Bidayatuna Jurnal Pendidikan Guru Madrasah Ibtidaiyah
Vol. 08 No. 01 April 2025
DOI: 10.54471/bidayatuna.v8i1.3497
E-ISSN: 27150232 | P-ISSN : 26212153

The Application of Qur'anic Discovery Learning Model in Nurturing the "Scientific Attitude" Character of Fifth Grade Students in Elementary School

Dewi Masithoh[1,*], Amdul Misor [2]

[1] Universitas Nahdlatul Ulama Yogyakarta, Indonesia
[2] Ban Plak Taen School, Sai Thong, Mai Kaen District, Pattani, Thailand
* Corresponding author: deemasy@unu-jogja.ac.id

Received: December 30, 2024
Revised: February 9, 2025
Accepted: February 9, 2025
Available online: April 21, 2025

To cite this article: Masithoh, & D., Misor, A. (2025). The Application of Qur'anic Discovery Learning Model in Nurturing the "Scientific Attitude" Character of Fifth Grade Students in Elementary School. *Bidayatuna Jurnal Pendidikan Guru Madrasah Ibtidaiyah, 8*(1), 23–36.

Abstract

Technological developments exert a profound influence on all sectors. Education plays a key role in shaping scientific attitudes in elementary school students. This study aims to describe the implementation of the Qur'ani discovery learning model in training the scientific attitude character of grade V students in elementary schools. The present study adopts a qualitative research approach, specifically a case study design. The research was conducted from July to December 2022. The research subjects were fifth-grade teachers and students at SDIT Lukman Al Hakim International Yogyakarta. The data collection techniques employed included interviews, observations, and documentation. The Lankshear and Knobel model was utilised to analyse the data. The validity of the data was established through the utilisation of subject triangulation and method triangulation techniques. The findings revealed that the implementation of the Qur'ani discovery learning model in training students' scientific attitudes in elementary schools consists of a 7M learning cycle, including admiring, appreciating, researching, realising, realising, collaborating, actualising, and giving. The study experience will be more meaningful if it is carried out with various learning activities both inside and outside the classroom, so that the character of scientific attitudes can be formed in primary school students.

Keywords: Discovery Learning Qur'ani, Learning Model, Character Education, Scientific Attitude, Elementary School

1. Introduction

Education has been identified as a critical factor in the development of a nation, with its impact on national progress being well-documented. In the contemporary context, the pursuit of national development necessitates the presence of individuals who embody a combination of intellectual aptitude, technical proficiency, training, creativity, innovation, a strong work ethic, and a positive attitude. The challenges faced by educational institutions in Indonesia during the period of the 2020-2022 Coronavirus disease (COVID-19) pandemic have been well documented (Qurrotu'ainii & Masithoh, 2023). Educational institutions bear a substantial responsibility in the realm of education, encompassing their preparation, facilitation and provision (Khotimah &

Prastowo, 2022). The accelerated advancement of technology and the challenges of the 21st century, which are characterised by increasing complexity, dynamism and globalisation, as well as concerns about the decline of moral values, necessitate special attention for practitioners and educational curriculum developers (Masithoh, 2018).

A salient challenge in the post-COVID-19 global context pertains to the necessity of adapting to hybrid learning, a combination of offline and online learning. (Sholikah & Masithoh, 2022). This phenomenon impacts individuals' lives, propelling the integration of technology into daily routines and giving rise to adverse consequences, including gadget addiction among children and adults. (Nuha & Subahri, 2020). The phenomenon of technological dependency has been demonstrated to exert an influence on emotional and behavioural functioning. (Fauzi, 2021). Furthermore, the long-term impact of online learning, characterised by a paucity of intensive interaction between teachers and students, has been demonstrated to engender a state of indolence in students, leading to diminished levels of activity in their learning, a decline in enthusiasm for the subject, reduced concentration, and a sense of ennui in pursuing their academic endeavours (Putria et al., 2020; 'Ainiyah & Masithoh, 2023)Consequently, this has resulted in suboptimal student learning outcomes.

According to Law of the Republic of Indonesia Number 20 of 2003, Article 3, the function of national education is to develop the abilities and character of a civilised nation, to educate the nation's citizens and develop their potential to become faithful and devoted individuals who are noble, healthy, knowledgeable, capable, creative, and responsible citizens who are also democratic and engaged citizens. (Pemerintah Republik Indonesia, 2003). It is evident that, by this regulation, education assumes a pivotal function in the life and progression of humankind. Education through learning is defined as a process comprising teaching and learning activities that play a role in determining the success of student learning. The cultivation of quality human resources is predicated on the foundation of education. (Adhiguna & Bramastia, 2021).

A positive correlation has been demonstrated between the quality of learning and the efficacy of the learning process. (Ramadhani, 2021). The development of education must be by proper teaching so that the cultivation of character in students can be achieved. Character learning can be defined as the process of establishing an environment and a range of services that cater to the unique and diverse abilities, potential, interests, talents, and needs of students. The objective is to facilitate optimal interaction between teachers and students, as well as between students themselves. The learning process is to be rendered more dynamic, thus fostering cooperation between students, and the learning process itself must be capable of enhancing student creativity in thinking. A more complex learning trajectory is not merely unidirectional; it fosters reciprocal interactions between students and educators, as well as among students themselves. Therefore, students with less aptitude will receive assistance from their more able peers, thereby ensuring a more dynamic learning process and enhanced outcomes.

The concept of learning activities is inextricably linked to several interrelated components, including but not limited to teachers, students, learning, and curriculum. The role of the teacher in designing learning activities for students is of paramount importance. Accurate determination of learning models, approaches, strategies, methods and techniques constitutes a fundamental element of this learning design activity. The role of the teacher in determining the most appropriate learning model is of paramount importance. (Rohmatillah & Ratnasari, 2024), given its impact on learning outcomes and the development of process skills (Nafsah et al., 2019). Process skills are defined as activities in learning through direct experience involving intellectual, manual and social skills (Wiratman et al., 2021).

Consequently, educators are required to utilise a range of suitable learning models, approaches, strategies, methods, and techniques so that learning can be meaningful (Bektiningsih, 2020). As stipulated in the relevant curriculum, the objective is to ensure that

students are able to engage in learning activities in a conducive environment, thereby facilitating the attainment of learning objectives (Masithoh, 2021). In the contemporary educational paradigm, there is an imperative to prioritise learning, which necessitates the adoption of pedagogical approaches that can inculcate scientific attitudes in students. This approach has been adopted by scientists in their endeavours to resolve various problems of life. The approach is predicated on the scientific method, with the catalyst or medium device serving as the primary catalyst for learning. The scientific approach is regarded as the optimal foundation for the development of students' attitudes, skills and knowledge (Naudé & Pretorius, 2024), within a framework that adheres to scientific criteria.

The results of observations at SDIT Luqman Al Hakim International Yogyakarta were the basis for this study. Since 2008, the school has implemented a programme of learning that instils scientific attitudes in students from Year 1 to Year 6. This programme employs integrative thematic learning, utilising the discovery learning Qur'anic model. In the learning process, the school employs a scientific approach to train students to think scientifically from an early age. The pedagogy employed in this institution involves the instruction of students as young scientists, utilising a variety of learning methods and strategies. The process commenced with the observation of the given subject, followed by the formulation of questions to guide the investigation. Utilising the powers of reason, the students engaged in a process of trial and error, and subsequently communicated their findings through the medium of presentations delivered to the class. An academic exhibition is held on a monthly basis, with the purpose of showcasing the scholarly work of students. Moreover, the findings of an interview with a fifth grade teacher indicated that this educational institution employs descriptive report cards as a means of evaluating student learning outcomes in a holistic manner.

The task of documenting students' developmental progress in the form of a descriptive report card is undoubtedly challenging. It is imperative that educators possess a comprehensive understanding of each student's unique talents, interests, character, and abilities. The present situation is of considerable interest for the purposes of study, insofar as the learning experience engendered by a scientific approach has the capacity to inculcate a scientific attitude in students at the school. It is imperative to undertake a comprehensive analysis of the Qur'ani Discovery Learning Model's utilisation in fostering students' scientific attitudes at SDIT Luqman Al Hakim International Yogyakarta. This study will provide a detailed exposition of the learning experience, thereby offering valuable insights into the efficacy of this pedagogical approach. It is hypothesised that the Discovery Learning Qur'ani Model will engender a more profound learning experience and thereby impart a scientific character to the Indonesian generation.

2. Methods

The present research employs a qualitative research methodology, adopting a case study approach. This research was conducted at SDIT Luqman Al Hakim International, a school in Yogyakarta. The school was selected for its extensive experience in implementing the Qur'ani discovery learning model, which has been employed since 2008 to instil scientific attitudes among students. The research was conducted from July to December 2022. The subjects of the research were selected at random, with the following criteria applied: the subject is a class of students who have studied the Discovery Learning Qur'anic Model for a minimum of four years; the subject is an experienced teacher who understands how to instil scientific attitudes in students through their learning so that it is easier to collect research data. The research subjects include fifth grade teachers and students at SDIT Luqman Al Hakim International Yogyakarta. The data collection techniques employed in this study encompass observational studies, in-depth interviews, and archival documentation. The research instrument is the researcher himself, with additional

instruments in the form of observation guidelines, interview guidelines, documentation and field notes.

The data analysis technique employed in this study was executed concurrently with the data collection process, following the subsequent steps: The primary focus of this study is data processing, with a secondary emphasis on data analysis and data validity. Initially, the processing of data is conducted in the immediate aftermath of the collection of data from each participant. Subsequent to this, the process of intuiting, analysing and describing the data is initiated. The processing of data is achieved through the documentation of data derived from observations, interviews and field notes. The transcription process involves the playback of the audio recordings and the subsequent transcription of the content. The collected data was then coded, in order to facilitate data analysis, since the code distinguishes keywords from participants. Secondly, the data analysis process was conducted employing interview data analysis techniques and observation data analysis.

The analysis of the data was initiated through a process of participant observation and subsequent interview data transcription. The steps of analysis (Figure 1) according to Lankshear & Knobel, (2011) are: 1) preparing and organising interview and observation data for analysis, 2) category analysis/coding as an approach to analysing interview and observation data, and 3) domain analysis and clustering. Then, the final descriptive or narrative form was created as a composite description of the meaning and essence of the experience to present a picture of the experience as a whole. Thirdly, data validity was achieved using techniques of extended participation, persistence of observation and triangulation.

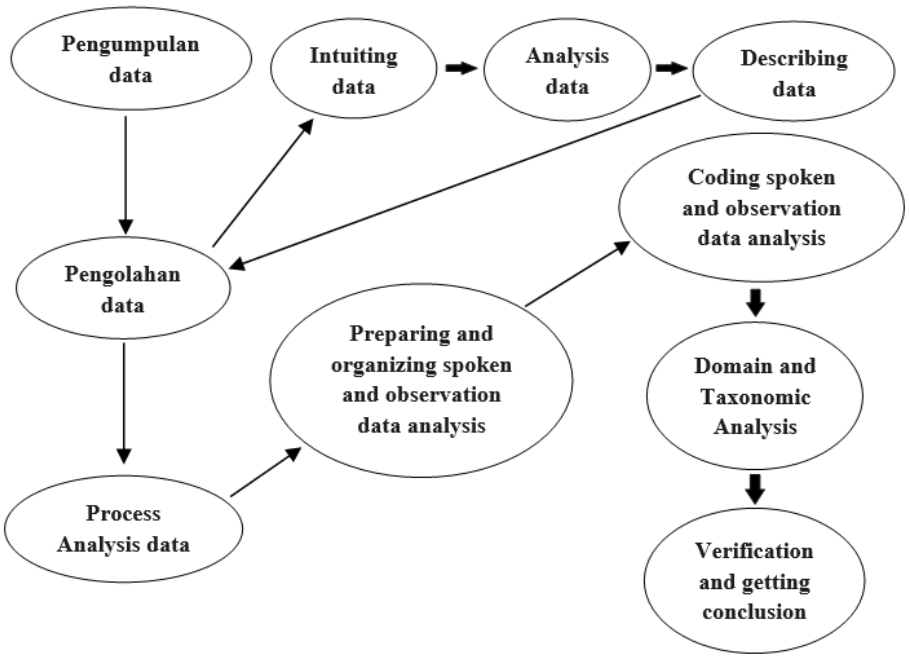

Figure 1. Data Analysis Technique Schematic

3. Results and Discussion

The results of the study show that since it was established, SDIT Luqman Al Hakim International Yogyakarta has long developed into a school that creates a learning system and a learning environment climate based on religious values in accordance with the Qur'an. The school believes that each child has different potential and characteristics. The right education promotes the best potential of the child to produce a perfect human being, so the goals of education must

be more practical and systematic. Education should aim to develop the 7 basic potentials given to human beings by Allah SWT (Tauhidi, 2001). The seven basic potentials are: spiritual, moral, intellectual, physical, interpersonal, cultural and social. The 7M Learning Cycle approach was then developed from the seven core capabilities.

The 7M Learning Cycle approach comprises admiring, appreciating, researching, realizing, collaborating, actualizing and giving. The 7M learning cycle is a scientific approach that exists at SDIT Luqman Al Hakim Internasional Yogyakarta. It is called the 7M learning cycle because the learning stages are like a cycle that is carried out sequentially from M1 Admiring to M7 Giving. This scientific learning is carried out from Grade 1 to Grade 5, so every class has to experience the 7M learning cycle, which over time has become a culture of scientific learning at SDIT Luqman Al Hakim Internasional Yogyakarta. Based on the results of research conducted at SDIT Luqman Al Hakim International Yogyakarta on the application of the scientific approach with the Qur'ani Discovery Learning Model in instilling scientific attitudes in students in Class V as follows:

3.1. Learning Implementation Process

The scientific approach has similarities in scientific study steps with the Quranic discovery study model at SDIT Luqman Al Hakim Internasional Yogyakarta called the "7M cycle". The 7M Learning Cycle is a standard scientific learning process developed from the 7 dimensions of literacy in the curriculum of SDIT Luqman Al Hakim Internasional Yogyakarta, including: spiritual, moral, intellectual, physical, interpersonal, cultural and social (Tim Kurikulum, 2012). The seven basic potentials are developed and applied in learning in a 7M learning cycle approach, which includes: (1) admire, (2) live, (3) explore, (4) realise, (5) collaborate, (6) realise and (7) give. Based on the research results, the process of implementing the 7M learning cycle along with the scientific attitudes achieved at each stage are shown in Figure 2.

Figure 2. Stages of Learning Using the 7M Learning Cycle

Stage 1 Mengagumi/Admiring (*Spiritual Aspect)*. The admiring stage is the first stage that is very important to do because at this stage it is necessary to build up the children's curiosity with various interesting learning activities such as: listening to stories, watching videos, reading books, going to a place and so on. In this first stage, what needs to be emphasised in the 7M learning cycle is that students admire the creation of Allah SWT. The aim is to develop the spirit of God-consciousness in the children. The teacher guides the children to find admiration for the signs (verses) that He has created. Awe can be gained through signs (verses) that can be recognised and felt with the five senses. In the scientific approach, this stage is called the observation stage.

Stage 2 Menghayati/Appreciating (*Moral Aspect*). After the admiring stage, the second stage in the 7M learning cycle is the appreciating stage. In this stage, students are presented with facts that contradict the perfection and miracles that occur. Facts that show the opposite of the information the students received in the Admiration stage. The aim is for students to realise that signs can change at any time. In this case, people play an important role in these changes. People can change the signs into something better or destroy them. From the activities of this appreciation stage, students learn to be critical, humble and understand the values that occur in real life around them, so that students who have moral principles (self-directed individuals) are formed. This second stage in the scientific approach is called the questioning stage.

Stage 3 Meneliti/Research (*Intellectual Aspect*). The next stage is the third stage in the 7M learning cycle, the research stage. The essence of the research stage is that students are required to conduct research according to their age level. At a young age, they can be trained to do simple research. As they get older, they need to do more complex research. Many things can be researched about the characters (topic/issue) being studied. It depends on the perspective from which the teacher and the students plan the research. The more perspectives used, the longer it will take. Therefore, teachers and students need to choose a perspective that is considered relevant to be the focus of the research. This is important so that the research carried out later really has a clear direction and purpose. At this stage, children's cognitive knowledge is increasingly developed, they think critically, creatively and dare to make decisions, so that children grow up with the ability to think complexly (complex thinkers). This third stage in the scientific approach is also called the experimental stage.

Stage 4 Merealisasi/Realizing (*Physical Aspect*). The next stage of the 7M learning cycle is the realizing stage. In this stage, students are required to realise their new understanding by putting it into practice in the form of projects. Children are encouraged to do real work, both individually and in groups, related to the subject being studied. This is to consolidate and reinforce their new understanding gained in the previous stages of learning. Children learn to express themselves and develop their creativity in visual and kinesthetic forms. From this stage of learning, children are formed who have the ability to become a well-balanced person. This fourth stage in the scientific approach is also called the thinking stage.

Stage 5 Mengkolaborasi/Collaborating (*Interpersonal Aspect*). The fifth stage of the 7M learning cycle is the collaborating stage. This is the stage of learning in which the knowledge gained in the previous stages, namely admiring, appreciating, exploring and realising, is put into practice. In this stage, students are required to use cooperative learning strategies (collaboration). Students are divided into groups and baited to discuss what the children have learned (sharing). The teacher leads in a structured way. Another example of the collaboration stage is the creation of posters with stories of children's experiences, starting from the stages of admiring, appreciating, researching to realising. All are written in groups on a poster. Teachers can also invite students to express the results of their discussions in the form of wall magazines, school magazines, newspapers, websites, etc. Through these learning activities, children know how to communicate well, share, cooperate, respect differences, be friendly and have a social spirit, so that children have the ability to become collaborative partners. This fifth stage in the scientific approach is also called the creative stage.

Stage 6 Mengaktualisasi/Actualizing (*Cultural Aspect*). The next stage of the 7M learning cycle is the sixth stage, the actualizing stage. In this actualising stage, children are required to actualise the results of the new understanding they have gained. Students are given bait so that they understand the importance of what they have learned, so that they attempt to apply it in real life (transformation). In addition, students are also instructed to promote the results of the new understanding they have gained to others, for example: friends, teachers, parents and even the general public. The form of promotion that students do can be oral (dialogue, presentation, etc.)

or written (posters, magazines, blogs, etc.). With this learning, children's cognitive abilities are increasingly developed, their ability to adapt, to manage skills, to dare to take risks, to have integrity, to be committed, to be active, to persevere and to have high standards, so that children have the ability to become committed people (Committed Person). This sixth stage in the scientific approach is also called the communicating stage.

Stage 7 Memberi/Giving (*Social Aspect*). The final stage in the 7M learning cycle is the giving stage. This stage is a form of sharing knowledge or children's contribution to others, in essence children are asked to provide what they have learned in the form of goods or services related to the theme. Children are invited to provide goods and services to others according to the desired learning objectives (caring). As a form of students' contribution to what they have learned, these goods and services can also be given to the environment. Children have the opportunity to contribute to the community (Community Contributor) through this learning activity.

In applying the seven stages of the 7M lifecycle, each stage has a purpose and a benefit. Various learning activities carried out by students can form a strong personal character in students. In addition, students' scientific attitudes are also formed in the form of curiosity about the truth of science, critical thinking about life issues, seeking truth by proving it scientifically, being responsible for the tasks assigned, being diligent and conscientious in seeking the truth of information, working in teams, being sensitive to the environment, and so on. This scientific attitude is a provision for students to face life problems now and in the future. Based on the observation, the teacher makes a plan/unit plan before applying the 7M learning cycle. Teachers' steps in lesson planning using the 7M learning cycle in lesson planning:

(1) SK/KD mapping. Mapping the competence standards and basic competences of each subject that can be integrated to see which possible topics are suitable to be the main topic. In this activity, teachers conduct a coordination meeting to equalise perceptions and unify the competence standards and basic competences of each subject that can be integrated and then determine the learning theme.
(2) Questions. Start with important questions. Why should students learn a particular subject? What are the benefits for the students? What is the link to the real world that the students face and will face? Involve students in the discussion so that they know the essence of the knowledge to be learned.
(3) Planning. Plan which content standards will be covered when answering questions from the given topic. Involve students in the process of creating planning questions and the project development process.
(4) Activity schedule. Teachers and students develop an activity schedule for the project components. Identify the standards to be achieved. Teachers need to ensure that the activity schedule is simple and appropriate for the age of the students.
(5) Monitoring. The teacher facilitates the process required by the students to realize the project. The teacher acts as a mentor or advisor in the learning process. The teacher uses criteria standards to monitor student performance.
(6) Assessment. Teachers carry out authentic assessment using different types of assessment. Authentic assessment requires a lot of time and effort from the teacher.
(7) Evaluation. Take time to reflect on students' work, both individually and in groups. Ask students to express their common feelings and experiences.

Discuss what went well and what needs to be changed for improvement (Tekın, 2025). Share ideas that will lead to new questions and new projects in the future. The steps between the 7M learning cycle and the scientific approach are presented in Table 1.

Table 1. Differences between The 7M Learning Cycle and the Scientific Approach

Stage	The 7M Learning Cycle	Scientific Approach
1	Mengagumi/Admiring (*Spiritual Aspect)*	Mangamati/*Observing*
2	Menghayati/Appreciating (*Moral Aspect*)	Menanya/Questioning
3	Meneliti/Research (*Intellectual Aspect*)	Mencoba/*Trying*
4	Merealisasi/Realizing (*Physical Aspect*)	Menalar/*Reasoning*
5	Mengkolaborasi/Collaborating (*Interpersonal Aspect*)	Menyaji/*Presenting*
6	Mengaktualisasi/Actualizing (*Cultural Aspect*)	Mencipta/*Creating*
7	Memberi/Giving (*Social Aspect*)	-

Based on Table 1, the difference between the 7M learning cycle and the scientific approach in the independent curriculum is the number of stages and the time of implementation. The scientific approach in the independent curricula consists of six steps: observing, questioning, trying, reasoning, presenting, and creating. The new guideline states that the six stages can be carried out in any order or out of sequence and that the implementation of the six stages can be carried out daily. Meanwhile, the 7M learning cycle is learning steps arranged thematically integrative through 7 stages of learning process carried out sequentially for one month, including: admiring, appreciating, researching, realizing, collaborating, actualizing and giving. In its application, it can use several learning models, including: discovery learning, project-based learning, guided inquiry learning and problem-based learning. Compared to the scientific approach in the independent curriculum, the 7M learning cycle at SDIT Luqman Al Hakim Internasional Yogyakarta has advantages from these differences.

In terms of the number of stages and the application process, and the learning activities in the 7M learning cycle are more varied according to students' learning styles, so that learning motivation and children's cognitive development are enhanced, and the character of children's scientific attitudes is also formed. This is because cycle learning is a way of thinking and acting that is consistent with how students naturally investigate and discover (Sole & Wilujeng, 2013). The 7M learning cycle consists of themes that use the Discovery Learning Qur'ani. In each theme, the project is carried out for about a month to complete all the stages of the 7M learning cycle. Each stage has learning activities in which there are also other learning models, namely discovery learning, project-based learning, guided inquiry learning and problem-based learning, which are adapted to the activities in the stage of the 7M learning cycle.

All learning activities are summarised in a lesson plan called a unit plan. The unit plan is a lesson plan used by teachers to implement the 7M learning cycle, which includes: theme, implementation time, learning activities (sequence of activities and types of activities) at each stage of the 7M learning cycle, and subjects that can be integrated. The Qur'ani Discovery learning model allows for an integrated scientific learning process. Each subject curriculum has its own function and supports each other in the implementation of a project to enable a more effective learning process in terms of time and teaching process as well as student learning outcomes (Huynh et al., 2025). A well-designed lesson plan will support the readiness of teachers and students in the learning process (Shanthi & Maghfiroh, 2020).

On the basis of the documentary data, SDIT Luqman Al Hakim Internasional Yogyakarta uses the Discovery Learning Quran in implementing the 7M learning cycle. The reasons are as follows:

(1) Visualization of goals. Being able to imagine a better future. "If we know where we want to go, we will be better able to know how to get there.
(2) Critical and reflective thinking. Learning to question existing belief systems and to recognise the assumptions underlying knowledge, perspectives and opinions. Critical thinking skills help people learn to evaluate economic systems, the environment, social structures and culture in the context of sustainable development.

(3) Systemic/holistic thinking. Understanding complexity, looking for relationships and synergies when trying to find solutions to a problem.
(4) Building partnerships/teamwork. Encouraging dialogue and negotiation and learning to work together.
(5) Participation in decision-making and empowerment.

The above cannot be achieved in a passive learning process, where students just sit quietly and wait for the information provided by the teacher. While skills cannot be formed in a short period of time, students' critical thinking skills do not simply develop without support from the teacher (Anindyta & Suwarjo, 2014; Ichsan et al., 2019). In the context of character education, habituation is created to enable students to get used to behaving according to character values that have been internalised and personalised from and through the intervention process (Darmayanti & Wibowo, 2014). All skills need to be trained from the beginning. Including the ability to behave scientifically like a scientist, it takes a long time in the application of learning for students to get used to or cultivate doing it in everyday life.

3.2. Learning Experience

Based on the interview data and classroom observations, the participants revealed their teaching experiences in the classroom. Several learning models are used in this school. However, the different models are brought together in one container in a unit plan based on Discovery Learning Qur'ani. In each project in the unit plan, there are also other learning models such as discovery learning, project-based learning, guided inquiry learning and problem-based learning that are adapted to the activities of each stage of the 7M learning cycle. For example, understanding Qur'anic verses as a basis for research, discussions, watching videos, field trips, investigations, proof through experiments and tests, exhibitions/mini-expos, presentations, and so on. These different learning activities provide children with direct experience so that the knowledge (Shana & Abulibdeh, 2020), they learn is always remembered. It also trains children to be scientific in all their life problems and to share and care for the environment around them.

Participants' experience of science learning is more meaningful when it is done in real life. For example, through various learning activities inside and outside the classroom, such as: understanding the verses of the Qur'an as a basis for research, discussions, watching videos, field trips, investigations, proving through experiments and tests, exhibitions/mini-expos, presentations, and so on. With the experience of diverse learning activities through the use of interactive learning media, it can improve students' inquiry skills (Andikalan et al., 2022), make students eager to excel and increase their creativity and maximum learning outcomes (Ulfah et al., 2020). Learning through inquiry-based technology supported by a collaborative learning environment can enhance students' learning experience (Panjaitan et al., 2021). The application of the scientific approach has a positive effect on cognitive, affective and psychomotor learning outcomes and has achieved the established classical completeness (Machin, 2014). With the learning experience of the scientific approach, the guided inquiry model can inculcate students' scientific attitudes.

From the various learning activities carried out by the students in the 7M learning cycle, if each stage of the 7M learning cycle is carried out repeatedly, a strong personal character is formed in the child.In addition, from the results of learning observations, the scientific attitudes of the students were seen from the behaviour shown by the students before and after participating in learning (Sumiyani et al., 2025). The scientific attitudes that can be seen in the behaviour of the students in class V are the same as the scientific attitudes developed by Harlen, (1996), which include Respect for data, Critical, Perseverance, Creativity and discovery, Open-mindedness, Cooperation with others and Sensitivity to the environment. With these scientific attitudes, students are expected to have a strong character as a provision to face the changing times that are increasingly developing. Upon completion of the 7M learning cycle, the teacher then evaluates

the learning both orally and in writing to measure the children's skills and cognitive development. Here the teacher conducts an assessment by evaluating the students' work through worksheets during the learning process and worksheets, evaluating the display of energy efficient house mockups, and monitoring the records of energy efficient police at the end of the learning process. When assessing the learning process, the teacher only takes value from the worksheet and student work (Budiharti & Waras, 2018).

3.3. Obstacles in The Implementation of Learning

On the basis of data from interviews and observing learning in the classroom, both teachers and students experienced obstacles to the implementation of learning. In terms of teachers, the obstacles experienced include planning and technical. The obstacles in planning include: different abilities of teachers in terms of understanding the scientific approach, lack of time in classroom management, sometimes project planning in the unit plan is not appropriate activities, so it needs to be replaced with projects that are more in line with the learning theme. Meanwhile, the obstacles in the technical implementation of learning are Children's abilities that look different when the schedule for implementing learning, sometimes there are teachers who have permission so they need to be replaced by other teachers, different learning styles of children. Concerning the students, the obstacles experienced include learning preparation and learning activities. Obstacles in learning preparation include: sometimes children forget what to bring when they go to do projects, while obstacles in participating in learning are children's difficulties in understanding certain materials and some do not like certain lessons. Although there are obstacles that become barriers in learning, it does not become a barrier for children to always be enthusiastic about learning to achieve their goals because of good environmental support.

In this school there were no process assessment tools or attitude assessment tools as used in the independent curriculum as a form of authentic assessment. After checking the data with the researcher, this school does not have a scientific attitude assessment instrument at each stage of the 7M learning cycle. Therefore, teachers need to develop process assessment instruments as learning takes place, so that the teacher's assessment is not only a cognitive assessment. However, students' affective and psychomotor assessments are also authentically recorded. Here, process assessment plays a very important role in science learning to measure students' scientific attitudes (Rampean & Rohaeti, 2025). This is supported by the findings of Putri et al. (2014) that the scientific learning outcomes of students who followed the guided inquiry learning method based on performance assessment were significantly better than those of students who followed conventional learning methods. With process assessment, science learning can measure the achievement of students' scientific attitudes (Hastuti et al., 2018; Gendenjamts, 2023).

The obstacles to learning with the guided inquiry learning model in the classroom are as follows: 1) In terms of teachers, the ability of teachers to understand the scientific approach is different, the lack of time to make class administration, sometimes the unit plan that has been planned when in the implementation is considered inappropriate activities so that it needs to be replaced with activities that fit the theme. 2) Regarding the students: the different abilities of the children, the different learning styles of the children, and there are children who need special help to participate in learning. Although there are obstacles that become barriers in learning, teachers always evaluate to overcome them so that it does not become a barrier for children to always be enthusiastic about learning to achieve their goals because of good environmental support.

4. Conclusions

The conclusion from the results of research and discussion is that the process of implementing learning using the Qur'ani discovery learning model in instilling the scientific attitude of fifth grade students at SDIT Luqman Al Hakim International Yogyakarta through scientific steps

called the "7M Learning Cycle", namely: admiring, appreciating, researching, realizing, collaborating, realizing, and giving. Each cycle has specific activities and objectives, and when these learning steps are carried out repeatedly, a culture of scientific attitudes, like those of scientists in solving problems, is formed in students. The scientific attitudes that are embedded in students include, critical thinking, scientific search for truth, responsibility, diligence and careful search for truth in information, working in teams, and sensitivity to the environment. The learning experience of the approach in instilling scientific attitudes in students of grade V, as narrated by the research subjects, shows similarities, namely, that learning is more meaningful when it is done in a real way, for example, through various learning activities both inside and outside the classroom, such as: understanding Qur'anic verses as a basis for research, discussion, watching videos, going to a place, investigation, proving through experiments and tests, exhibitions/mini-expos, presentations, etc.

With the experience of learning the scientific approach of the Qur'ani Discovery learning model through various learning activities, students are eager to achieve, increase their creativity and scientific attitude and maximise learning outcomes. Obstacles that occur when applying scientific approach learning with the Qur'ani discovery learning model in instilling scientific attitudes of grade V students at SDIT Luqman Al Hakim Internasional Yogyakarta. In terms of teachers, the barriers are: the ability of teachers to understand the scientific approach varies, lack of time to make class administration, sometimes the unit plan that has been planned when in the implementation is deemed inappropriate activities so it needs to be replaced with activities that fit the theme. In relation to the students, the barriers are: the different abilities of the children, the different learning styles of the children, and there are children who need special support to participate in learning. Although there are obstacles that become barriers to learning, teachers always evaluate to overcome them so that it does not become a barrier for children to always be enthusiastic about learning to achieve their goals because of good environmental support.

5. Credit Authorship Contribution Statement

Dewi Masithoh: Conceptualization, Data curation, Formal Analysis, Investigation, Supervision, Validation, Visualization, Writing – original draft, and Writing – review & editing. **Amdul Misor:** Project administration, Software, Resources, Validation, and Writing – review & editing.

6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

7. References

Adhiguna, B., & Bramastia, B. (2021). Pandangan Al-Qur'an Terhadap Ilmu Pengetahuan dan Implikasinya dalam Pembelajaran Sains. *Inkuiri: Jurnal Pendidikan IPA*, *10*(2), 138–144. https://doi.org/10.20961/inkuiri.v10i2.57257.

'Ainiyah, Q., & Masithoh, D. (2023). Analisis Peran Guru dan Orang Tua dalam Pembelajaran Daring Selama Pandemi Covid-19 di Madrasah Ibtidaiyah Al-Mumtaz Patuk Gunungkidul Yogyakarta. *Competitive: Journal of Education*, *2*(1), 42–52. https://doi.org/10.58355/competitive.v2i1.14.

Andikalan, T. H., Supeno, S., & Wicaksono, I. (2022). Kemampuan Inkuiri Siswa SMP dalam Pembelajaran IPA Memanfaatkan Media e-LKPD. *Pedagogi: Jurnal Ilmu Pendidikan*, *22*(1), 39–45. https://doi.org/10.24036/pedagogi.v22i1.1271.

Anindyta, P., & Suwarjo, S. (2014). Pengaruh Problem Based Learning Terhadap Keterampilan Berpikir Kritis dan Regulasi Diri Siswa Kelas V. *Jurnal Prima Edukasia*, *2*(2), 209–222. https://doi.org/10.21831/jpe.v2i2.2720.

Bektiningsih, B. (2020). Peningkatan Prestasi Belajar IPA Melalui Model Discovery Learning pada Siswa SD Negeri Gentan 01 Sukoharjo. *Journal of Biology Learning*, *2*(1), 8–22. https://doi.org/10.32585/.v2i1.565.

Budiharti, R., & Waras, N. S. (2018). Analysis of Student's Scientific Attitude Behaviour Change Effects Blended Learning Supported by I-Spring Suite 8 Application. *Journal of Physics: Conference Series*, *1022*(012024), 1–10. https://doi.org/10.1088/1742-6596/1022/1/012024.

Darmayanti, S. E., & Wibowo, U. B. (2014). Evaluasi Program Pendidikan Karakter di Sekolah Dasar Kabupaten Kulon Progo. *Jurnal Prima Edukasia*, *2*(2), 223–234. https://doi.org/10.21831/jpe.v2i2.2721.

Fauzi, M. (2021). Perkembangan Sosio Emosional Siswa Mandrasah Ibtidaiyah: Pembelajaran Sekolah Berbasis dalam Jaringan di Era Pandemi. *Bidayatuna Jurnal Pendidikan Guru Mandrasah Ibtidaiyah*, *4*(1), 15–32. https://doi.org/10.54471/bidayatuna.v4i1.722.

Gendenjamts, S. (2023). Measuring Higher-Order Thinking Skills in Science Among Primary School Students using Item Response Theory. *European Journal of Education Studies*, *10*(12), 19–28. https://doi.org/10.46827/ejes.v10i12.5089.

Harlen, W. (1996). *Teaching and Learning Primary Science* (3rd ed.). Paul Chapman Publishing. https://archive.org/details/teachinglearning0000harl_g5b9.

Hastuti, P. W., Nurohman, S., & Setianingsih, W. (2018). The Development of Science Worksheet Based on Inquiry Science Issues to Improve Critical Thinking and Scientific Attitude. *Journal of Physics: Conference Series*, *1097*(012004), 1–7. https://doi.org/10.1088/1742-6596/1097/1/012004.

Huynh, C. N. T., Nguyen, H., & Vinh Tran, P. (2025). Efficiency of Visually-Guided Discovery-Learning System for High School. *E3S Web of Conferences*, *626*(04002), 1–6. https://doi.org/10.1051/e3sconf/202562604002.

Ichsan, I. Z., Sigit, D. V., Miarsyah, M., Ali, A., Arif, W. P., & Prayitno, T. A. (2019). HOTS-AEP: Higher Order Thinking Skills from Elementary to Master Students in Environmental Learning. *European Journal of Educational Research*, *volume–8–2019*(4), 935–942. https://doi.org/10.12973/eu-jer.8.4.935.

Khotimah, K., & Prastowo, A. (2022). Proses Pembelajaran Berbasis Online Pada Siswa Kelas Tinggi di Masa Pandemi Covid-19. *Bidayatuna Jurnal Pendidikan Guru Mandrasah Ibtidaiyah*, *5*(1), 21–37. https://doi.org/10.54471/bidayatuna.v5i1.1366.

Lankshear, C., & Knobel, M. (2011). *A Handbook for Teacher Research: From Design to Implementation*. Open University Press. https://archive.org/details/handbookofteache0000lank.

Machin, A. (2014). Implementasi Pendekatan Saintifik, Penanaman Karakter dan Konservasi Pada Pembelajaran Materi Pertumbuhan. *Jurnal Pendidikan IPA Indonesia*, *3*(1), 28–35. https://doi.org/10.15294/jpii.v3i1.2898.

Masithoh, D. (2018). Teachers' Scientific Approach Implementation in Inculcating The Students' Scientific Attitudes. *Jurnal Prima Edukasia*, *6*(1), 32–43. https://doi.org/10.21831/jpe.v6i1.14282.

Masithoh, D. (2021). Penerapan Metode Genius Learning Strategy Sebagai Upaya Meningkatkan Prestasi Belajar IPA di Sekolah Dasar. *Joned: Journal of Nusantara Education*, *1*(1), 1–8. https://doi.org/10.57176/jn.v1i1.1.

Nafsah, W. Z., Muharrami, L. K., Hadi, W. P., & Rosidi, I. (2019). Analisis Keterampilan Proses Sains Siswa Menggunakan Pendekatan Contextual Teaching and Learning dengan Model Discovery Learning Pada Materi Tata Surya. *Natural Science Education Research*, *2*(2), 167–173. https://doi.org/10.21107/nser.v2i2.6252.

Naudé, S., & Pretorius, J. (2024). The Influence of a Scientific Investigation Workshop on In-service Biology Teachers' Attitudes Towards Scientific Investigations. *Research in Social Sciences and Technology*, *9*(2), 377–403. https://doi.org/10.46303/ressat.2024.42.

Nuha, A. A. U., & Subahri, B. (2020). Deotoritasi Guru di Era New Media. *Bidayatuna: Jurnal Pendidikan Guru Mandrasah Ibtidaiyah*, *3*(2), 185–206. https://doi.org/10.36835/bidayatuna.v3i2.616.

Panjaitan, W. A., Simarmata, E. J., Sipayung, R., & Silaban, P. J. (2021). Upaya Meningkatkan Hasil Belajar Siswa menggunakan Model Pembelajaran Discovery Learning pada Siswa Sekolah Dasar. *Jurnal Basicedu*, *5*(4), 2181–2188. https://doi.org/10.31004/basicedu.v5i4.552.

Pemerintah Republik Indonesia. (2003). *Undang-Undang Republik Indonesia Nomor 20 Tahun 2003 Tentang Sistem Pendidikan Nasional*. BPK. https://peraturan.bpk.go.id/Details/43920/uu-no-20-tahun-2003.

Putri, S., Candiasa, I. M., & Marhaeni, A. A. I. N. (2014). Pengaruh Implementasi Metode Inkuiri Terbimbing Berbasis Asesmen Kinerja Terhadap Hasil Belajar IPA Ditinjau dari Sikap Ilmiah Siswa kelas VIII SMP Negeri 1 Tegallalang. *Jurnal Penelitian dan Evaluasi Pendidikan*, *4*(1), 451–460. https://doi.org/10.23887/jpepi.v4i1.1371.

Putria, H., Maula, L. H., & Uswatun, D. A. (2020). Analisis Proses Pembelajaran Dalam Jaringan (Daring) Masa Pandemi Covid-19 Pada Guru Sekolah Dasar. *Jurnal Basicedu*, *4*(4), 861–870. https://doi.org/10.31004/basicedu.v4i4.460.

Qurrotu'ainii, H. R. P., & Masithoh, D. (2023). Analisis Cara Belajar Siswa pada Pembelajaran Daring di Sekolah Dasar. *Jurnal Pendidikan West Science*, *1*(1), 27–38. https://wnj.westsciences.com/index.php/jpdws/article/view/166.

Ramadhani, A. H. (2021). Pengaruh Pendekatan Pembelajaran Discovery Learning pada Hasil Belajar Siswa. *Mahaguru: Jurnal Pendidikan Guru Sekolah Dasar*, *2*(1), 96–103. https://doi.org/10.33487/mgr.v2i1.1743.

Rampean, B. A. O., & Rohaeti, E. (2025). The Development of an Integrated Instrument to Measure Higher Order Thinking Skills and Scientific Attitudes. *Journal of Turkish Science Education*, *22*(1), 48–62. https://doi.org/10.36681/tused.2025.004.

Rohmatillah, A., & Ratnasari, K. (2024). Efektivitas dari Project Base Learning terhadap Siswa Dalam Pembelajaran Ilmu Pengetahuan Alam. *Bidayatuna Jurnal Pendidikan Guru Mandrasah Ibtidaiyah*, *7*(1), 51–61. https://doi.org/10.54471/bidayatuna.v7i1.2964.

Shana, Z., & Abulibdeh, E. S. (2020). Science Practical Work and Its Impact on Students' Science Achievement. *Journal of Technology and Science Education*, *10*(2), 199–215. https://doi.org/10.3926/jotse.888.

Shanthi, R. V., & Maghfiroh, N. (2020). Pengaruh Model Pembelajaran Discovery Learning Pada Pembelajaran Tematik di MI Ma'arif Pulutan. *Magistra: Media Pengembangan Ilmu*

Pendidikan Dasar dan Keislaman, *11*(1), 37–51. https://doi.org/10.31942/mgs.v11i1.3459.

Sholikah, D. J. M., & Masithoh, D. (2022). Pengembangan Media Pembelajaran Video Kelas III Tema 6 "Energi & Perubahannya" di Sekolah Dasar. *Progressive of Cognitive and Ability*, *1*(2), 147–157. https://doi.org/10.56855/jpr.v1i2.23.

Sole, F. B., & Wilujeng, I. (2013). Pengaruh Implementasi The 4-E Learning Cycle Terhadap Pengetahuan, Keterampilan Proses Dasar, dan Sikap Ilmiah IPA Siswa SDK Kererobbo. *Jurnal Prima Edukasia*, *1*(1), 43–50. https://doi.org/10.21831/jpe.v1i1.2315.

Sumiyani, Magdalena, Ina, & Ramdhani, I. S. (2025). The Effect of Discovery Learning Model on Students' Explanatory Text Writing Skills. *Journal of Information Systems Engineering and Management*, *10*(33s), 405–411. https://doi.org/10.52783/jisem.v10i33s.5544.

Tauhidi, D. (2001). *The Tarbiyah Project a Holistic Vision of Islamic Education* (1st ed.). Tarbiyah Institut.

Tekın, O. (2025). The Contribution of The "Scientific Literacy Workshop" on High School Students' Research Attitudes. *Journal for the Education of Gifted Young Scientists*, *13*(1), 1–17. https://doi.org/10.17478/jegys.1558532.

Tim Kurikulum. (2012). *Panduan Penyelenggaraan Pembelajaran SDIT Luqman Al Hakim Internasional 2012/2013* (2nd ed.). Mecca Foundation.

Ulfah, A. A., Jumiarni, D., & Yennita, Y. (2020). Peningkatan Hasil Belajar Peserta Didik Melalui Penerapan Model Discovery Learning Pada Materi Ekosistem. *Diklabio: Jurnal Pendidikan dan Pembelajaran Biologi*, *4*(2), 235–242. https://doi.org/10.33369/diklabio.4.2.235-242.

Wiratman, A., Widiyanto, B., & Fadli, Moh. (2021). Analisis Keterampilan Proses Sains Peserta Didik Madrasah Ibtidaiyah Pada Masa Pandemi Covid-19. *Bidayatuna Jurnal Pendidikan Guru Mandrasah Ibtidaiyah*, *4*(2), 185–179. https://doi.org/10.54471/bidayatuna.v4i2.948.