
Research Learning for Young Researchers Madrasahs in Indonesia

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ABSTRACT

Research learning in madrasahs is a forum to encourage students' talents and interests in the field of scientific research. The concept of research madrasah is the development of madrasahs through learning innovations, namely the implementation of research, where students become young researchers in research exercises, with topics related to science in accordance with the subjects obtained. Prof. Mary Kellet explained that children who are involved in the research process are able to explore creativity and innovation by accessing rich resources with critical thinking skills, and analytical abilities. Prof. Pricilia Anderson explained working with children in research by understanding their views and experiences and providing rights opportunities for children and adults in the form of improving their knowledge and skills. Prof. Pia Christensen stated the importance of establishing a culture of communication between young researchers and adult researchers in understanding the world from their point of view.

Keywords: *Research Learning, Young Research, Madrasah*

I. INTRODUCTION

Madrasah Tsanawiyah is a formal educational institution equivalent to a Junior High School (SMP) under the guidance of the Ministry of Religious Affairs (Hidayati, 2019). The Ministry of Religion through the Directorate General of Islamic Education (Ditjen Pendis) strives to continue to make arrangements in improving the quality and competitiveness of madrasahs. In 2013 Minister of Religious Affairs Surya Dharma Ali launched the National Research Madrasah Program (Promadrina), which was launched in Mataram with the aim of instilling in compiling and researching from an early age in madrasah students in Indonesia (Amrullah, 2019).

The implementation of research in Indonesia so far is the final year of higher education students as a final project at the age of approximately 21-25 years (Winkel, 2004). A factor causing students' difficulty in completing written works is the lack of involvement (Fathonah et al., 2011) and the lack of experience in conducting research (Prahmana, 2014). Scientific thinking is one of the logical reasons in

research exercises that must be instilled early.

Young Researchers are junior high school / MTs, and high school / MA students who have been or are interested in conducting scientific research (Gismar, 2017).

Based on the 2019 Research Madrasah technical instruction, the position of research learning in madrasah is a place for exploratory learning in madrasahs is a place for discussion to foster students' talents and interests in the field of logic exams, both intracurricular and extracurricular materials. This program is an effort to encourage madrasah students' love for Science and Technology (IPTEK) through research exercises. According to Amrullah (2013), Promadrina is a pioneer in improving the research skills of madrasa students. Research Learning is very important to form the character of the scientific spirit (scientist) in students who are characterized by curiosity, able to solve a problem, able to think critically, creatively, analytically and systematically (Gismar, 2017). These characteristics are in line with

millennial era students, including: asking a lot of questions, having excessive curiosity, digital humans, interactive, technologically intelligent, lack of focus, and not easily trusting (Papalia E. Diane, 2021).

Learning for young Researchers has been carried out in several countries, including: Priscilla Alderson 2001 University College London, researching the rights and methods of children in working as researchers in three main areas, namely: the stages of the research process in which children are involved as actors; the level of participation of children; and the use of methods that can increase the involvement of children's information in research, in children aged 10-16 year. The findings on this study were that the activities of children and adolescents were able to engage at different stages of the research project, the degree of their participation, the use of various research methods with reviews on some problems and the advantages of children conducting research (Priscilla Alderson, 2001). Jane Murray in Northampton UK (2016), examines the influence of children on education policy based on research evidence,

where children's ability to make evidence-based decisions is often overlooked by policymakers and professional researchers. The findings of this study are that children intuitively form and express their own views in many different ways, young people intuitively form and express their own views in many different ways of obtaining information, planning, questioning, and analyzing (Murray, 2016).

The United Nations Convention on the Rights of the Child (UNCRC) 1989 under the United Nations, provides recognition that children have the right to express their views in their own world (Alderson, 2000; Eder & Corsaro, 1999; Einarsdóttir, 2007; Lundy et al., 2011; Thorne, 1993) rights in the daily life of the child including conducting research and consultation" (UN, 2009, paragraph 14). The involvement of children is not to be a research participant but as a researcher or partner in the research process, including designing research questions (Kellett, 2005a), data collection (O'Brien & Moules, 2007), analysis and reporting (Coad & Evans, 2008), and dissemination (Tisdall et al.,

2008).

According to Hedges the theory of working with children can explain when children are testing and exploring ideas meaning they are building a new knowledge (Murray, 2017). Lansdown (2005), explains that children are able to form their own views, express views freely and influence the learner's ability according to the age and maturity of the child (Lansdown, 2005).

This conceptual article focuses on learning for Young researchers in madrasas with reference to the Technical Guidelines of research madrasahs of the Ministry of Religion combined with the books *How to Develop Children as Researchers* (Prof. Mary Kellet) and *Research with Children* (Prof. Pricilla Alderson and Prof. Pia Christensen).

II. Literature Review

A. Young Researcher

Young researchers are junior high school and senior high school students who have been or are interested in conducting scientific research (Gismar, 2017; LIPI Haryono, 2017). Research in English is called research is defined as search for Return, in Indonesian,

research is often translated into research (Gismar, 2017; LIPI Haryono, 2017). In the rules of Indonesian, research means "prudence, accuracy, and equality". The word research is defined as an activity carried out according to scientific rules and methods carefully, carefully, and carefully to obtain information, data, and information related to understanding the proof of the truth or incorrectness of an assumption or hypothesis and drawing scientific conclusions for the advancement of Science and Technology (Regulation of the Head of the Indonesian Institute of Sciences Number 06 / E / 2013 concerning the Code of Researcher Ethics).

Masson (2004) stated that current learners are able to take a big step in research learning, through supervision they are able to make observations from data and skills to compare and distinguish data significantly and develop high-level thinking. Research learning for children is a process of knowledge creation (Harris et al., 2003). The research process for adults is invaluable as a sophisticated learning tool and a whetstone in critical

thinking. The importance of research in professional and personal development is increasingly recognized for adults, while children do not receive the same recognition, since they are considered unable to follow the learning process and the research methodology is considered difficult. The main obstacle lies in age (implications and competencies), knowledge and skills, if solutions are found to overcome these obstacles by involving children in the research process then they are able to explore creativity and innovation by accessing rich sources with critical thinking skills, and analytical abilities (Kellett, 2005).

B. The Importance of Research for Young Researchers

The basis of the research is about finding out by collecting data ethically, skeptically and systematically no matter how small trying to make a difference (Robson, 2002). The adult world of research is highly valued as a sophisticated learning tool and as a whetstone of critical thinking. Traditionally students are not considered capable enough in this process because it is considered too difficult for them to methodology. The

main obstacle to student research lies in age, knowledge and skills (Harcourt et al., 2011). These obstacles need to be found solutions by exploring in developing creativity, critical thinking skills and analytical abilities (Kellett, 2009).

A pilot project conducted by Marry Kellet (2004) shows that student research activities take a big step in research learning activities through close supervision with observations and skills to develop a high level of thinking. Quite a lot of students are dissatisfied because they feel very capable of participating in learning. Such students may be more motivated by the prospect of working on a topic of their own choosing that interests them (Lawrence, 2006).

Research learning provides a vehicle for metacognition and critical thinking, through the assessment of other people's research as well as in the design of students' own research studies (Woods, 2019). The teaching of the research process to children is the creation of knowledge. Learning is about acquiring, understanding and applying knowledge but also about using those skills to create

knowledge. Students rarely get the opportunity to create their own original knowledge at school.

How Learning To Work 7 Research-Based Principles for Smart Teaching, define learning as a process that leads to change as a result of experience and increases the potential for future performance and teach (Debs et al., 2018). There are three important components, namely: (1) Learning is a process, not a product, (2) Learning involves changes in knowledge, beliefs, behaviors, or attitudes, (3) Learning is not done for the learner, but something that students do themselves, the direct result of students interpreting and responding to their experiences - conscious and unconscious, past and present (Ambrose et al., 2010).

Exploration in Mexico and India by Sue Cox et.al how the government facilitates the participation of children as researchers in making decisions, Through basic strategies, the government encourages schools to be more creative and innovative in using freedom (Sue Cox, 2019). The basics of research for students include how to choose the right method by using a research framework to build evidence

by analyzing and presenting research results (Cheminais, 2012). Children have a view through experience and participation in their projects as researchers (Sue Cox, 2019).

In this study the model underlying the learning of Young Researchers is scientific research and research training (Joyce et al., 2013) developing students as researchers (Kellett, 2005c), creating classrooms for students as researchers (Kincheloe & Steinberg, 2002), active students as researchers (Cheminais, 2012; Kellett, 2009).

Some of the benefits of learners in conducting research include: (1) Having a sense of pride and satisfaction in solving problems. (2) Able to develop skills in the learner that are beneficial to others. (3) Able to communicate well with friends and teachers in their own way. (4) Cooperate cooperatively with peers from learners of different cultures, genders, and age groups. (5) Able to learn to think reflectively. (6) Able to cooperate with teachers as learning partners in research projects. (7) Have confidence in the results of their inventions. (8) Understand the decisions that have

been made and changes in the school. (9) Able to use and apply multimedia and information and communication tracing. (10) Able to analyze and present data. (11) Feeling listened to and considered to exist by teachers and adults (Cheminais, 2012).

C. Young Researcher Learning in Madrasah

In line with the mandate of the National Education System Law no. 20 of 2013 (Kemendikbud, 2013) in order to prepare Indonesia's golden generation in 2045, the government has made various breakthroughs in the field of education. Learning activities must adapt to the evolving needs of the 21st century as stated in permendikbud no. 20 of 2018 concerning strengthening character education in formal education units, permendikbud no. 20 of 2016 concerning graduation competency standards in primary and secondary education, permendikbud no. 62 of 2014 concerning extracurricular activities in primary and secondary education, permendikbud no. 79 of 2014 concerning local content of the 2013 curriculum to develop literacy skills, ability to think critically, creatively, communicate and

collaborate and develop character education (Kemendikbud, 2016).

One form of activity to develop the talents and interests of students in the field of scientific research is Beginner Researcher Learning or commonly called the Adolescent Scientific Group (KIR). Young Researchers are junior high school / MTs, and high school / MA students who have been or are interested in conducting scientific research (Gismar, 2017). Currently, research madrasahs are coaching Young Researchers to learners through intracurricular and extracurricular activities. The spirit of teachers in improving the competence of students in scientific research is quite good. The development of the potential of learners can be carried out in the form of intracurricular, cocurricular and extracurricular activities.

Intracurricular activities are designed in the education unit level curriculum (KTSP) which consists of curriculum structure, learning load, and arrangement of learning activities in madrasahs (Director General of Islamic Education, 2019). Learning activities in madrasahs aim to foster the development of student competencies

in aspects of attitudes, aspects of knowledge and aspects of skills. Various kinds of competition events both at the regional, national and international levels have been followed. The achievements of madrasah learners in scientific research activities encourage more and more madrasahs to organize coaching for Young Researchers.

D. Definition of Research Madrasah

Research-Based Schools (SBR) are school development concepts that are based on research results. In this idea, the regulation of teachers and school authorities as the main motor of research. Meanwhile, the Research School (SR) is a school development concept carried out through learning innovation, namely the implementation of research. In this case, learners become the main motor of research activities. The research topic is related to science according to the subjects obtained by him (Hidayati, 2019). These two concepts have the same spirit, which is to cultivate research activities in the school / madrasah environment in tandem and support each other.

The concept of Research Madrasah (MR) is taken from both because it is a

formal educational institution.

Research Madrasah is the development of madrasahs through learning innovations by organizing research, where students conduct research with themes related to science in accordance with the subjects they obtain. This concept applies to all levels of madrasah (MI, MTs, MA) (Hidayati, 2019).

In the concept of Research Madrasah, it is important for the learning framework, so that research is remembered for a learning plan, with each research-based topic. For example, the topic of fiqh is the certainty of rules/rules in muamalah. It is believed that the student will not only know the rules, but also have the option to learn why this standard is set. This excavation is probably the easiest type of inspection, and it would be a true exploration if deeper and outer excavations were carried out with reference to the logical standards of inspections carried out under the direction of extraordinary labor.

In order for this research activity to become a habit for students and educators, the educational program must be bundled so that it is research-

based. In addition, madrasahs provide satisfactory services and provide financing of at least 5% for research exercises, as well as fostering examination programs as a characteristic of learning in madrasahs.

As Nurkholis Setiawan points out, Promadrina's background, among others: 1) Developing experiences cannot occur in a vacuum, which occurs only in books and is limited to hypotheses, and does not include the whole self of learning both earnestly, mentally, sharply, and mentally. Such learning does not provide scientific oxygen in terms of thinking about the capacity to break down, think fundamentally, and understand reality. One of the proper ways that learning does not occur in a vacuum is research-based realization, which includes all students; 2) Today, there are many madrasahs that have applied this methodology in the growing experience; 3) There needs to be a movement, so that the tradition of conducting research runs in as many madrasahs as possible.

Promadrina has objectives including: 1) Making research a madrasah practice, so that each student is

accustomed to conducting research in all subjects; 2) Establish a logical perspective of students, teachers and training staff; 3) Empowering the development of scholastic culture in the madrasah climate. As pointed out by Jamaludin (2013), Promadrina coordinates the efficient implementation of madrasah exploration in madrasahs, in particular exams are not only aspects of the educational plan, (for example, the KIR program), but are organized and remembered for the learning framework and all subjects. Through this technique, students will have the capacity and ability to complete relentless research that is truly unearthed and practiced in madrasahs.

The Ministry of Religious Affairs took steps including: 1) Launching Promadrina to become a national movement within the madrasah in 2013; 2) Holding competitions in all subject areas based on research through KSM every year; 3) Publish periodically the best research results of students, teachers and madrasah heads 4) Make short videos of profiles and the best research academic process and socialize them, through the Ministry of Religion's

website, Youtube, vlogs and Whatsapp (Hidayati, 2019).

E. Position of Young Research in Madrasah

Learning for Young Researchers in madrasahs is a place to encourage students' talents and interests in the field of scientific exploration. Research in madrasahs is aimed at preparing students in compiling scientific explorations, directing scientific examinations and collecting scientific reports.

Learning for Madrasah Young Researchers is carried out as a form of intracurricular exercises in the form of local content (*Mulok*) and extracurricular exercises. Madrasah Young Researcher Development is not a commitment that must be fulfilled by all madrasahs, but is an option depending on the preparation of each madrasah which is adjusted to the readiness of human resources and the availability of existing time. The amount of research learning time with a minimum time limit of one hour face-to-face for and two hours face-to-face for extracurriculars (Director General of Islamic Education, 2019). Madrasahs are allowed to sort out one of the two

alternatives according to the readiness of each madrasah.

Learning for Young Researchers is able to build "knowledge and understanding" where 'truth' is related to the approach of honesty, accuracy and reliability. Research for Young Researchers is very important because it has innovative, exploratory and systematic properties that bring about the nature of change, as well as expanding knowledge and being able to solve problems (Kellett, 2005).

The research conducted by Young researchers includes searching, establishing truth, understanding the problem in depth, a group of learners are able to give their arguments to the existing problems through the school board (Cheminais, 2012). Young Researchers involve investigating, exploring, identifying problems that exist in the surrounding environment by collecting evidence in the form of information (data), then analyzed, interpreted to reach conclusions, making decision recommendations, to the usefulness of research results for the environment. One of the characteristics possessed in this activity is that children try to 'find out', find problems, read

literature, find solutions and test through exploration (Kellett, 2005b). Creating motivational thinking for seventh graders is a challenge from the moment they first become acquainted with research and need the help of instructors (Munawaroh, 2022).

F. Types of Research Activities

The activities of the Young Researcher in madrasahs include the fields of:

- 1) Technology; Research in the field of innovation talks about planning and produces devices, designs and cycles used in the form of product innovation and development of system, with subthemes: Physics, Energy and Transportation, Mechanical and Electronics Engineering, Computer Science, Informatics, and Materials Engineering and Biotechnology.
- 2) Science; Research in the field of science combines different investigations of perceptions including various observational studies, experiments, inferences with the scope of living things, energy and their changes, and science on sub-topics: chemistry, biochemistry, biology,

microbiology, plant science, soil science, animal science, medicine and health, environmental science, environmental management, science mathematics, and soon.

- 3) Engineering Technology; Research in the field of design innovation is related to the assembly of devices that provide direct benefits.
- 4) Religion; Research in the field of religion allows researchers to study the proportional relationship between religion and society or study religion as a social characteristic.
- 5) Social Humanities; Research in the social humanities includes research in social sciences, regulation, financial aspects, psychology, politics, history, anthropology, philosophy, and humanities (Director General of Islamic Education, 2019).

G. Research Learning in Other Countries

Lessons for Young Researchers have been carried out in several countries, including the following:

Priscilla Alderson 2001 University College London, researched the rights and methods of children in working as

researchers aged 10-16 years. The findings in this study are the activities of children and adolescents being able to be involved in various stages of research projects, their level of participation, the use of various research methods with a review of some of the problems and advantages of doing children's research. Young researchers consult with children, as a "user group" able to influence them, help overcome imbalances between generations, open new directions for research, respect their rights, and draw on unique perspectives children to provide information on social policies and practices (Priscilla Alderson, 2001).

Jane Murray in Northampton England (2016), examines the influence of children on education policy based on research evidence. The findings of this study are that children intuitively form and express their own views in many different ways, young people intuitively form and express their views themselves in many different ways in obtaining information, planning, questioning, analyzing (Murray, 2016).

Research by Anette Boye Koch (2019), Department of Social Education, VIA University College,

Aarhus C, Denmark, explores the role of adults and children by involving adult children in research. The results show that adults engage in pleasant interactions with children through proper participation in sharing perspective. These findings emphasize how improvisation, sharing of control, and play interactions with adults are important elements for early childhood as participatory to consider in forming research relationships with children (Koch, 2019).

Hungary has an empowerment - based school that values children's role as researchers (Jeager & Zsolnai , 1996; Zsolnai , 2004) where children have seven national curriculum options , one of the seven curricula having research methods as a core element . Over 50 schools in Hungary Having chosen this option, fifty-one schools in Hungary have a research strategy as a feature of their national Education plan for educated 10–14-year-olds and students are given the opportunity to undertake their own exploration (Kellett, 2005b).

The Young's Research Center is a Children's Research Center dedicated to supporting and promoting research by children established at the UK Open

University. Research by Pricilia Anderson found that working with children in research by understanding their views and experiences and providing opportunities for rights for children and adults in the form of increasing their knowledge and skills (Alderson, 2000). Working with children as co - researchers, they have respect, transparency, dialogue, have views, are able to make decisions during the research through the search for high quality and relevant data. in the world of children (Lundy et al., 2011). By interpreting, solving problems, exploring and reporting new discoveries ideas they make naturally and get independent experience (Gallas, 1994). The treatment of educators in helping students think about research ideas by being sensitive to problems environment (Munawaroh, 2022).

H. Teacher Competence for Beginner Researchers

Rita Cheminas (2012) mentions teachers and students as learning partners as well as partners in carrying out the research process, each bringing their own perspective on positive educational experiences listening to students' views , and understanding the

findings of student action research. Related things with teaching, learning, curriculum, school policy, environment and organization are important in the right decision making by school leaders, to meet the needs of learners in the twenty-first century (Cheminais, 2012). Student-focused study spaces can provide a more attractive learning climate and require well designed resources in the form of assignments and instructional support (Nuraziz, 2018).

The supervising teacher acts as a facilitator and companion during the research project so as to support the smooth running of the research (L. Halim, 2021). The teacher 's role is the key to the success of research, including the following: (1) Motivating, asking and giving approval to students to conduct research. (2) Acting and positioning themselves as “critical friends” offer unbiased advice and guidance to Beginner Researchers. (3) Train and prepare students in using various research tools and methods. (4) Assist in assisting the preparation of surveys and research questionnaires. (5) Acting as an intermediary for participating in research. (6) the teacher

acts to inform students of the potential problems and difficulties that will arise during the research (Kellet et al., 2005).

Characteristics of teacher resources who are able to guide students as researchers through the action research process include : (1) understanding the concepts , principles and processes of student led action research (2) knowing which research approach is most appropriate to use, (3) developing knowledge, skills, and personal qualities the importance of an action researcher, (4) knowing what to include in a final written research report, (5) knowing how best to present research findings to different audiences, (6) exploring the potential to gain external validation for their good practice in study student led action (Cheminais, 2012). The teacher motivates students and provides opportunities to revise assignments before the assessment takes place. This is done to find out where the error is and fix it. The teacher gives rewards to students with their best work so that students are motivated to be able to present their scientific work very well (M. L. Al Halim, 2019).

I. Conclusion

Young Researchers are junior high school / MTs, and senior high school / MA students who have or are interested in conducting scientific research. The Madrasah Research Program has the following objectives: 1) Make research a culture in madrasas, with the aim that every student is accustomed to exploring research in all subjects; 2) Building scientific attitudes of students, teachers and staff training; 3) Encouraging the development of a scientific research culture in a madrasa climate. The supervising teacher acts as a facilitator and companion during the research project so as to support the smooth running of the research and be able to guide students as researchers through the research process.

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