

# Challenges in Developing Research Culture on Madrasah Students 13-14 Years Old in Indonesia

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## Abstract

This article aims to describe the challenges teachers and students face in research learning activities and how these activities can integrate students to develop a research culture. This research is a qualitative descriptive study on madrasah students of 13-14 years old by describing the behavior, responses, individual and group actions in the form of words and language naturally. Researchers took informants randomly so that the distribution of race, gender, and class categories was taken naturally. Researchers conducted observations, documentation, and in-depth interviews with principals and teachers. They tried their best to build good relationships with students at the research location and observed teacher and student interaction activities. Researchers want to reveal the challenges faced by teachers and students in research learning, starting from getting inspiration for research topics to treatment results to develop a research culture in three madrasahs in East Java Province, Indonesia. Studies show that the habit of observing and being sensitive to the environment can support the development of research culture in madrasah. It can be proven based on the observation that students are able to find new research topics after their research projects are completed. The research culture in madrasahs in East Java, Indonesia, cannot be separated from the support of the entire madrasah community, starting from the madrasah principal, teachers, guardians of students, and relevant stakeholders.

**Keywords:** Research challenges, Research Culture, Students 13-14 years, Indonesian Madrasah

## Introduction

This article is based on a dissertation that the researcher did at three madrasahs in East Java Province, Indonesia: one in the center of Malang city, one in Batu city, and one in Kediri city from January to November 2020. The phenomenon of research learning in Indonesia has

not been considered essential to be taught to students. For children aged 13-14 years, most people think that high school students are not sufficiently capable of conducting research. Research in Indonesia has been given to university students only, but many madrasah students have shown their achievements in national and international competitions. This achievement shows excellent potential for the abilities of madrasah students aged 13-14 years that need to be further honed.

Madrasah Tsanawiyah is one of the junior high schools under the Ministry of Religion of the Republic of Indonesia, studying religion and research learning activities in the form of intracurricular and extracurricular activities. Most Madrasahs in Indonesia have organized research learning to develop students' interests and talents in conducting research from an early age. The Children's Research Center (CRC) aims to empower children and youth as active researchers in research activities. The CRC recognizes students as experts in their own lives, supporting and rewarding students by promoting research and a voice for children (Kellett, 2011).

The main issue of this research is the challenges teachers and students face in developing a research culture starting from activities to get inspiration for research topics and the results obtained from the teacher's treatment. This study focuses on students aged 13-14 years in Madrasah East Java, Indonesia, a beginner in research and first receive research subject matter. So, there are many challenges for students and teachers in carrying out these research activities.

In this article, the researchers try to overcome this issue by exploring the uniqueness of the activities of teachers and students in research learning conducted in three madrasahs in Indonesia by describing the research learning activities of teachers and students in three different locations.

### **Research Context**

This research was conducted on 7th and 8th-grade students in three madrasahs in East Java Province, Indonesia: Malang, Batu, and Kediri city. The researchers spend 11 months 3-4 days per week for 3-6 hours per day. This study uses a qualitative descriptive approach. Data collection techniques used are in-depth interviews, participant observation, and documentation with an ethnographic component to 9 teachers and 24 randomly selected students. Before collecting data, the researchers spent two days adapting to familiarize themselves with the students. The three madrasahs have different distance intervals. Malang city and Batu city are taken about 30 minutes. The farthest distance is the Kediri city; researchers traveled about 3-4 hours to arrive in the city. The three madrasahs have between 700 and 900 students and have achievements in student research in Indonesia. The ethnographic role was taken during research at the three madrasahs. The participants' and informants' identities in this research have been named anonymity of the data following ethical standards.

### **Perception of Researchers as Experts**

The researcher was helped by their connection in school to get research permits. The researcher is a social science teacher with 13 years of experience teaching student research in one madrasah. His connection is a research teacher coordinator, and he instructed the

researcher to contact the madrasah principals in Malang, Batu, and Kediri. After sending a letter explaining my research plan, the researcher was invited to attend a formal meeting with the Madrasah Principal to discuss the project further. At the end of the half-hour meeting with the Madrasah Principal, he said he was interested in my research plan and gladly permitted me to conduct research in the madrasah. The teacher coordinator asked for my schedule and the research procedure, how often I could attend class, and whether I could participate in the lesson or only observe it.

### **The early history of research learning in madrasah**

Laili is a research teaching teacher in Malang City. She is warm and friendly when providing information that the researcher needed. She explained that the research learning at MTsN 1 Malang City started from a teacher's hobby who likes to do research, then he invited 3 students to be taught the research process. The first mentoring got national achievements, then many students were interested in research activities and began to develop research learning at the madrasah. Mahfudhoh is a research teacher in Batu City. She explained that research learning was first carried out because it was the duty of the madrasah principal to guide students in research. The first research mentoring achieved a national-level award. Then, many students were interested in participating in the research activity. Kurniawati is a research teacher in Kediri who is friendly and open. She explained the background of teaching research because she empathized with bright students who are unable to think scientifically. The researcher observed students who excel in the Olympics but have less critical thinking and sensitivity to the environment. For example, they are not able to think critically about the harmful ingredients contained in their snack foods, so she was interested in teaching them research. It turned out that her mentored students got medals at the national competition. This achievement was able to attract many students to join the research program at the madrasah. Then, the research learning program was accommodated by internal learning in the form of local content subject.

### **Teacher Challenges to Inspire Research Ideas**

Recognition of teenagers as experts in their own lives (Alderson, 2000; Christensen & Prout, 2002; Mayall, 2000) is one of the initiatives involving children as participants and researchers (Johnson et al., 1998; Jones, 2004; Nieuwenhuys, 2001) there is a literature review on the role of children and adolescents as researchers (Alderson, 2000; Boyden & Ennew, 1997). Laily has the challenge to inspire research ideas in students by providing examples of the results of previous student research to arouse their curiosity. She also used 5W+1H formula questions in every problem she encounters to instill a foundation in students. These classic questions are constantly repeated to students when they find any topic they want to research. Students are familiar with these classic questions to find out whether the ideas they will discuss are useful or not. Every idea obtained by students is linked starting from what, who, when, how, and why. The teacher made a habit of applying these classic questions to stimulate students to be sensitive by observing the behavior of their friends and their environment both at school and at home. In this activity, students could communicate and share experiences from high achievers with other students so that motivation and unique ideas emerge. The inspiration for the research idea was also obtained by the students' motivation

from their seniors who excel. She showed videos of stories of inventors or research activities from seniors who have achievements. Students' research ideas are also obtained by visiting the laboratory to witness firsthand the seniors doing research and testing so that a Mindset is formed with research habituation. In addition to classic questions, after students get their research topic, they will only study and analyze theories from national and international journals. Students are asked to check the variable to be reviewed on the internet, is there any measuring indicator? If there is no measuring indicator for the meant variable, the student is asked to replace the variable.

Mahfudhoh stimulated students to get research ideas by familiarizing students with sensitivity to environmental problems around the madrasah. She explained that she had experienced difficulties when inspiring research ideas for students in class, then she invited students out of class to observe the environment. Still, some students did not carry out well. Then, she tried a sociodrama acting by observing seeds and unique plants and asking simple questions to attract students' attention. When some other students found something interesting and made them curious, other students will attract to join what they are observing. At that time, a chameleon changed color every time it was attached to an object. Mahfudhoh asked what is interesting about the animal? Some students answered that they were interested in the color change in the chameleon. The teacher motivated them by explaining that a chameleon can be used as a research topic. For example, they can raise several questions about chameleons, such as how long time interval is needed by chameleons to change color? Almost every learning activity of environmental observation treatment is applied by the teacher so that students are accustomed to being curious about an object, plant, culture, and interactions around them. The teacher also asks outstanding students/seniors to motivate them by telling stories about their research. According to mahfudhoh, this activity is very interesting for students because their ages are not much different, so communication is well established. The teacher also explores students playing their imagination in finding solutions after they get a research idea. Students are freed to their imagination by reading references and searching according to their research theory. According to Helen Hedges, "*the theory of working with children explains that when children are testing and exploring ideas, it means they are building new knowledge.*" (Hedges, 2014).



The picture above describes environmental observation activities as a learning resource in finding students' research topics. The researcher knew from the start that this would be a challenging because of the distance between cities. Apart from being an observer during

research lessons, the coordinating teacher sometimes asked the researcher to take on the role of teaching assistant to make it easier for researchers to communicate with students.

Kurniawati and other teachers gave a friendly welcome and communication when the researcher conducted interviews. This madrasah also provides the same treatment, making habitual observations of the madrasah environment and students' homes. In generating inspiration for research ideas, the teacher stimulates students by observing contemporary phenomena, providing examples of research on outstanding students, and asking students to read journals. If they have found the research topic, the next step is to design a simple method, conduct trials, and collect data. At Madrasah Kediri, all students are required to do research because it is a compulsory subject in class.

Young Children As Researcher (YCAR) describes four research behaviors: exploration, finding solutions, conceptualizing, and basing decisions on evidence (Murray, 2016), by combining information and identifying the reasons chosen (Tversky & Kahneman, 1973). The researcher tried to build a good relationship with students. Sometimes, he became a quiet observer during class activities, sitting in a corner, listening, and taking notes. The other time, he walked around the class, helping students understand the material and finish the assignments by their teacher. The researcher interacted with several students who took part in the research learning activities. The students gave a warm welcome, so the researcher had no difficulty interacting with students. In most cases, the researcher tried to build a good relationship with the informants to obtain rich research data.

### **Challenges Student involvement in research**

The United Nations Convention on the Rights of the Child (UNCRC) 1989 under the United Nations recognizes that children have the right to express their views in their own world (Alderson, 2000; Christensen & Prout, 2002; Lundy, 2007; Thorne, 1993) rights in children's daily lives, including through research and consultation" (Lundy, 2007).

Research challenges include the research process in the early stages, follow-up, data collection, reporting and data analysis, and dissemination. The initial stage of students forming group teams (Priscilla Alderson, 2001), the involvement of children is not as a research participant but as a researcher or partner in the research process (Kellet et al., 2005), communicate in presenting a good argument. The follow-up stage teaches students to appreciate the results of other students' research and work well together, including designing research questions (Kellet et al., 2005), and look for ways to solve problems when they arise and jointly determine the research schedule, objectives, and methods. Data collection stage (O'Brien & Moules, 2007), is that students conduct simple trials and collect data in the field for qualitative research. Analysis and reporting stage (Coad & Evans, 2008) is to report any research findings to the teacher to control and provide input to students easily. Meanwhile, data analysis relates findings to theory by reading appropriate literature or articles. The last stage is a deployment (Tisdall, 2009) by presenting in class, the best 3 works auditioning between classes in one madrasah, the winner will take part in national and international competitions held by several ministries in Indonesia. Priscilla Anderson said children were involved in research through adult-designed projects, where children could help plan questions, collect, analyze or report evidence and publish their findings (Priscilla Alderson, 2001).

Students in the city of Malang are interested in tobacco plants which are often attacked by various types of pests. The students of this group tried to make a tube-shaped pest catcher with simple materials. Here are the team's activities:



The picture above shows students making a simple pest trap, analyzing, and evaluating the tool. The activity in the picture above raises independence in attitude and decision-making.

The teacher asked students in Batu city to count the bacteria on the cakes in the canteen that they eat every day. This activity aims to show students' sensitivity to the madrasah environment, especially daily food.



The picture above describes the activity of counting the number of bacteria that have been carried out by planting snack bacteria in a petri dish for one week. At the next meeting, students presented their observations about the cake's name, the ingredients used, and the number of bacteria found in front of the class.

Students in Kediri city are interested in the abundant Langsung fruit during the main harvest in Kediri city. They study and read articles related to Langsung fruit.



The team found in the literature that the skin of the Langsung fruit contains a lot of seconoceranoids, one of the toxic triterpenoids of Lansic acid that can be used as an arrow

poison. Based on the reports to the teachers of their literature findings, the students took the initiative to make anti-mosquito cream from Langsat skin waste with teacher assistance.

A unique finding in the challenges of students as researchers is that informants often underestimate students because their age is relatively young. So, most informants answer questions as long as they answer. The teacher instills motivation and confidence in students aged 13-14 years to dare to communicate with other people who are not yet known. Following Anderson Priscilia's research, the obstacle to research conducted by children is the assumption that they still consider them childish, treats them as immature, and indirectly reinforces the idea that they are not capable (Priscilla Alderson, 2001). Involving children directly in research can help them avoid being ostracized, represented, and always directed as passive objects while respecting their voluntary informed consent. It can help protect them from covert, invasive, exploitative, or abusive research (Priscilla Alderson, 2001).

### **Challenges in Developing Research Culture in Madrasah**

The challenges in developing a research culture in children aged 13-14 is not easy, where students of that age are first introduced to research. The three madrasahs stimulated the observation of environmental problems, the role of seniors as motivators, the support of the principal and stakeholders. This activity cannot be separated from the support of the madrasah principal and stakeholders in each madrasah.

The interview results with the madrasah principal in Malang city supported this activity to bring out creativity and produce simple innovations. Madrasahs provide sufficient space formally so that they are not only extra but are included in the local content of 2JP research learning. It aims to form a pattern of scientific thinking, critical thinking of the environment through findings. Research learning is actually developed by the children themselves because they experience and go through the research process themselves. The madrasah principal in Batu city implements research learning to equip and accommodate students' research potential through research, literacy and writing processes from an early age. The deputy head of the curriculum affairs explained introducing the process of researching and improving writing skills through research learning. Kediri madrasah principal explained that this research study is to develop talents and interests in scientific research and grow the younger generation as optimistic researchers.



The picture above explains that the 7H class team wanted to know the amount of lead and microplastics in the Brantas river, Malang City. Most of the industrial waste and factory waste are dumped in this river. The teacher accompanied them to carry out preliminary research by taking water to the Brantas river for research. They were utilizing banana peels as activated

charcoal with *Pseudomonas aeruginosa* bacteria to reduce lead and microplastics in the Brantas River.

Before the researcher conducted individual interviews with volunteered students, he participated in various conversations and hear students talk about the findings of research ideas that interest them. I participated in their conversation and mingled with the flow of thinking of the 13-14-year-old students. Their various discussions and talks about what they have observed. For example, Thoriq said that he prayed to Dhuhur in the mosque this afternoon and watched his friend head his friend in front of him while bowing. He thought that the size of the prayer rug used was not standard. Hasna observed the news on social media about the many pests that attack tobacco plants, so the group team made a pest catcher with a simple tube-shaped material. These students' conversations starting from small things around them are results of habituation of environmental observations instructed by the teacher.

The research culture at the three madrasahs began to grow through the habit of being sensitive to the environment. It can be seen when students in the field took data. Students were also accustomed to observing other interesting things. For example, when Nabila was taking data about Bantengan culture, she observed along the way and was interested in the many tourist spots in Batu City. So, when she returned to the madrasah, she said, "Ma'am, along today's trip, I observed the number of visitors to the new tourist attractions that were established in Batu City. Meanwhile, the traditional natural tourist attractions lacked many visitors. Can I conduct research in the next class about tourism in Batu City, ma'am?". Nabila's critical conversation arose because the teacher made a habit of observing the environment around students.

The unique finding in this study is that most students get interesting new research topics when they collect data in the field for their following research. The study shows that the teacher's treatment of habituation of observing environmental problems generates many interesting research ideas or topics for students. With the support of stakeholders, it can foster a research culture in madrasahs.

## **Discussion**

The most essential element in research learning is the balance of synergies between students and teachers. The teacher's challenge is to facilitate by teaching the right research process. Meanwhile, the challenge of students is to try to learn by following the teacher's instructions in compiling research to build mental and character even though their age is relatively young that make adults are often underestimated them.

Treatment of teachers in research learning includes inspiring research ideas by observing the environment, getting used to classic 5W + 1H questions, showing videos of stories of inventors, visiting laboratories, acting sociodrama, asking questions, and playing with imagination to find solutions, and observing the current phenomenon. After students get their research topic, they are directed to study and analyze theory from national and international journals.

The research culture can be applied to the three madrasahs with the habit of being sensitive to environmental problems, which results in students getting new research topics after their research projects are completed. The culture of researching at the three madrasahs



cannot be separated from the support of the entire madrasah community, starting from the madrasah principal, teachers, guardians of students, and relevant stakeholders.

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