

Needs Analysis of Science Teachers for Canva Based Interactive Multimedia to Strengthen Scientific Literacy

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ABSTRACT

This study aims to analyze the needs of junior high school science teachers in Batang Hari Regency for the development of interactive multimedia to strengthen students' scientific literacy. The research is a preliminary stage (define) of the ADDIE development model using a quantitative descriptive method. Data were collected using a questionnaire distributed to 12 science teachers. The analysis results showed that 100% of teachers have activated their Belajar.id accounts, but 83.3% still rely on static presentation media. Furthermore, 100% of the respondents stated that students' scientific literacy is still low, primarily due to low reading interest and limited laboratory facilities. Consequently, 100% of the teachers strongly agreed and needed the development of interactive multimedia based on *Canva for Education* integrated with Socio-Scientific Issues (SSI) and mini-research projects. The local environmental issues highly recommended by teachers include the pollution of the Batang Hari River and the impact of coal mining. This study contributes as a foundational baseline for developing contextual, low-code interactive media that can bridge the gap between abstract science concepts and real-world environmental phenomena.

Key words: Canva for Education, Interactive Multimedia, Needs Analysis, Scientific Literacy, Socio-Scientific Issues.

INTRODUCTION

Scientific literacy is a fundamental 21st-century competency that enables students to use scientific knowledge to solve daily life problems. However, the recent Programme for International Student Assessment (PISA) 2025 results indicate that Indonesian students' scientific literacy still needs significant improvement compared to the average of OECD countries (Oxford University Press, 2023). In response to this gap, the Merdeka Curriculum demands a transformation towards more contextual and meaningful learning to provide students with a deeper conceptual understanding (Kemendikdasmen, 2025).

Field conditions, particularly in Batang Hari Regency, indicate that efforts to improve scientific literacy face several obstacles (Yasmidah & Zulfadewina, 2025). Although the government has facilitated educators with Belajar.id accounts, providing full access to various digital educational platforms, their utilization remains suboptimal. Most teachers still rely on static presentation media, which leads to low student interest and poor understanding of abstract scientific concepts.

As a solution, *Canva for Education* is proposed as an intuitive, low code authoring tool platform (Annur et al., 2026). It allows teachers to design interactive multimedia by seamlessly embedding videos, audio, animations, and interactive quiz links (Wulandari & Mudinillah, 2022). The novelty of this research lies in integrating the *Canva* platform with the Socio-Scientific Issues (SSI) approach and Mini Research Projects. The SSI approach confronts students with real-world environmental dilemmas (Zeidler et al., 2019). Therefore, this study aims to analyze the needs of junior high school science teachers for the development of SSI-integrated interactive multimedia based on *Canva for Education* to strengthen students' scientific literacy.

METHODS

This study employed a descriptive quantitative method using a survey technique. It represents the preliminary research phase (Define) of the ADDIE (Analysis, Design, Development, Implementation, Evaluation) Research and Development (R&D) model. The research subjects consisted of 12 junior high school science teachers in Batang Hari Regency, selected through purposive sampling.

Data collection was conducted using a needs analysis questionnaire distributed online via *Google Forms*. The instrument comprised a Likert scale and open-ended questions. The measured aspects included: (1) availability of infrastructure and technical mastery; (2) scientific literacy conditions and pedagogical needs; and (3) the urgency of integrating Socio-Scientific Issues (SSI) materials. Quantitative data were analyzed using descriptive percentages, while qualitative data from open-ended questions were reduced and analyzed thematically to identify the patterns of obstacles experienced by teachers.

RESULTS AND DISCUSSION

Based on the survey of 12 science teachers, empirical data supported the initial hypothesis regarding the high urgency for interactive media development. The Likert scale questionnaire results are presented in Table 1.

Table 1. Recapitulation of Teachers' Needs Analysis Questionnaire Results

No	Need Aspect Indicators	Agree / Strongly Agree (%)	Disagree / Strongly Disagree (%)
1	Students are allowed to bring gadgets/access digital facilities.	91.6%	8.4%
2	Teachers have and activated their Belajar.id accounts.	100%	0%
3	Teachers predominantly use static presentation media.	83.3%	16.7%
4	Students' scientific literacy is low/needs improvement.	100%	0%
5	Difficulty in finding media to visualize abstract phenomena.	91.6%	8.4%
6	Need for <i>Canva</i> -based interactive multimedia containing SSI.	100%	0%

Based on Table 1, the schools' technological infrastructure adequately supports digitalization (100% of teachers have Belajar.id accounts). However, the utilization of this technology for instructional media authoring is not yet optimal (83.3% still use static media). The high percentage (100%) indicating the need for media development highlights that *Canva for Education* is viewed as an appropriate solution due to its low code nature. This aligns with findings that teachers often struggle to find or create media that can effectively visualize abstract phenomena for students (Wulandari & Mudinillah, 2022).

In addition to quantitative data, the analysis of open ended questions revealed several major obstacles faced by teachers in promoting scientific literacy. The distribution of these main obstacles is visualized in Figure 1.

Figure 1. Percentage of Teachers' Main Obstacles in Training Scientific Literacy

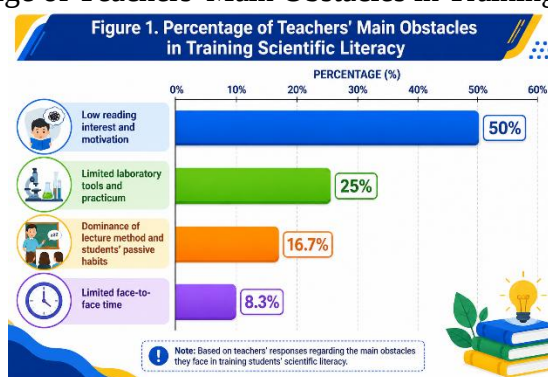


Figure 1 shows that half of the respondents (50%) complained about students' low reading interest as the primary barrier to scientific literacy. Scientific literacy requires students to read, interpret data, and analyze graphs (Trisanti et al., 2025). Scientific literacy requires students to read, interpret data, and analyze graphs. If the media used is static and monotonous, students quickly become bored. Here lies the contribution of this research; interactive multimedia can incorporate gamification elements, videos, and audio to stimulate students visually and auditorily.

Furthermore, teachers were highly enthusiastic about integrating Socio-Scientific Issues (SSI). Table 2 summarizes the local environmental issues proposed by teachers to be used as Mini Research Project materials within the multimedia.

Table 2. Local Socio-Scientific Issues (SSI) Themes in Batang Hari Regency

Main SSI Theme	Description of Local Phenomena Proposed by Teachers
Water Pollution	The declining water quality of the Batang Hari River due to the accumulation of domestic waste and sewage along the riverbanks.
Air Quality	Air pollution and dust caused by mining activities and coal transportation passing through residential areas.
Ecosystem Degradation	The clearing of swamp/brackish lands and degradation of riverbanks, which trigger the risk of floods and erosion.
Land Restoration	Evaluating the success rate of massive tree planting in watersheds as a climate mitigation mini-research project.

The discussion of these findings emphasizes that teachers need a platform to bring real world problems into the classroom. Linking science materials with local issues, such as the degradation of the Batang Hari River or coal mining impacts, is a key strategy in the SSI approach (Altan et al., 2026). This method encourages students to explain phenomena scientifically and evaluate scientific enquiry within a social context (Ben-Horin et al., 2023). The scientific contribution of this research is providing empirical evidence that platforms like *Canva for Education* are not merely graphic design tools, but can be engineered into Interactive Learning Environments that bridge scientific literacy weaknesses through a socio-scientific issues approach.

CONCLUSION

Based on the research findings, it can be concluded that junior high school science teachers in Batang Hari Regency possess excellent technical readiness but have an urgent need for pedagogical learning media innovation. The low scientific literacy triggered by minimal reading interest and limited teaching aids demands the presence of innovative media. Therefore, developing interactive multimedia based on *Canva for Education* integrated with local socio-scientific issues (SSI) and mini-research projects is absolutely necessary.

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