Abstract: This research studied the madrasah students' achievement across Indonesia. The sample of the study were Year 9 students of Madrasah Tsanawiyah (MTs) in 33 provinces of Indonesia. The schools were grouped based on regions, East, West, and Java regions. The students’ achievements were measured based on their performance on Mathematics, Science, Indonesian, and English tests. The results of the tests were analyzed and compared with the results of similar International tests programs. The instruments for the Mathematics and Science tests were developed from TIMSS and IBT tests. The instruments for Indonesian tests were developed based on National Examination test and its derivation, while the instrument for English test was derived from CEFLA international test. The findings of this study showed that Madrasah Tsanawiyah students had the highest performance on English test, followed by Indonesian and Science. The lowest achievement was on the Mathematics test. Based on regions, the students in Java region performed better than students in both the East and West regions. The students in West regions showed a slightly higher achievement than students in the East regions. Compared to result of international tests of TIMSS and to result of Indonesian tests of TIMSS, a small proportion of students in this study showed better achievement in 9 out of 11 Mathematics items and in 10 out of 14 Science items.

1. Introduction

In Indonesia, the formal education was comprised of two systems, the general education system and the Islamic education system. The general education system was governed by the Ministry of National Education (MoNE) while the Islamic education system was under the governance of the Ministry of Religious Affairs (MoRA). Madrasah, which meant ‘school’ in Arabic, referred to the formal education institutions under the Ministry of Religious Affairs which uses Islamic education system. Under Indonesian national Law no. 20/2003, madrasahs are considered an integral part of the National Education System and are not different from schools governed by the Ministry of National Education; i.e. schools under the general education system (Ministry of National Education, 2003).

Historically, madrasah education system came to Indonesia in the late nineteenth century. It was brought by scholars who had finished their study in the Middle East. Madrasahs were established mainly to provide education for low-class citizens, who at the time of Dutch colonial in Indonesia were hardly able to attend formal Dutch schools (Ministry of Religious Affairs, 2003; USAID, 2006).

The model for madrasah education system resembled the Middle East Islamic education system. However, in Indonesia, besides religious education, the model...
also incorporated general school curriculum used in the general education system. By integrating general and religious education, madrasahs emphasized on students’ attitudes, values and behavior, and general knowledge. By 1976, the government issued a joint decree that regulated madrasahs to teach 30 percent of curriculum set by the Ministry of National Education. By the 1989, another Law was passed that formed a formal educational relationship between the Ministry of Religious Affairs and the Ministry of National Education, and that required madrasahs to incorporate 70 percent of general education curriculum in their teachings. This regulation was followed until today (Ministry of Religious Affairs, 2003).

In Indonesia education system, madrasahs, most of which were private institutions, had three levels: Madrasah Ibtidaiyah (MI) or primary school (year 1 through year 6), Madrasah Tsanawiyah (MTs) or junior secondary school (year 7 through year 9), and Madrasah Aliyah (MA) or senior secondary school (year 10 through year 12). Around 9.1 percent of Indonesian students enrolled in MI, 21.4 percent enrolled in MTs, and around 11.6 percent enrolled in MA (Ministry of National Education, 2009; Ali, 2014). Like students in general education schools, madrasah students also sat on the National Exam to determine whether or not they passed their grade. The subjects tested in this examination included Mathematics, Science, Indonesian, and English. Those who had passed could continue to the higher level of education either of that under the governance of MoNE or that governed by MoRA.

Although there had been studies examining the students’ achievement in Indonesia, most of them was conducted in the context of general education system (Mangindaan, Sembiring, and Livingstone, 1978). National Assessment of the Quality of Indonesian Education: Survey of Achievement in Grade 9. Jakarta: BP3K. Considering that more than 20 percent of Indonesian students enrolled in MTs, and considering that most of the studies conducted on students’ achievement excluded madrasah, it was necessary to conduct a study that focused on students’ achievements in madrasah, particularly in the MTs (junior secondary school) level. Since Indonesia also participated in several international test programs, it would also be beneficial to compare madrasah students’ achievements with the results of those tests. Therefore, the following research questions were formulated for this study:

- How were the levels of Year 9 madrasah student’ achievement in the subjects of Mathematics, Science, Indonesian, and English, in the East, Java, and West regions of Indonesia?
- How was the comparison of the Year 9 madrasah students’ achievements with results from similar international test programs?
- Based on the research questions, the objectives of this research was:
- To find out the levels of Year 9 madrasah students’ achievement in the subject of Math, Science, Indonesian, and English in the East, Java, and West regions of Indonesia.
- To find out the comparison of the Year 9 madrasah students’ achievements with results from similar international test programs.
2. Literature Review

Quality of education provided to students needed to be measured and improved continuously. In 2005, a Board of National Education Standard (Badan Standar Nasional Pendidikan/BSNP) had been established for the purpose of measuring and improving the quality of education in Indonesia. The board was not only responsible for measuring and improving the quality of schools that were under jurisdiction of MoNE, but it was also responsible for madrasah that were under jurisdiction of MoRA. The board had developed national standards to ensure the quality of education, including the standards for graduating competencies, curriculum content, teaching, facilities, management, financing, assessment, and the appropriateness of textbooks used in Indonesian schools. The board also supervised the preparation and implementation of national examinations in every level of education.

National examinations were tests administered by the Ministry of National Education to students in the last year of every level of education, both in the general and in the Islamic education systems. Through these examinations, students were allowed to pass to the next level of education or were failed, in which case they had to stay in the same grade for another year. In the current system, students could graduate a level of education only if their score for each of the four tested subjects; namely Mathematics, Science, Indonesian, and English, and the combined score on the four subjects passed the minimum score standards set by the Ministry of National Education.

In 2007, Education For All (EFA) published its Mid-Decade Assessment Report for Indonesia. In the report, EFA used the results of national examinations to illustrate the progress of education quality in Indonesia, which had increased in the period of six years (2000 to 2006). Further, it compared the general education (under Ministry of National Education) and the madrasah education (under Ministry of Religious Affairs) system using the same data. It was found that the gap between the examination scores of the students in the two systems had decreased (EFA, 2007). Another study that examined the performances of junior secondary school students (both in the general education system and in madrasah system) found that MTs students performed better than their peers in SMP (Junior secondary school) in all subjects except Indonesian (Sjafrudin, 2008).

However, there had not been any empirical studies that analyzed and described the measurement of education quality of madrasah education system using independent measures other than the national examination. This was a problem because the analyses conducted using the national examinations data were often questioned in terms of the data’s reliability and validity (Matters, 2008) due to the fact that every national examination administered in the recent years had been followed by reports of nationwide cheating and administration errors. There had not been any studies that compared the madrasah students’ achievements with international benchmark tests, also.

Indonesia had participated in several international studies (OECD, 2007; OECD 2009) including the Programme for International Assessment (PISA); Organisation for Economic Co-operation and Development (OECD), Trends in Mathematics and Science Study (TIMSS; International Association for the Evaluation of Educational
Achievement [IEA]), and Programme for International Reading and Literacy Study (PIRLS, IEA). However, the sample for those studies did not explicitly included madrasah schools.

Improving quality of education was an important issue in the context of national education development. This was not only happened in Indonesia, but also in countries were part of their people organized Islamic education system (madrasah) of the countries' national education system, such Bangladesh (Asadullah, Chaudhury and Josh, 2009). In Indonesian national education system madrasah education is an integral part of the system. Therefore, program of improving quality of education was undertaken in schools under ministry of national education and madrasah under ministry of religious affairs.

Quality of education was expected by stakeholders of education (Ainley, Reed, and Miller, 1986). The society and parents expected their children to recieve quality education to enable them to compete in every opportunity. The government expected that all education institutions maintain and increase its quality since quality education will produce quality human resources which will contribute to national development (Ali, 2014).

Students’ achievement was the key indicator to quality of education. In regard to improving the quality of education, indicating by the students’ achievement, every education institution should provide quality equipment and facilities, quality teachers, quality teaching-learning processes, quality learning reasources and adequate education budget. In the context of Indonesian education system, an attempt to evaluate its quality was done by undertaking study on students’ achievement. As madrasah education was part of the Indonesian national education system a study on madrasah students’ achievement was important in the context of evaluating its education quality.

3. Research Methodology

The population for this study was MTs students in Indonesia. MTs was chosen because its percentage of students in its level of education was the highest, compared with MIs and Mas. There was 21.4 percent students of all students in junior secondary education level enrolled in MTs, while only 9.1 percent of elementary school students enrolled in MIs and only 11.6 percent of senior secondary school students enrolled in MAs. Further, MTs were also the mid-level of madrasah education, connecting the elementary level (MI) and the senior secondary level (MA). The Year 9 students were chosen as the sample for this study because this level is the final year of compulsory education in Indonesia.

In selecting sample of this study the madrasahs were first categorized by whether it was a public or private of the total number of madrasahs (N = 12,396), around 10 percent (N = 1,256) were public ones. Further, the madrasahs were categorized into one of five groups based on the average their performance on national examination. They were further grouped into three regions: the East, Java, and West regions of Indonesia. This categorization was aimed to facilitate the analysis of MTs students’ achievements across Indonesia.
There were four instruments used in this study. These instruments were designed to measure MTs students’ achievements in each of the four subjects tested in national examinations: Mathematics, Science, Indonesian, and English. The Mathematics and Science tests were translated into Indonesian and verified to ensure accurate translation. For the English tests, the stimulus and answer options were in English, but the scene setting sentences were translated into Indonesian for each set of items (Lietz & Nugroho, 2010).

The instrument to assess Mathematics achievement consisted of 30 items. These items were derived and adapted from the Trends in Mathematics and Science Study (TIMSS) and the International Benchmark Test (IBT) Mathematics Years 4, 6, and 8. The instrument to assess Science achievement was a 30 item test. The items were also derived from TIMSS and IBT Science Years 4, 6, and 8.

In the pilot study, two 40 item tests were trialed for Indonesian Language test (Kos, Nugroho, & Lietz; 2009). The items that could show the spread of students’ ability while differentiating between well and poorer performing students were included in the final version of the instrument. To assess students’ achievement in English subject, the Competency in English as a Foreign Language Assessment (CEFLA) instrument was used.

The instruments were administered to the MTs students in the East, Java, and West regions of Indonesia. The results of the tests were analyzed in several steps. First, the data was cleaned, which meant that a rigorous checks regarding consistency and completeness of answers as well as the accuracy of coding and data entry was conducted. Second, a psychometric analysis was conducted. Third, sampling error and variances were calculated. Fourth, the achievement scores were calculated for every student who participated in the study. Finally, a descriptive analysis by region was conducted for all achievement tests.

4. Findings and Discussion

Mathematics. Based on the result of the tests, students across the three regions correctly answered 14 of the 30 test items (SD = 5.4). On average, students were able to answer less than half of the test items. The lowest score on the test was 2 and the highest was 30, and there was not much variation across the regions. Each of the Mathematics items was analyzed separately to find the percentage of students who answered them correctly. The result showed that more than 70 percent of students were able to correctly answer three items derived from IBT Year 4. On the other hand, only less than 20 percent students were able to correctly answer two items derived from TIMSS 2008 Year 8 items.

Science. Based on the result of the tests, students across the three regions correctly answered 16 of the 30 test items (SD = 5). The lowest score on the test was 2 and the highest was 30, and there was little variation across the regions. Each of the Science items was analyzed separately to find the percentage of students who answered them correctly. The result showed that more than 70 percent of students were able to correctly answer six items derived from IBT Year 6 (four items), IBT Year 4, and TIMSS 2007 Year 8. No items were incorrectly answered by more than
80 percent of the students; however, one of the items was answered only by 23.9 percent of the students.

**Indonesian.** Overall, students across the three regions correctly answered 16 of the 30 test items \((SD = 4.4)\). The scores on the test ranged from 1 to 30, and there was not much variation across the regions. Each of the Indonesian test items was analyzed separately to find the percentage of students who answered them correctly. The result showed that more than 70 percent of students were able to correctly answer four items; three of which were designed to measure writing skills and one were designed to measure reading skills. More than 60 percent of the students were able to correctly answer seven items that were designed to assessed writing (two items), reading skills (four items), and speaking skills (one item). On the other hand, one reading item was answered correctly only by 2.3 percent of the students.

**English.** Overall, students across the three regions correctly answered 17 of the 30 test items \((SD = 6)\). The scores on the test ranged from 2 to 30, and there was very little variation across the regions. Each of the English test items, all of which were designed to assess reading skills, was analyzed separately to find the percentage of students who answered them correctly. The result showed that there were four items that the 70 percent of the students could answer correctly. There was one item that only 10.7 percent of the students could answer correctly.

These findings showed that, overall, the MTs students' achievement was highest on the English subject, followed closely by Indonesian and Science. The lowest achievement of the students in this study was Mathematics. However, the lowest scored item on the four tests was on Indonesian test. On average, the highest correct proportion of the students on the four tests was 70 percent, and the lowest correct proportion was 2.3 percent.

Description of data on madrasah students' achievement in the four subjects based on regions was as follow:

**Overall.** Overall, across the three regions, around 14 percent of the students were able to answer Mathematics test items correctly. This was the subject with the lowest percentage of average correct answer. However, the other three subjects were only slightly higher. On average, the percentages of students who correctly answered the test items were 15.6 percent for Science, 16.2 percent for Indonesian, and 17.2 percent for English. This showed that overall; students' achievement on English subjects across MTs in Indonesia was higher than their achievement on the other three subjects, with Mathematics being the subject with the lowest percentage of achievement.

**East.** Based on the result of the tests, 12.2 percent of MTs students in the East region answered Mathematics test correctly. On the Science test, 14.3 percent of students were able to answer the items correctly. Indonesian was the subject with the highest percentage of achievement in the East region, with 15.2 percent of students answered the items correctly. Slightly lower than Indonesian, English test hold the second highest position, with 14.8 percent of students correctly answered the items.
Java. Based on the result of the tests, 14.8 percent of MTs students in the Java region answered Mathematics test correctly. On the Science test, 16.2 percent of students were able to answer the items correctly. 16.7 percent of students answered the Indonesian items correctly in Java region, which made English become the subject with the highest level of achievement in the region, with 18.1 percent of student provided correct answers for the items.

West. In the West region of Indonesia, MTs students showed the highest achievement on English subject, with 15.8 percent of students. Slightly lower than English was Indonesian, on which 15.4 percent of student answered the items correctly. Science test showed only 14.7 percent of student were able to provide correct answers for the items. The lowest achievement of MTs students in the West region was Mathematics, with only 12.5 percent of students correctly answered the items.

These findings suggested that overall, students in Java region performed better than their peers in the East and West regions, for all subjects tested. The difference of correct proportion was around 2 percent of students for each of the subjects. The East and West regions students’ performances were somewhat similar, with the West region students performed slightly better. The differences of correct proportions between the West and East regions were .3 percent for Mathematics, .4 percent for Science, .2 percent for Indonesian, and 1.0 percent for English tests.

The Year 9 madrasah students’ achievements were compared with the result of International Test Programs whenever possible. However, since Indonesian was only taught in Indonesia, there was no viable international test to compare it to. The Mathematics and Science test items were analyzed and the proportion correct for students in this study was compared with the proportion correct for the Indonesian TIMSS sample, the International TIMSS sample, and the IBT comparison sample. Meanwhile, the proportion correct on CEFLA English test shown by the students in this study was compared to the proportion correct on CEFLA English test conducted in Czech Republic. It was necessary to note that at the time of the writing of this report, the only available comparison for CEFLA English test was the study in the Czech Republic.

The analysis showed that on average, students in this study correctly answered the TIMSS items less often than the International sample did, both for Mathematics and Science subject. On Mathematics TIMSS test, MTs students in this study performed more poorly than the Indonesian TIMSS and the International TIMSS samples on 9 out of 11 TIMSS Mathematics items. On the other two items (focusing on Numbers and Algebra), the MTs students performed better than the Indonesian TIMSS sample, but not better than the International TIMSS sample. Meanwhile, on the 19 ITB Mathematics items, the students in this study showed better performance than the IBT comparative sample.

On the 14 TIMSS Science items, the analysis showed that on average, the sample of this study correctly answered 3 TIMSS Science items more often than the Indonesian TIMSS sample and the International TIMSS sample did. The sample of this study also performed better than Indonesian TIMSS sample did on one item, but not better than the International TIMSS sample. Meanwhile out of 26 IBT
Science items, the sample of this study performed more highly on 9 items compared to the international samples.

On the 30 CEFLA items, the sample of this study performed better on 9 items, compared with the sample from Czech Republic. However, it was important to note that both tests were administered differently. In this study, the items were provided with scene setting sentences in Indonesian to facilitate the students, while the whole test on the Czech Republic study was in English.

5. Conclusion

Based on the findings and discussions, the following conclusions were formulated on the Madrasah students' achievements:

On average, the students were able to answer approximately half of the items on each test. However, the range of correct answers varied greatly from 1 to 30.

Based on regions, students' achievements were slightly different. However, the differences were not significant. Students in Java region performed slightly better than the East and West regions on each of the four subjects tested, with the highest difference of correct proportion around 2 percent of the students. The West regions performed slightly better than the East region, with differences of correct proportion ranged from .2 to 1 percent of the students.

Compared to International result of TIMSS and the Indonesian result of TIMSS, a small proportion of students in this study correctly answered 9 out of 11 TIMSS Mathematics and 10 out of 14 Science items.

The English test did not show any evidence of difference between the performance of students in this study and the international comparison sample of CEFLA in Czech Republic.

References


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