.0 era's challenges. This is done on Monday-Thursday starting in the morning before learning with 15-20 minutes. From some of the efforts made by the Islamic boarding school-based madrasah ibtidaiyah Miftahul Ulum Kesamben Wetan Driyorejo in the era of the industrial revolution 4.0. There are several obstacles: Constraints regarding facilities and infrastructure, Madrasah Ibtidaiyah Based on the Miftahul Ulum Pesantren, Kesamben Wetan Driyorejo, and it is constrained by the aspect of place development, namely the state of the library which needs to be expanded. Meanwhile, in literacy activities, the problem is reading books that need updating and additions. The state of rising and falling motivation in teachers in improving teachers' four

professional competencies, which are expected to be able to answer the challenges in the era of the industrial revolution 4.0. A student living environment that is very diverse and sometimes does not support a noble character.

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