

## VISUAL MEDIA BASED ON PROBLEM BASED LEARNING SHAPES THE CURIOSITY CHARACTER OF PAI STUDENTS

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Article history: received 06 Juni 2026; revised 20 Juni 2026; accepted 29 Juni 2026

DOI : <https://doi.org/10.33751/jmp.v14i01.275>

**Abstract.** The low level of students' curiosity character in Islamic Religious Education (PAI) learning at SMP Yasidik Parakansalak Sukabumi, with only 15% of students actively asking questions despite high cognitive scores, was the main problem of this study. This research aimed to describe the planning, implementation, evaluation, supporting and inhibiting factors, and the impact of applying visual media based on Problem Based Learning (PBL) on students' curiosity character. A qualitative approach with a case study type was employed. The research subjects included the PAI teacher, principal, curriculum vice principal, and eighth-grade students of class VIII-3. Data collection techniques included in-depth interviews, participant observation, and documentation study. The results showed that planning was carried out through five systematic stages; implementation took place in five phases with five strategic roles of visual media (attention trigger, collaboration catalyst, inquiry resource, presentation scaffold, reflection prompt); evaluation revealed an increase in asking activeness from 15% to more than 60%, improvement in question quality from factual to hypothetical-analytical, independent exploration initiative, equitable collaborative participation, and sustainability of curiosity outside the classroom. Supporting factors included teacher competence, principal support, student enthusiasm, a conducive environment, and availability of reference books; inhibiting factors included limited facilities, students' passive habits, teachers' tendency to return to lecturing, time management issues, and unequal parental support. The study concluded that the visual media-based PBL method effectively shapes students' curiosity character and has pedagogical and theological legitimacy as an implementation of Islamic values (tafakkur, ta'awun, muhasabah).

**Keywords:** Curiosity character; visual media; Problem Based Learning; Islamic Religious Education

### I. INTRODUCTION

Curiosity acts as a driving force in the learning process, encouraging students to actively explore, ask questions, and understand concepts in depth. In the context of Islamic Religious Education (PAI), curiosity is not only related to cognitive achievement but also plays an important role in the internalization of Islamic values, making learning more meaningful and relevant to students' daily lives (Pamungkas, 2025). The development of this curiosity character is in line with the goals of 21st-century education, which emphasize critical thinking skills and independent learning (Romdhon Pamungkas & Anshori, 2025).

However, the reality in the field shows that the development of students' curiosity in PAI learning still faces various challenges. PAI learning is often considered monotonous because it is still dominated by lecture and rote learning methods, thus failing to stimulate curiosity and active student involvement (Mardiah & Prayogi, 2025). Consequently, the gap between holistic learning objectives and conventional practices results in low student motivation and understanding of religious values, ultimately affecting students' affective learning outcomes.

Empirical data from various studies reinforce the phenomenon of low student engagement and curiosity in PAI. A classroom action research study in high school showed that before intervention, the percentage of student activeness in PAI learning was still relatively low (Utami et al., 2025). Similar findings were reported in a study at the junior high school level, where the learning methods used had not been able to optimally arouse students' interest and curiosity (Abdullah et al., 2025). Initial observation data at SMP Yasidik indicated indicators of low curiosity, such as minimal questioning participation (65%), lack of independent exploration (70%), low involvement in discussions (60%), and superficial responses to problems (75%). Furthermore, data from PAI discussion assessments of grade 8 students at SMP Yasidik revealed that although the average cognitive score reached 86.51 (good category), only 14.8% of students actively asked questions and 10.9% actively answered, indicating a dichotomy between material mastery and attitude development.

Based on these identified problems, an innovative learning approach is needed that can create a challenging learning environment and stimulate curiosity. Problem Based Learning (PBL) emerges as a potential alternative solution because this model places students in authentic and ill-structured problem situations as a trigger for learning, encouraging them to investigate, collaborate, and construct understanding independently (Arends, 2014; Barrows, 1996). In the context of PAI, PBL allows

students to examine Islamic values through real-life problems, making learning contextual and capable of transforming students from passive objects into active subjects full of curiosity (Dahlan et al., 2025; Toha et al., 2025).

Recent developments in educational research show a convergence between active learning approaches and the use of visual media. Visual media can present complex information about Islamic history or moral concepts in a more interesting and digestible way, thus stimulating students' visual curiosity (Nasution et al., 2025). Visual media, which in this study is operationally defined as animated videos, interactive infographics, narrative images, and slide presentations specifically designed as problem triggers in the PBL syntax, has been proven effective in increasing students' interest, attention, and understanding (Ma'arif et al., 2025). On the other hand, recent research has also extensively examined the effectiveness of PBL in improving higher-order thinking skills and learning motivation in various subjects, including PAI (Hasyikin & Feka, 2025).

The state of the art currently lies in exploring the integration of innovative learning models such as PBL with engaging digital media to optimize learning outcomes. Most previous studies have tested the application of PBL or the use of visual media separately in PAI learning, focusing on improving cognitive learning outcomes (Rismawati, 2025), motivation (Arba'atussholihah & Saepuloh, 2025), or collaborative skills (Saraswati et al., 2025). However, research that specifically integrates visual media and PBL to shape affective character, particularly students' curiosity, in the context of PAI at the junior high school level is still very limited. The novelty of this research lies in the PAI learning design that synergizes the PBL model with visual media systematically designed as a "problem trigger" and "inquiry resource," as well as the measurement focus on the development of behavioral indicators of curiosity during the learning process.

This research is urgent to conduct because it has three strategic contributions. Theoretically, this research enriches the PAI learning model through an integrative framework between PBL and visual media oriented towards strengthening the character of curiosity, as evidenced by Suhirman et al., (2021) that PBL with character emphasis effectively increases student curiosity. Practically, the results of this research can serve as a reference for PAI teachers in areas such as Sukabumi to design more interesting and contextual learning, in line with the findings of Harahap et al., (2021) that PBL-based learning tools assisted by visual media are proven valid and effective. In terms of policy, the findings of this research can be input for policymakers to encourage teacher training in developing innovative media and learning models, as emphasized by Ilham, (2020) regarding the need for reconstruction of the Islamic education system to answer the challenges of change.

Based on the background above, the research question is: "How is the implementation of visual media based on Problem Based Learning in shaping students' curiosity character in Islamic Religious Education learning at SMP Yasidik, Parakansalak District, Sukabumi Regency?" This question will be further broken down into several sub-questions leading to the processes of planning, implementation, evaluation, as well as supporting and inhibiting factors in the implementation of the strategy.

## **II. RESEARCH METHOD**

This research is grounded in the interpretive paradigm (constructivism), which views social reality as neither singular nor objective, but rather as actively constructed by individuals through social interaction, subjective experiences, and the process of attributing meaning to the phenomena they encounter. In the context of this study, students' curiosity character is understood as a social construct formed through interaction between teachers and students in the learning process of Islamic Religious Education (PAI), particularly when using visual media based on Problem Based Learning (PBL). The interpretive paradigm emphasizes that understanding of reality can only be obtained by exploring the perspectives, experiences, and interpretations of direct actors in the field, not through measurement of variables detached from context (Creswell & Poth, 2021).

In line with the interpretive paradigm, a qualitative approach was chosen as the main methodological foundation. The qualitative approach allows researchers to deeply and holistically explore complex social phenomena, namely the process of forming students' curiosity character in PAI through visual media based on PBL. In contrast to quantitative approaches that tend to rely on numbers and statistical generalization, the qualitative approach provides space for researchers to explore meaning, experience, and interaction narratively and descriptively from the perspective of direct actors (PAI teachers and students). Thus, this approach produces a context-rich understanding, including classroom dynamics, student responses, teacher strategies, and the affective and cognitive nuances accompanying the process of forming curiosity (Creswell & Poth, 2021; Miles et al., 2020).

The type of research used is a case study, specifically an instrumental single case study. According to (Stake, 2020), an instrumental case study is chosen when the researcher has a deep interest in understanding a particular issue or phenomenon, and the selected case serves as a tool to provide insight into that issue. In this study, the main issue is the formation of students' curiosity character through visual media based on PBL, while the specific case selected is the implementation of this model at SMP Yasidik, Parakansalak District, Sukabumi Regency. The selection of this case was based on the consideration that the school has implemented visual media in PAI learning, but the process of forming the curiosity character has never been examined in depth (Yin, 2022).

Data sources in this study consist of primary data and secondary data. Primary data were obtained directly from actors and parties actively involved in the planning, implementation, and evaluation of the implementation of visual media based on PBL. Primary data were collected through in-depth interviews with PAI teachers, the vice principal for curriculum, and eighth-grade students who participated in PAI learning. Direct observation was conducted on the PAI learning process in the classroom, interactions between teachers and students, the use of visual media as problem triggers, and changes in student behavior reflecting

curiosity. Primary documents such as lesson plans integrating PBL and visual media, student worksheets, problem-solving project results, and teacher anecdotal records also served as main data sources (Yin, 2022). Secondary data included school profiles, annual reports, photo documentation, video recordings of learning (with ethical permission), and relevant previous studies (Lincoln & Guba, 2021).

Informants and sampling technique used non-probability sampling with purposive sampling and snowball sampling approaches. The main criteria for selecting informants were having in-depth knowledge, direct experience, and active involvement in the planning, implementation, and evaluation of the implementation of visual media based on PBL. Specific criteria included: (1) PAI teachers responsible for strategy formulation and learning implementation; (2) Vice principal for curriculum who has policies on character development; (3) Eighth-grade students who have participated in PAI learning with visual media based on PBL for at least one semester. Sampling was conducted until data saturation point was reached. The minimum target number of informants was 1 PAI teacher, 1 vice principal, and 4-6 eighth-grade students (Creswell & Poth, 2021).

The researcher's presence was realized through direct involvement in classroom learning activities as a participant observer. Physical presence in the school environment and classrooms was used to build rapport and directly observe the dynamics of implementing visual media based on PBL. The dual role as observer and participant allowed the researcher to record events from the outside while simultaneously experiencing the interactions, atmosphere, and learning nuances experienced by teachers and students. The level of researcher involvement was designed in stages: non-participant observation in the first week, passive participant observation in the second to fourth weeks, and active participation in the fifth to eighth weeks after rapport was established. Ethical research protocols were strictly applied, including submitting official permission, informed consent, and confidentiality of participant identities (Lincoln & Guba, 2021; Stake, 2020).

Data collection techniques included in-depth interviews, participant observation, and documentation study. In-depth interviews were conducted in a semi-structured manner to explore information about planning, implementation, evaluation, supporting and inhibiting factors, and the impact of implementation. Participant observation was conducted in three stages: descriptive (mapping the general overview of learning), focused (specifically observing the PBL implementation process in three main meetings), and selective (identifying patterns of best practices and impacts). Documentation study included academic documents (learning objectives flow, teaching modules, student worksheets), administrative documents (school profile, teacher and student data), learning artifacts (photos, audio recordings, field notes), as well as policy and evaluation documents (vision-mission, assessment rubrics, reflection journals (Bowen, 2009; Miles et al., 2020).

Data analysis technique used the interactive model of Miles et al., (2020), which includes three concurrent activity flows: data reduction (summarizing, focusing, and organizing raw data from interview transcripts, field notes, and documents to select essential parts); data display (organizing reduced information into matrices, charts, or descriptive narratives to facilitate conclusion drawing); and conclusion drawing and verification (interpreting data to find patterns, relationships, and themes). Thematic analysis became the main technique in this stage to identify core themes answering the research questions.

Data validity testing was conducted through credibility, dependability, confirmability, and transferability tests (Miles et al., 2020). Credibility testing used source triangulation (data from teachers, vice principals, and students cross-checked), method triangulation (interviews confirmed with observation and documentation), and member check (analysis results returned to participants to verify correctness). Dependability testing used an audit trail by documenting the entire research process in detail. Confirmability testing was conducted by maintaining reflexivity through the researcher's reflection journal. Transferability testing used thick description of the research context, participant characteristics, and socio-cultural setting (Lincoln & Guba, 2021; Stake, 2020).

The research location was SMP Yasidik Parakansalak, located on Jl. Parakansalak, Parakansalak District, Sukabumi Regency, West Java. This location was chosen purposively because it has distinctive socio-religious characteristics and is representative of the context of PAI learning in semi-urban areas with a strong religious culture. The research lasted for 12 weeks in the Even Semester of the 2025/2026 Academic Year, with an intensive data collection period from February to March 2026. This time selection was based on the consideration that in the middle of the semester, classroom dynamics are stable but still open to learning innovations. The time details included pre-research (November 2025), proposal writing (January-February 2026), proposal seminar (January-February 2026), research implementation (February-April 2026), data analysis (May 2026), and thesis examination (June 2026).

### **III. RESULTS AND DISCUSSION**

#### **1. Planning of PAI Learning Design with Visual Media Based on PBL**

Learning planning at SMP Yasidik was carried out through five systematic stages. First, the teacher conducted material analysis by linking basic competencies to current issues such as online bullying (cyberbullying) and intolerance, then consulted with the curriculum vice principal to ensure suitability with students' developmental levels. Based on an interview with the PAI teacher (W1/GPAI/23-04-2026), contextual problems were taken from social media news or events in the surrounding environment, such as the phenomenon of bullying in WhatsApp groups. This was also stated in the Teaching Module (D1/05-04-2026), which contained a "Contextual Problem" column about negative comments on social media.

Second, the selection of visual media was adaptive to facility limitations. The teacher used black-and-white printed images from the internet and old newspapers, simple comics, and the surrounding environment (canteen, yard, mosque) as the main media because only 3 LCD/projector units were available for 14 study groups. Observation during learning preparation (O3/05-03-2026) showed the teacher cutting images from old newspapers. The principal (W3/KS/23-04-2026) confirmed that the teacher's creativity overcame facility limitations. Third, problem formulation was designed as open-ended questions without single answers, such as "What should the child in the picture do?" which triggered discussion and searching for answers from the Qur'an (W1/GPAI/23-04-2026).

Fourth, exploration planning invited students to walk around the school (canteen, yard, mosque) to observe deviant behavior, record findings, and interview sources. The Teaching Module (D1) allocated 20 minutes for field investigation. Fifth, evaluation planning included a rubric for asking activeness, an observation sheet for curiosity indicators, a reflection column in the Student Worksheet (LKPD), and a teacher's journal. The LKPD (D2/05-04-2026) contained a column "What do you want to know?" and the observation sheet listed indicators "students ask follow-up questions" and "connect observations with verses/hadith". All these stages received full support from the principal and curriculum vice principal.

## **2. Implementation Process of PAI Learning with Visual Media Based on PBL**

The learning implementation took place in five stages with five strategic roles of visual media. In the problem orientation stage, media functioned as an attention trigger. The teacher attached three black-and-white images without titles (scenes of mocking, playing on a cellphone during adhan, arguing in the canteen) and gave one minute of silent time. Observation in the first meeting (O1/10-03-2026) recorded 12 students asking spontaneous questions. The curriculum vice principal (W2/WK/23-04-2026) stated that questions such as "Is playing on a cellphone in the mosque haram?" emerged, indicating triggered curiosity.

The student organizing stage used media as a collaboration catalyst. The teacher divided 33 students into 6 heterogeneous groups (5-6 people) and distributed illustrated LKPDs with open-ended questions. Observation (O1) showed that quiet students began to dare to speak in groups. Refina's and Sipa's groups were the most active; some groups even included references to Qur'anic verses such as QS. Al-Hujurat verse 11 in their LKPD answers (D2). The investigation stage (environmental inquiry) used media as an inquiry resource. Students walked around the school for 20 minutes to the canteen, yard, and mosque, observing behavior, recording, and interviewing cleaning staff and older students. Observation (O2/17-03-2026) noted that each group found at least 5 behaviors (3 of which were deviant). Student Sipa (W5/S2/17-03-2026) recounted her experience of asking the cleaning staff about scattered trash.

The results presentation stage used media as a presentation scaffold. Each group presented for 5-7 minutes, followed by a 15-minute question-and-answer session. Observation (O3/24-03-2026) recorded 8 questions, 5 of which were hypothetical, such as "Does staying silent when seeing a friend being mocked count as a sin?" and "If queuing is obligatory, what if someone is in a hurry?" Student participation reached 70%. An audio recording (D6/10-04-2026) captured a critical question from Refina: "If we have already mocked someone, how do we repent properly?" The analysis and evaluation stage used media as a reflection prompt through joint reflection discussions and learning journals. The teacher led the discussion with the question, "What is the most interesting thing you found today?" As a result, student activeness increased from only about 15% to more than 60% of students daring to ask or answer (W2/WK/23-04-2026).

## **3. Evaluation of the Development of Students' Curiosity Character**

The evaluation showed significant improvement in five main indicators. First, an increase in asking activeness. Based on interview data from the curriculum vice principal (W2/WK/23-04-2026), activeness jumped from only about 15% of students to more than 60% of students daring to ask or answer within three meetings. Observations (O1 and O3) recorded only 12 spontaneous questions in the first meeting, while in the third meeting 22 students were actively asking questions. The PAI teacher (W1/GPAI/23-04-2026) affirmed that this method transformed only a few enthusiastic students into nearly all group members actively collaborating.

Second, an increase in question quality from factual to hypothetical and analytical. The curriculum vice principal (W2/WK/23-04-2026) noted the emergence of 8 questions in the presentation session, 5 of which were hypothetical, such as "Does staying silent when seeing a friend being mocked count as a sin?" An audio recording (D6) captured reflective questions from Refina and Sipa about how to repent after mocking. The teacher's reflection journal (D3/05-04-2026) noted that in the first meeting, the average questions were at cognitive levels C1-C2 (remembering, understanding), whereas in the third meeting most were at levels C4-C6 (analyzing, evaluating, creating).

Third, the initiative to seek additional information. Interviews with students showed that 60% (Sipa, Arini, Raffi) reported often seeking information from YouTube, asking parents, or reading library books. Sipa (W5/S2/23-04-2026) stated "often, because I want to understand even more". Refina (W4/S1/23-04-2026), who previously rarely did so, started doing it after this method. Fourth, increased participation in group discussions. Observations (O1, O2, O3) recorded a change from only 1-2 people per group to almost all group members (4-5 people) actively involved, including students who were previously very quiet. Fifth, the sustainability of curiosity outside the classroom. The principal (W3/KS/23-04-2026) observed that students still asked him questions after class, such as how to forgive a friend who had mocked them. The teacher's journal (D3) noted that a student came to the teacher's room the next day to ask about the difference between backbiting and giving advice. The Social Studies teacher also reported an increase in the activeness of class VIII-3 students in discussions about tolerance (D5).

## **4. Supporting and Inhibiting Factors of Implementation**

Five supporting factors were identified. First, teacher competence and creativity. The PAI teacher (W1/GPAI/23-04-2026) independently sought current news about bullying, cut images from old newspapers, utilized the canteen, yard, and mosque as natural laboratories, and prepared a written PBL scenario with a maximum lecture time limit of 10 minutes. Observation (O2/O2-03-2026) showed the teacher drawing a map of the school environment for investigation activities. Second, full support from the principal. The principal (W3/KS/23-04-2026) provided permission for outdoor activities, supplied 3 LCD/projector units on a rotating basis, a printer, and directly monitored the learning process. The school's vision and mission (D1) emphasized active learning and character development.

Third, student enthusiasm and positive responses. Student Refina (W4/S1/23-04-2026) stated "I feel very enthusiastic", Sipa (W5/S2) said "yes, more enthusiastic". Observations (O1, O2, O3) recorded an increase in activeness from 15% to >60%. Fourth, a pleasant learning environment. The principal (W3/KS) mentioned that the school environment is pleasant and can be used as a learning resource. Each group was able to identify at least 5 behaviors in the canteen, yard, and mosque within 20 minutes (O2). Fifth, the availability of reference books. The curriculum vice principal (W2/WK/23-04-2026) helped find religious education comic books, which were then photocopied and cut into illustration cards.

Five inhibiting factors were also identified. First, facility limitations. Only 3 LCD/projector units were available for 14 study groups, and the internet signal was unstable in some areas (W3/KS/23-04-2026). The solutions implemented were using printed images, comics, the surrounding environment, and offline videos (W1/GPAI). Observation (O3) noted that the teacher had to print black-and-white images, taking up to 2 hours. Second, students' passive habits. Initially, only 5-6 out of 33 students actively asked questions; the rest were silent and waited for the teacher's answers (O1). The teacher overcame this with simple questions, assigning roles in groups, and providing appreciation (W1/GPAI). Third, the teacher's habit of reverting to the lecture method. The curriculum vice principal (W2/WK/23-04-2026) noted that the teacher was impatient waiting for students to think and wanted to finish the material quickly. The solution was to prepare a written PBL scenario and provide "productive silence" time.

Fourth, time management. Preparing alternative media (printing images, cutting comics) took about 2 hours (O3/O5-03-2026). The time allocation of 2 x 40 minutes per meeting was insufficient to complete all PBL stages; in the first meeting, the presentation stage had to be continued to the next meeting (D3). The solution was to revise the time allocation in the Teaching Module. Fifth, uneven parental support. Student interviews showed that Refina (W4) rarely sought additional information at home because there was no encouragement, while Sipa (W5) often did because she was supported by her parents. There was no structured communication program between the school and parents regarding the PBL method (D5).

### **5. Impact of Implementing Visual Media Based on PBL on the Formation of Students' Curiosity Character**

The impact of implementation was very significant and multidimensional. First, the impact on asking activeness and question quality. Based on data from the curriculum vice principal (W2/WK/23-04-2026), asking activeness jumped from only about 15% to more than 60% of students daring to ask or answer within three meetings. The principal (W3/KS/23-04-2026) observed that students began to ask critical questions, such as "Why does that person do that? What is the ruling in Islam?" Question quality increased from factual levels (C1-C2) to hypothetical and analytical levels (C4-C6), such as Refina's question (W4/S1) "If we have already mocked someone, how do we repent properly?" and Sipa's question (W5/S2) "Does repentance have to be in front of the person who was mocked, or is it enough in the heart alone?" An audio recording (D6) confirmed that these questions emerged during the presentation session.

Second, the impact on understanding of PAI material and real behavioral change. The PAI teacher (W1/GPAI/23-04-2026) stated that when curiosity increases, students better understand the material because they feel "immersed" in the problem to be solved. Students were able to cite Qur'anic verses such as QS. Al-Hujurat verse 11 about the prohibition of mocking in their LKPD (D2). The principal (W3/KS) added that group assignments were completed better because students understood current problems that they might have experienced themselves. Real behavioral change was seen when students dared to reprimand a friend who littered by saying, "That's not good, in Islam we are commanded to maintain cleanliness" (D5). Students also actively interviewed cleaning staff and older students without shame (O2).

Third, the impact on collaboration, independent learning, and exploration initiative. Observations (O1, O2, O3) recorded a change from only 1-2 people per group to almost all group members (4-5 people) actively involved in discussions and presentations. The PAI teacher (W1/GPAI) mentioned that cooperative attitudes also increased. Independent exploration initiative was seen from 60% of students (Sipa, Arini, Raffi) who reported often seeking additional information from YouTube, asking parents, or reading library books (W5, W6, W7). Several students brought their own reference books to class without being asked by the teacher (O3). Field note documentation (D5) recorded that students recommended YouTube videos about tolerance to each other.

Fourth, the long-term impact and sustainability of curiosity character. The principal (W3/KS/23-04-2026) observed that after learning, students still asked questions outside the classroom, for example asking how to forgive a friend who had mocked them. The teacher's reflection journal (D3) noted that a student came to the teacher's room the next day to ask about the difference between backbiting and giving advice. Sustainability was also seen in the transfer to other subjects; the Social Studies teacher reported that class VIII-3 students became more active in asking questions about tolerance in the context of cultural diversity (D5). Student Arini (W6/S3) expressed that she had become accustomed to carrying a notebook everywhere and asking parents at home

about things that made her curious. Thus, the visual media-based PBL method proved to form a lasting, independent, collaborative, critical, and sustainable curiosity character.

### 1. Planning of PAI Learning Design with Visual Media Based on PBL

The research findings indicate that learning planning at SMP Yasidik, carried out through five systematic stages (contextual problem analysis, adaptive visual media selection, open-ended question formulation, environmental exploration planning, and rubric-based evaluation), is an effective strategy for building the foundation of curiosity character. This finding aligns with the principle of Problem Based Learning proposed by Barrows, (1996) that authentic, ill-structured problems must serve as the starting point for learning. Arends, (2014) also affirms that PBL syntax requires the preparation of problems close to students' real-world experiences. At SMP Yasidik, the teacher raised issues of online bullying and intolerance, consulting them with the curriculum vice principal to ensure relevance to the developmental level of eighth-grade students. This reinforces the findings of Suhirman et al., (2021) that PBL with character emphasis (PBL-CE) requires challenging problems that encourage critical thinking.

The selection of visual media in the form of black-and-white printed images, comics, and the surrounding environment represents a creative adaptation to facility limitations (only 3 LCDs for 14 study groups). This finding supports Mayer, (2020) multimedia learning theory, which states that even simple visual media can reduce extraneous cognitive load if designed with clarity and relevance. Research by Harahap et al., (2021) also proved that visual media-assisted learning tools (GeoGebra) are valid and effective; however, this study extends those findings by demonstrating that in the context of rural madrasahs, printed images and the surrounding environment can replace animated videos without reducing effectiveness. This aligns with the findings of Krisna et al., (2025) that animated video media in PBL significantly affects learning outcomes in terms of student curiosity, but at SMP Yasidik, print media proved more practical and accessible.

The formulation of open-ended questions such as "What should the child in the picture do?" is a characteristic of planning that triggers discussion and the search for evidence from the Qur'an. This is consistent with the findings of Sanzela et al., (2025) that open-ended questions in PBL increase students' desire to ask questions. Research by Vaidah & Pamuji, (2025) also emphasizes that formative evaluation through trigger questions helps achieve learning needs. The uniqueness of planning at SMP Yasidik lies in the consultation of problems with the curriculum vice principal, a feature not found in previous studies. A theoretical modification that can be proposed is the *Five-Stage PBL Planning Model with Contextual Adaption*, which states that the effectiveness of PBL planning in madrasahs with limited facilities is determined by: (1) the proximity of the problem to students' lives, (2) adaptation of visual media to available resources, and (3) integration of environmental exploration as an investigation source. This finding enriches Piaget, (1970) constructivist theory, which emphasizes active interaction with the environment but has not addressed the aspect of facility limitations.

### 2. Implementation Process of PAI Learning with Visual Media Based on PBL

The implementation of learning at SMP Yasidik took place in five stages with five strategic roles of visual media: attention trigger, collaboration catalyst, inquiry resource, presentation scaffold, and reflection prompt. This finding aligns with the PBL syntax proposed by (Arends, 2014) and (Barrows, 1996). In the problem orientation stage, attaching images without titles successfully triggered 12 spontaneous questions, proving that simple visual media are effective as problem triggers. Research by (Pekrun & Linnenbrink-Garcia, 2014) on epistemic emotions explains that curiosity emerges when students face cognitive incongruity, namely a mismatch between what is expected (Islamic values) and what is displayed (deviant behavior). This finding is consistent with (Hulyatul Husna, 2025) that curiosity is a natural foundation of learning that must be stimulated with challenging situations.

The role of collaboration catalyst through heterogeneous group division (mixing active and passive students) proved to increase the participation of quiet students. This confirms (Saraswati et al., 2025) theory of the zone of proximal development that collaboration with more capable peers encourages cognitive development. Research by Saraswati et al., (2025) also found that PBL encourages student collaboration through discussion and teamwork. At SMP Yasidik, some groups even included references to Qur'anic verses such as QS. Al-Hujurat verse 11 in their LKPD answers, demonstrating an integration of Islamic values not found in previous studies. Research by (Mubarak et al., 2025) on the integration of PBL with audiovisual media also supports this finding, but our study goes further by showing that print media is also effective.

The environmental investigation stage (walking around the canteen, yard, mosque) is an implementation of (Lave & Wenger, 1991) situated learning theory that knowledge is naturally constructed in real contexts. Each group recorded at least 5 behaviors (3 deviant), and students dared to interview cleaning staff and older students. Research by (Anjani et al., 2025) on research-based learning in nature schools also proved that direct exploration increases curiosity. This finding aligns with (Ilham, 2020), who calls for the reconstruction of Islamic education based on real experience. The roles of presentation scaffold and reflection prompt were demonstrated by student participation reaching 70% and the emergence of 8 questions (5 hypothetical), such as "Does staying silent when seeing a friend being mocked count as a sin?" Research by (Kasma et al., 2025) proved that indicators of curiosity (activeness in asking, focus, discussion participation) significantly increase through the guided inquiry model. This success is also supported by the findings of (Silaban et al., 2023) that cooperative learning of the TGT type fosters curiosity character.

A theoretical modification proposed is the *Five-Role Visual Media Theory in PBL Implementation*, which states that in the context of rural madrasahs with limited facilities, simple visual media can simultaneously perform five strategic functions: triggering attention, triggering collaboration, serving as an inquiry resource, supporting presentations, and triggering reflection.

This theory extends conventional PBL models that typically only emphasize written case studies. The strength of this model is its flexibility regarding technological limitations; however, its weakness is its dependence on print quality and insufficient time allocation (2x40 minutes). This finding contradicts the assumption that PBL requires sophisticated multimedia; rather, media simplicity can be more effective if close to students' lives.

### 3. Evaluation of the Development of Students' Curiosity Character

The evaluation showed significant improvement in five indicators: asking activeness (from 15% to >60%), question quality (from factual to hypothetical-analytical), initiative to seek additional information, discussion participation (from 1-2 people to 4-5 people per group), and sustainability of curiosity outside the classroom. This finding aligns with the research of Suhirman et al., (2021) that PBL-CE effectively increases student curiosity, with better scores on each indicator. Research by (Sanzela et al., 2025) also proved that the application of PBL contributes positively to increasing curiosity attitudes through increased desire to ask questions and discussion activeness.

The increase in question quality to the hypothetical level (C4-C6) is an important finding. According to (Badi'ah et al., 2023), curiosity stimulated through PBL can encourage students to question phenomena and dig deeper for information. Research by (Firmansyah et al., 2020) on the development of character-integrated teaching materials also supports that systematic design stimulates knowledge construction. At SMP Yasidik, reflective questions emerged such as "If we have already mocked someone, how do we repent properly?" indicating an evaluative level of thinking. This aligns with the findings of (Krisna et al., 2025) that the significant interaction between PBL and animated video media improves learning outcomes in terms of curiosity, but our study proves that print media also produces equally good improvements in question quality.

The initiative to seek additional information (YouTube, parents, library) demonstrates the formation of independent learning. Research by (Siregar et al., 2022) affirms that curiosity is a fundamental need for achieving educational goals. This finding is reinforced by (Zainudin et al., 2024) that curiosity significantly influences students' science literacy. The sustainability of curiosity outside the classroom (students asking the principal, coming to the teacher's room, transfer to Social Studies subjects) is the highest indicator of successful character education. Research by (Ilham, 2020) emphasizes that the information society demands a curious attitude and mastery of problem-solving. Research by (Toha et al., 2025) on deep learning based on PBL also found an increase in active student participation.

A theoretical modification proposed is the *Five-Factor Curiosity Sustainability Model*, which states that evaluating the success of PBL in shaping curiosity character is insufficient by only measuring activeness inside the classroom; it must include: (1) increased quantity of questioning, (2) increased quality of questions to the hypothetical level, (3) initiative for independent exploration, (4) equitable collaborative participation, and (5) sustainability of behavior outside the classroom and transfer to other subjects. This theory extends conventional evaluation models that focus only on cognitive test results. The strength of this model is its comprehensiveness and contextual relevance; however, its weakness is that it requires a long observation period. This finding contradicts the assumption that evaluation based solely on test scores is sufficient; rather, process observation and portfolios are more valid for measuring character.

### 4. Supporting and Inhibiting Factors of Implementation

Five main supporting factors were identified: teacher competence and creativity, principal support, student enthusiasm, a pleasant learning environment, and the availability of reference books. This finding aligns with the research of Fathul & Hairuddin (2025) at SLB Negeri Rasau Jaya that the main supporting factors for PBL include experienced teacher competence, availability of facilities, and student motivation. Research by (Rhodhiyah, 2024) at MTs Nurul Islam Samarinda also found that good cooperation, routine evaluation, and a supportive school environment are supporting factors. Teacher creativity in using printed images and the surrounding environment as alternative media to overcome facility limitations was also found by (Kesumaningtyas, 2025) at SMP Negeri 1 Jiwan, where teacher creativity and student activeness are the main supports.

Principal support in the form of pro-innovation policies, provision of basic facilities (3 LCDs, printer), and permission for outdoor activities is a determining factor. Research by (Rahmawati, 2025) at SMPN 61 Bengkulu Utara affirms that synergy between PBL and interactive media creates an active and collaborative learning environment. Very high student enthusiasm (more than 60% actively asking questions) aligns with the findings of (Mardiah & Prayogi, 2025) that the discussion method is superior to lectures in generating participation. The pleasant school environment with canteen, yard, and mosque areas serves as an effective natural laboratory, as also found by Anjani et al. (2025) in nature schools.

Five inhibiting factors include: limited facilities (LCD, internet), students' passive habits, the teacher's habit of reverting to lectures, time management, and uneven parental support. Research by (Rhodhiyah, 2024) also identified facility and time limitations as main obstacles. Students' passive habits, accustomed to lectures, were also found by Kesumaningtyas (2025) as a serious constraint. The teacher's habit of reverting to the lecture method due to impatience waiting for students to think is a unique internal barrier found in this study, not widely discussed in previous PBL literature. Poor time management (2 hours of media preparation, 2x40 minute allocation) aligns with the findings of (Rahmawati, 2025). Uneven parental support is an external barrier, also identified by (Rhodhiyah, 2024).

A theoretical modification proposed is *Teacher Creativity as Core Factor in PBL Implementation (Five-Factor Role Theory)*. This theory states that in the context of rural madrasahs with limited facilities, teacher creativity is the central factor supported by four other factors: principal policies, student enthusiasm, learning environment, and availability of reference books. The five inhibiting factors can be overcome with adaptive strategies such as using alternative media, providing appreciation,

written scenarios, and revising time allocation. This theory extends the PBL-CE model of (Suhirman et al., 2021), which focuses more on pedagogical aspects without explicitly addressing the role of teacher creativity in overcoming infrastructure limitations.

### 5. Impact of Implementing Visual Media Based on PBL on Curiosity Character

The impact of implementation covers five main aspects: increased activeness and quality of questioning, deeper and more applicative understanding of material, real behavioral change in the environment, increased collaboration and independent learning, and sustainability and transfer of character. This finding aligns with the research of (Nuranisa et al., 2026) that visual media effectively increases student participation and understanding concretely. Research by (Vitaloka et al., 2025) also affirms that character formation requires a planned approach and collaboration between teachers, schools, and the environment. The increase in activeness from 15% to >60% within three meetings is an extraordinary leap not previously reported in PBL research in rural madrasahs.

The increase in question quality to the hypothetical level (C4-C6) proves that students are capable of critical and reflective thinking. Research by (Badi'ah et al., 2023) and (Kasma et al., 2025) supports this finding that PBL and guided inquiry models can encourage analytical questions. At SMP Yasidik, students asked questions about repentance and social consequences, demonstrating deep internalization of Islamic values. Research by (Pamungkas, 2025) on the inquiry method also found an increase in critical reasoning ability, but our study adds a spiritual dimension that is rarely measured. The initiative for independent exploration (searching on YouTube, asking parents, reading library books) confirms the findings of (Silaban et al., 2023) that curiosity character is identified through the desire to seek information from various sources.

Real behavioral changes, such as daring to reprimand a friend for littering and actively interviewing cleaning staff, show that character is formed not only cognitively but also psychomotorically. Research by (Azzahrah et al., 2025) on CTL modules also found an increase in curiosity character through meaningful learning experiences. The sustainability of curiosity outside the classroom and transfer to Social Studies subjects is the highest indicator of successful pedagogical intervention. Research by (Ilham, 2020) emphasizes that Islamic education must equip students with a sustainable curious attitude. Research by (Tahu, 2025) on PBL in the material on the role of the Holy Spirit also found an increase in active and collaborative character.

A new theoretical modification proposed is the *Five-Factor Curiosity Impact Theory with Sustainability as Foundation*. This theory states that the impact of visual media-based PBL on curiosity character is not limited to increasing the quantity and quality of questions inside the classroom but must include: (1) initiative for independent exploration, (2) equitable collaborative participation, (3) real behavioral change in the environment, (4) applicative understanding of material, and (5) sustainability of behavior outside the classroom and transfer to other subjects. These five impacts are hierarchical, with sustainability as the highest foundation. This theory extends the epistemic emotion theory of (Pekrun & Linnenbrink-Garcia, 2014), which focuses more on cognitive psychological aspects without touching the contextual dimensions of rural madrasahs.

The strength of this impact model is its comprehensiveness, measurability, and relevance to character education in Islam. Identified weaknesses include the absence of a standardized instrument for measuring spiritual aspects (such as quality of intention, diligence in reading prayers, and tadabbur of verses), as well as the limited observation time (only three meetings) that has not yet captured long-term changes. Future research is advised to develop spiritual evaluation instruments and conduct longitudinal studies. This finding contradicts the common assumption that learning success can be sufficiently measured by cognitive tests or in-class activeness alone; this study proves that the sustainability of curiosity outside the classroom is actually the most determining indicator. Thus, the visual media-based PBL method proves highly effective in forming a lasting, independent, critical, collaborative, and sustainable curiosity character in students at SMP Yasidik Parakansalak Sukabumi.

## IV. CONCLUSION

This study concludes that the implementation of visual media based on Problem Based Learning (PBL) is proven effective in shaping students' curiosity character in Islamic Religious Education learning at SMP Yasidik Parakansalak Sukabumi. The main findings show an increase in asking activeness from 15% to more than 60%, an increase in question quality from factual levels (C1-C2) to hypothetical-analytical levels (C4-C6), the growth of independent exploration initiative through various sources, increased collaborative participation in group discussions, and the sustainability of curiosity outside the classroom that even transfers to other subjects. This success was supported by five supporting factors (teacher creative competence, principal policy support, student enthusiasm, a pleasant learning environment, and availability of reference books) and successfully overcame five inhibiting factors (limited facilities, students' passive habits, the teacher's tendency to revert to lecture methods, time management, and uneven parental support) through adaptive strategies such as using printed images, the surrounding environment as a laboratory, written PBL scenarios, and appreciation of student participation.

Theoretically, these findings strengthen Piaget's constructivism theory and Lave & Wenger's situated learning theory, as well as enrich the PBL models of Barrows and Arends by introducing two new theoretical modifications: the *Five-Stage PBL Planning Model with Contextual Adaption*, which emphasizes the importance of adapting media to facility limitations, and the *Five-Factor Curiosity Impact Theory with Sustainability as Foundation*, which places character sustainability outside the classroom as the highest indicator of success. These findings also reinforce the research results of (Suhirman et al., 2021), (Sanzela et al., 2025), and (Krisna et al., 2025) regarding the effectiveness of PBL in increasing curiosity, while simultaneously refuting the common assumption that PBL implementation requires sophisticated multimedia or projectors; rather, in the context of rural

madrasahs with limited facilities (only 3 LCDs for 14 study groups), simple visual media such as black-and-white printed images and the surrounding environment prove more practical and equally effective. Practically, this research provides a real contribution to the development of PAI learning in madrasahs with infrastructure limitations, offering a five-stage planning model, strategic roles of visual media in five PBL syntaxes, and observation and portfolio-based character evaluation instruments that can be adopted by teachers. Prospects for further research include developing standardized instruments to measure the spiritual aspects of curiosity (such as sincere intention, tadabbur of verses, and prayers before studying), longitudinal studies to test the sustainability of character over a longer period, and testing this model at different educational levels (elementary, senior high, Islamic boarding schools) and in different geographical contexts (urban, coastal, mountainous) to test its transferability. Thus, this research not only enriches the literature on character education and PAI learning but also provides policy implications for decision-makers to encourage creativity-based teacher training and local resource adaptation in implementing PBL in areas with limited facilities.

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