

Research Article

Critical Pedagogy Through the Madiun Brem Industry: Building Elementary Students' Socio-Financial Literacy

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ABSTRACT

Social studies (IPS) instruction in Indonesian elementary schools often relies on textbook-based and teacher-centered approaches, limiting opportunities for students to connect economic concepts with lived social realities. This study explored how critical pedagogy integrated with the local context of the Brem Madiun industry could support elementary students' socio-financial literacy. Using an Educational Design Research (EDR) framework involving analysis and exploration, design and development, and implementation and reflection, the study was conducted in one elementary school in Madiun Regency with one fourth-grade teacher and 28 purposively selected students. Data were collected through participatory observation, semi-structured interviews, documentation, and field notes, and analyzed qualitatively through data reduction, data display, and conclusion drawing. Findings showed high student engagement in group discussion (89.3%), observed understanding of the relationship between economic activity and social life across indicators (78.6%–85.7%), and appreciation for local products (89.3%). The initial EDR cycle produced a learning design responsive to classroom conditions and teacher input. These findings suggest that dialogic, context-based instruction using a familiar local industry can support more reflective engagement with economic and social realities. The study offers a preliminary design framework for integrating critical pedagogy and socio-financial literacy in elementary social studies.

Keywords: Critical Pedagogy; Educational Design Research (EDR); Elementary Social Studies; Local Industry Context; Socio-Financial Literacy.

ARTICLE HISTORY

Received: 05.09.2026

Accepted: 25.09.2026

Published: 03.10.2026

ARTICLE LICENCE

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1. Introduction

Social Studies (IPS) in elementary school holds a strategic position in equipping students to understand the social and economic life of their surrounding environment. Ideally, IPS learning provides opportunities for students to connect social concepts with their everyday experiences, allowing them to develop more reflective and meaningful understanding. However, IPS instruction in many elementary school contexts remains dominated by textbook-based explanations and teacher-centered activities, providing limited opportunities for students to critically engage with social and economic issues in their surroundings (Noviawati et al., 2025). Previous research has also explored Contextual Teaching and Learning supported by interactive media, such as the Spinning Wheel, as an alternative to conventional instruction and reported improvements in students' social studies learning outcomes (A'ini et al., 2025). Taken together, these findings highlight the need for IPS learning approaches that actively involve students while connecting social and economic concepts with the realities of their everyday lives.

Attention to financial literacy at the basic education level continues to increase as awareness grows of the importance of developing financial knowledge and skills from an

early age. The OECD International Survey of Adult Financial Literacy indicates that financial literacy remains a challenge across participating countries, including Indonesia, providing a broader context for efforts to strengthen financial capability across the lifespan (OECD, 2020). At the elementary school level, research suggests that financial literacy can be systematically developed through formal education alongside informal learning experiences at home (Kuzma et al., 2022). Recent studies have also examined pedagogical approaches specifically designed for primary education, including cooperative and game-based learning, while noting that empirical evidence on effective approaches at this level remains relatively limited (Andreatti & Morselli, 2026). Taken together, these studies indicate a continuing need to investigate age-appropriate and pedagogically grounded approaches to financial literacy in basic education.

One relevant framework for presenting reflective IPS learning is the critical pedagogy developed by Freire, which places dialogue and conscientization at the core of the learning process positioning students as active participants who build awareness of the social reality around them (Freire, 1970). Further studies on Freire's ideas confirm that problem-posing education and dialogical praxis can encourage students to develop a critical perspective on the social and economic structures that shape their lives (Takona, 2025). The application of critical pedagogy in the context of vocational education also shows that the principle of conscientization can be adapted to various levels of education, although its application needs to be adjusted to institutional conditions and learner characteristics (Majola et al., 2026). At the elementary level, the principles of dialogue and critical reflection have great potential to be integrated with material on community economic activities, given that elementary-age students already have real experience intersecting with economic activity in their environment.

The use of local wisdom and local industry as a source of IPS learning has been widely studied and is generally reported to strengthen the relevance of learning to students' lives. The development of an IPS learning model based on local wisdom in elementary schools indicates that the resulting model product was considered feasible from an expert perspective and was associated with improvement in students' knowledge and social attitudes (Uge et al., 2019). Other research on the use of local wisdom to strengthen resilient character among elementary school students also shows that integrating local values into IPS learning contributes to the formation of persistent and adaptive attitudes (Murfiah et al., 2024). At the junior high school level, the integration of local wisdom values into IPS learning is also reported to strengthen character and the learner profile in accordance with the applicable curriculum (Aris & Wijaya, 2023). Beyond the general context of local wisdom, the development of modules based on local tradition for cultural literacy and IPAS modules based on local wisdom for critical thinking skills confirm that the cultural and traditional context of society can be systematically designed into contextual learning material (Wahyudi et al., 2025). A mapping study on the integration of local culture in IPS learning also shows that this approach strengthens students' social-emotional learning through the reinforcement of empathy and social awareness (Niman, 2025).

Regarding financial literacy in Indonesian basic education specifically, previous studies have reported growing attention to this topic across several areas. A study on financial literacy as a strategy for developing financial inclusion suggests the importance of introducing financial literacy education from the elementary school level (Kafabih, 2020). Research on fostering financial literacy among elementary school students shows that a contextual approach and students' real experience are important factors for the success of financial literacy learning (Krisdayanthi & Wijaya, 2023). The implementation of financial literacy education for elementary school students is also reported to be integrated through basic competencies in mathematics and IPS subjects by introducing

types of business and simple production activities (Laila et al., 2019). An experiential learning model and a problem-based learning teaching module have also been reported to improve elementary school students' understanding of financial literacy through budget simulation and financial record-keeping practice (Darmansyah et al., 2023; Sidiq et al., 2023).

Although research on financial literacy and the use of local context in basic education continues to develop, a number of gaps can still be identified. First, financial literacy research in elementary schools has so far tended to focus on strengthening technical money-management skills, such as saving, budgeting, and expenditure recording, through experiential learning and problem-based learning models (Darmansyah et al., 2023; Sidiq et al., 2023), while the critical-reflective dimension concerning the relationship between economic activity and social structure has not been explicitly explored much. Second, the notion of critical and compassionate financial literacy, which emphasizes awareness of the social dimension and inequality behind economic decisions, has so far been developed more at the pre-service teacher education level and has not been widely translated into direct learning designs for elementary school students (Lucey & Henning, 2021). Third, research based on local wisdom in elementary school IPS learning is generally directed toward strengthening character, resilient attitudes, or cultural literacy (Murfiah et al., 2024; Uge et al., 2019; Wahyudi et al., 2025), while the use of specific local industry contexts to develop students' socio-financial literacy is still rarely studied, even though the need for contextual media and teaching materials themed around community economic activity has been clearly identified in the field (Mansur & Amrin, 2023; Noviawati et al., 2025). Fourth, there is a lack of research on how critical pedagogy, socio-financial literacy, and a specific local industrial context can be combined through the Educational Design Research (EDR) framework at the elementary school level, whereas EDR itself is regarded as an appropriate approach for producing learning designs that are responsive to real classroom needs through cycles of analysis, design, implementation, and reflection (McKenney & Reeves, 2014, 2025). To date, limited research has examined the Brem Madiun industry, which encompasses production activities, workforce involvement, and product distribution, as a context for critical pedagogy-based IPS learning oriented toward elementary school students' socio-financial literacy. This study therefore addresses an underexplored area situated at the intersection of critical pedagogy, socio-financial literacy, and a specific local industrial context within elementary social studies education.

In this study, socio-financial literacy is defined as students' capacity to understand the relationship between economic activity and community social life, encompassing three dimensions: factual understanding of production and distribution processes, relational understanding of how economic roles connect to social welfare, and an affective appreciation of local economic actors and products. This definition extends conventional financial literacy, which centers on individual money management, toward the critical-reflective and social dimension proposed in the notion of critical and compassionate financial literacy (Lucey & Henning, 2021; OECD, 2020), and distinguishes socio-financial literacy from general economic literacy, which typically emphasizes conceptual knowledge of economic activity without an explicit social-critical dimension.

Based on these gaps, this study examines whether and how a critical pedagogy-based IPS learning design, developed through the context of the Brem Madiun industry, can support the development of elementary school students' socio-financial literacy. This study uses the Educational Design Research (EDR) framework, which allows the process of needs analysis, design, implementation, and reflection to be carried out

systematically and continuously so that the resulting learning design is truly responsive to real classroom conditions (McKenney & Reeves, 2018, 2025). Through this approach, the research is directed to produce contributions both at the practical level, in the form of contextual learning tools, and at the theoretical level, in the form of understanding how critical pedagogy and local industrial context can be combined in elementary school IPS learning (McKenney & Reeves, 2021). Thus, this study describes the process of developing the learning design and examines its relationship to students' engagement and socio-financial literacy.

In line with the aims and gaps outlined above, this study is formulated to answer the following research questions. First, how does the process of analysis, design, implementation, and reflection within the EDR framework produce an IPS learning design based on critical pedagogy through the context of the Brem Madiun industry. Second, how does the critical pedagogy approach through the context of the Brem Madiun industry contribute to the engagement of fourth-grade elementary school students in discussion activities and IPS learning. Third, how does this approach help students develop an understanding of the relationship between economic activity and the social life of the community in their environment. Fourth, how does this approach foster students' socio-financial attitudes, particularly appreciation for local products and the role of workers in the Brem Madiun industry.

2. Method

2.1 Research Design

This study employed an Educational Design Research (EDR) approach to develop an IPS learning design informed by critical pedagogy and situated within the context of the Brem Madiun industry to support elementary school students' socio-financial literacy. EDR was selected because it enables the systematic development, implementation, evaluation, and refinement of educational interventions in response to authentic classroom needs (Bayu et al., 2023; McKenney & Reeves, 2018). The study primarily employed qualitative data from classroom observations, semi-structured interviews, documentation, and field notes to examine the development and implementation of the learning design. These qualitative data were supplemented by descriptive quantitative indicators, including expert-validation scores calculated using Aiken's V and frequencies and percentages derived from classroom observations. The quantitative indicators were used descriptively to complement the qualitative evidence rather than to test causal effects or statistical differences. The iterative and collaborative nature of EDR enabled the researcher and classroom teacher to evaluate the initial implementation and identify areas for refinement in the subsequent design cycle (McKenney & Reeves, 2021).

2.2 Research Subjects and Location

The research was conducted at an elementary school in Madiun Regency, with research subjects consisting of one fourth-grade teacher and 28 fourth-grade students. Subjects were selected using purposive sampling, considering the school environment's proximity to the socio-economic activity of the Brem Madiun industry, making this context relevant for use as IPS learning material based on critical pedagogy. This consideration of contextual proximity was important so that students could relate the learning material to real experiences they encounter in their daily environment. The selection of a single class as the research subject was also adjusted to the nature of the initial implementation within the EDR framework, which at this stage is still on a limited scale as a basis for developing the learning design in the next cycle.

It is important to note that the implementation reported in this study represents a single, initial EDR cycle. Although the EDR framework is inherently iterative, the findings presented here reflect the first cycle of analysis, design, and implementation, intended as a basis for refinement in subsequent cycles rather than a fully completed multi-cycle design.

2.3 Research Procedure

The research procedure follows the EDR model, which consists of three main phases: analysis and exploration, design and development, and implementation and reflection. In the analysis and exploration phase, the researcher identified IPS learning needs and the initial condition of students' socio-financial literacy through classroom observation, interviews with the teacher, and a documentation study of the learning tools used at the school. In the design and development phase, the researcher developed learning tools in the form of a teaching module, student activity sheets, learning media, and a critical discussion guide that made use of the Brem Madiun industry context; these tools were then reviewed by two experts (one specializing in elementary school IPS education and one specializing in learning pedagogy), with their judgments analyzed using Aiken's V index to provide preliminary evidence regarding the appropriateness of the material, the feasibility of implementation, the relevance of the local context, the strengthening of socio-financial literacy, and the application of critical pedagogy principles (Kania et al., 2024). The results of this preliminary expert appraisal were used as the basis for revision before the tools were applied in the classroom. The detailed expert appraisal results, including the Aiken's V values for each item, are reported in Section 3.3. In the implementation and reflection phase, the lesson was carried out in a single 2 × 35-minute session focused on critical discussion activities, analysis of community economic activity, social reflection, and simple decision-making related to socio-financial issues; the researcher and teacher then jointly evaluated the implementation and effectiveness of the learning design as material for refinement in the next development cycle. The flow of these three phases, including their iterative nature, is presented in Figure 1.

Table 1. Stages of Educational Design Research (EDR) in the Study

Phase	Main Activities	Outputs
Analysis and Exploration	Classroom observation, interviews with the teacher, documentation study of learning tools	A map of learning needs and the initial condition of students' socio-financial literacy
Design and Development	Development of the teaching module, student activity sheets, learning media, critical discussion guide; expert validation using Aiken's V; design revision	A valid IPS learning tool based on critical pedagogy, ready to be trialed
Implementation and Reflection	2 × 35-minute lesson; participatory observation; reflective interviews with the teacher and students	Data on student engagement, understanding of economic-social relations, and socio-financial attitudes, along with notes for improvement in the next cycle

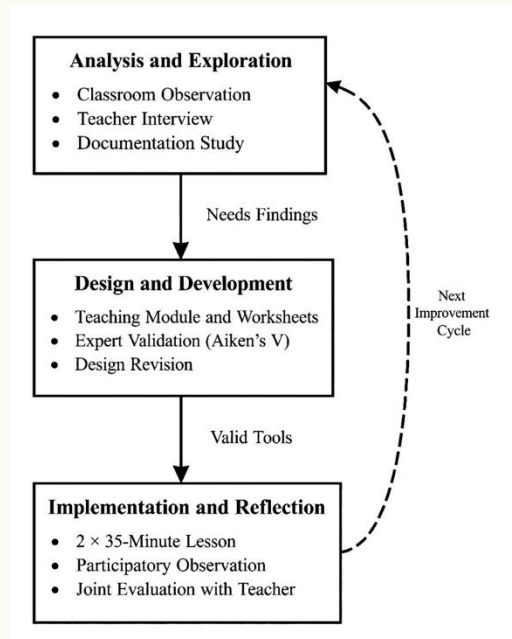


Figure 1. Flow of Educational Design Research (EDR) in Critical Pedagogy-Based IPS Learning through the Context of the Brem Madiun Industry

2.4 Instruments and Data Collection Techniques

Data collection techniques comprised four main instruments: participatory observation, semi-structured interviews, learning documentation, and field notes. Observation was carried out by the researcher using a structured observation sheet covering aspects of student activeness, engagement in discussion, ability to express opinions, and understanding of socio-financial concepts. An accompanying observer was present to support data collection and field notes, though formal inter-rater scoring was not conducted in this initial implementation; this is noted as a limitation to be addressed through independent double-scoring in the next EDR cycle. Interviews were conducted with the classroom teacher and several purposively selected students to explore their learning experiences, responses to the lesson, and understanding of community socio-economic activity. Documentation in the form of photographs of learning activities, student work, and learning tools was used as supporting data, while field notes were used to record the dynamics of learning and findings not captured by the observation instrument. A summary of the instruments and their data focus is presented in Table 2.

Table 2. Instruments and Focus of Data Collection

Instrument	Data Focus	Data Source
Participatory observation	Discussion activeness, ability to express opinions, understanding of socio-financial concepts	Fourth-grade students
Semi-structured interview	Learning experience, response to the lesson, understanding of socio-economic activity	Classroom teacher and selected students
Documentation	Learning activities, student work, learning tools	Classroom learning activities
Field notes	Learning dynamics, students' spontaneous responses, unexpected findings	Researcher and accompanying observer

2.5 Data Analysis Technique and Data Validity

The research data were analyzed qualitatively through three stages: data reduction, data display, and conclusion drawing. Data reduction was carried out by selecting and focusing on data relevant to the research objectives, while data display was presented in the form of descriptive narrative accompanied by interview excerpts, observation results, and learning documentation. Conclusions were drawn inductively based on patterns of findings that emerged during the implementation process, while the expert validation data were analyzed descriptively using Aiken's V index to determine the feasibility level of the developed learning design (Kania et al., 2024). Data validity was maintained through source triangulation and technique triangulation, which are common strategies for increasing the credibility and validity of findings in qualitative research through the comparison of data from various sources and collection methods (Meydan & Akkaş, 2024). Thus, the combination of a systematic EDR procedure and the triangulation strategy is expected to produce a learning design that is not only theoretically valid but also empirically credible. The results of the expert validation using Aiken's V index are presented in detail in Section 3.3.

3. Result

This study was carried out through the stages of Educational Design Research (EDR), comprising analysis and exploration, design and development, and implementation and reflection of IPS learning based on critical pedagogy through the context of the Brem Madiun industry. The results show that the use of local context in learning helped students understand community social and economic activity in a more contextual, reflective, and meaningful way. To maintain the traceability of the qualitative data, every interview excerpt and student statement presented in this section is given a source code as summarized in Table 3.

Table 3. Coding of Qualitative Data Sources

Code	Data Source	Collection Technique	Notes
G-W1 through G-W5	Fourth-grade teacher	Semi-structured interview	Excerpts come from the same single teacher participant, numbered sequentially according to the order of appearance in the results discussion
S-R1 and S-R2	Fourth-grade students	Oral post-lesson reflection	Excerpts come from two different students selected purposively during the reflection session; identities kept confidential in accordance with research ethics

This coding is used consistently throughout the following subsections so that every narrative claim can be traced back to its original data source.

3.1 Analysis of Learning Needs

The initial stage of the research was carried out through observation of fourth-grade IPS learning, interviews with the classroom teacher, and documentation of the learning tools used at the school. Based on the observation results, IPS learning was still dominated using textbooks and teacher explanation. Student activity during learning tended to be limited to listening, note-taking, and answering the teacher's simple questions. Students had not been much involved in discussions connecting the material with the socio-economic life of their surrounding environment, a condition consistent with findings on the need for IPS learning media on economic activity material in elementary schools (Noviawati et al., 2025).

The results of the interview with the classroom teacher showed that IPS learning had so far focused more on delivering material according to the textbook. The teacher stated that students often had difficulty when asked to connect economic activity material with daily life. This statement is reflected in the following excerpt.

“Usually the children understand economic activity only as buying and selling or occupations. When asked about the relationship between economic activity and community life, they are still confused about explaining it because learning comes mostly from the textbook.” (G-W1)

This excerpt (G-W1) is important because it serves as the primary empirical evidence underlying the learning design in the following stage. This statement indicates two things simultaneously: students’ understanding of the economic concept is still narrow (limited to buying-and-selling and occupations), and students have not been able to connect this concept with social reality because the learning resources used are textual rather than contextual. This finding becomes the argumentative basis for why the Brem Madiun industry context was chosen as a bridge connecting economic material with students’ real experience.

The teacher also explained that the use of the surrounding environment as a learning resource is still rarely done because of limited availability of suitable learning tools, although students show greater enthusiasm when learning uses examples close to their lives.

“If we use examples close to the children, they are actually more enthusiastic, but I have never made a lesson that specifically features a local industry like Brem.” (G-W2)

This excerpt (G-W2) confirms a gap between the need for contextual learning that the teacher already recognizes and the availability of learning tools to support it. This gap is directly addressed in the design and development stage, consistent with findings on the lack of systematically available contextual teaching materials based on local culture in IPS learning, which suggests a similar constraint likely occurs at the elementary level as well (Mansur & Amrin, 2023). Based on the findings of this needs analysis, IPS learning requires a more contextual and reflective approach so that students are able to understand the relationship between socio-economic concepts and the realities of community life, in line with the principle of EDR that emphasizes development based on real field needs (McKenney & Reeves, 2018).

3.2 Critical Pedagogy-Based Learning Design

Based on the needs analysis results, the researcher developed an IPS learning design based on critical pedagogy using the context of the Brem Madiun industry. The lesson was designed through a series of activities including contextual observation, group discussion, critical reflection, and simple socio-financial literacy activities. The learning material focused on community economic activity encompassing the processes of production, distribution, and the community’s role in the Brem industry. Students were invited to observe images and videos of the Brem-making process, discuss community involvement, and understand the relationship between economic activity and community social life. This design is in line with the principle of critical pedagogy, which emphasizes the importance of connecting learning with students’ social reality.

Initial implementation showed that students were engaged in discussion and social reflection during the lesson. The teacher associated this engagement with the design of the lesson, as reflected in the following excerpt. The classroom teacher gave a positive response to the developed lesson because it was considered more contextual and closer to students’ lives.

“Lessons like this make the children more active. Usually with IPS they get bored quickly, but when discussing brem they ask more questions and discuss more.”
(G-W3)

This excerpt (G-W3) reflects the teacher's retrospective impression of increased engagement compared to previous IPS lessons. As a single teacher's recollection rather than a controlled pre-post measurement, it should be read as a converging qualitative observation that complements the quantitative engagement, rather than as direct comparative evidence. This convergence between the teacher's impression and the researcher's observation adds a degree of triangulation to the engagement finding, though it does not substitute for a controlled comparison. In addition, during the learning process, students appeared engaged when the material was connected to their familiar surrounding environment, and many students expressed opinions during discussion of the brem production process and the community's role in local economic activity.

3.3 Expert Validation of the Learning Design

Before classroom implementation, the developed learning tools were validated by two experts, one specializing in elementary school social studies education and one specializing in learning pedagogy. Validation was carried out using an assessment sheet consisting of 10 items grouped into five aspects: appropriateness of the material, feasibility of implementation, relevance of the local Brem Madiun context, strengthening of socio-financial literacy, and application of critical pedagogy principles. Each item was rated on a four-point scale ranging from 1 (very inappropriate) to 4 (very appropriate).

The content validity coefficient for each item was calculated using Aiken's V with the formula $V = \sum s / n(c - 1)$, where s is the difference between the score given by each validator and the lowest score on the scale, n is the number of validators, and c is the number of scale categories (Kania et al. 2024). With n = 2 validators and c = 4 scale categories, an item was considered appropriate if its V value was equal to or greater than 0.75, in line with the minimum value in the Aiken's V critical value table at the 0.05 significance level. The complete validation results are presented in Table 4.

Table 4. Results of Expert Validation Using Aiken's V

No.	Aspect	Item	Validator 1	Validator 2	Aiken's V
1	Appropriateness of the material	1	4	4	1.00
2	Appropriateness of the material	2	4	3	0.83
3	Feasibility of implementation	3	4	4	1.00
4	Feasibility of implementation	4	3	4	0.83
5	Relevance of the local context	5	4	4	1.00
6	Relevance of the local context	6	4	3	0.83
7	Strengthening of socio-financial literacy	7	3	4	0.83
8	Strengthening of socio-financial literacy	8	4	4	1.00
9	Application of critical pedagogy principles	9	4	3	0.83
10	Application of critical pedagogy principles	10	4	3	0.83

The results in Table 4 show that the V values for the ten items ranged from 0.83 to 1.00, with an overall mean V of 0.90. At the aspect level, the mean V values were 0.92 for appropriateness of the material, 0.92 for feasibility of implementation, 0.92 for relevance of the local Brem Madiun context, 0.92 for strengthening of socio-financial literacy, and 0.83 for application of critical pedagogy principles. All item-level and aspect-

level V values exceeded the 0.75 cut-off value, so the learning tools were declared valid and appropriate for classroom implementation.

In addition to the quantitative assessment, both validators provided qualitative suggestions that were used to refine the tools before the classroom trial. The suggestions included simplifying the wording of several questions in the critical discussion guide so that fourth-grade students could understand them more easily, adding picture-based instructions to the student activity sheets, and clarifying the sequence of activities in the teaching module. These revisions were completed before the implementation stage, and the revised tools were the ones used in the classroom session described in the following subsection.

3.4 Learning Implementation

The lesson was implemented with 28 fourth-grade elementary school students in a single IPS learning session lasting 2×35 minutes. During the lesson, students showed more active engagement compared to previous learning. In the initial stage, students were enthusiastic when the teacher showed physical examples of the raw materials for making brem along with images and videos of the production process. Most students admitted to having seen or eaten brem before, so they felt the lesson was close to their everyday experience. This positive response is consistent with findings that local-wisdom-based IPS learning can foster enthusiasm and active engagement among elementary school students (Kharismawati, 2023).

In the group discussion activity, students began to be able to identify various economic activities within the brem industry, such as production, sales, and distribution. In addition, students began to understand that economic activity involves many community members with different roles. Observation of students' participation and understanding was carried out by the researcher using an observation sheet during the learning process, with assessment based on four indicators: student engagement in discussion, ability to express opinions, ability to connect the material with everyday experience, and understanding of community economic activity. Students were categorized as "active" if they participated in group discussion, gave a response or asked a question at least once during the lesson, and showed attentiveness to the learning activity. Meanwhile, students were categorized as "capable" if they could re-explain an example of community economic activity and connect it to the context of the brem industry in daily life. The results of the observation during learning implementation are summarized in Table 5.

Table 5. Student Activity during Critical Pedagogy-Based Learning

Aspect Observed	Number of Students	Percentage (%)
Actively expressing opinions	22	78.6%
Engaged in group discussion	25	89.3%
Able to connect material to daily life	23	82.1%
Showing understanding of community economic activity	24	85.7%

The four rows in Table 5 measure different dimensions of engagement and need to be read separately so that their meaning is not reduced to a single average figure. The first row, actively expressing opinions (78.6%), shows the proportion of students who verbally put forward ideas or responses during discussion, reflecting active participation in the session. This percentage is the lowest among the four indicators, indicating that a smaller proportion of socially engaged students went on to actively voice their opinions individually, which suggests room for improvement in this aspect. The second row, engaged in group discussion (89.3%), is the highest percentage and

indicates that almost all students showed social participation in group work, consistent with the teacher's statement in G-W3 regarding the increased frequency of questions and discussion. The third row, able to connect material to daily life (82.1%), measures the cognitive-contextual dimension, namely students' ability to link the IPS concepts learned with their personal experience of the brem industry, which directly addresses the gap identified in the needs-analysis stage (see G-W1). The fourth row, showing understanding of community economic activity (85.7%), measures students' conceptual understanding of the complexity of economic activity— namely that economic activity encompasses production processes and the division of roles within society, in addition to buying-and-selling transactions. Overall, the pattern in Table 5 shows that social engagement (participation in groups) was higher than individual courage in voicing opinions, a pattern that is relevant as a note for improvement in the next development cycle. This finding supports the results of research on the application of the contextual learning model in improving elementary school students' IPS learning outcomes (Hukunala et al., 2021).

In the reflection activity, several students explained their understanding of the role of the brem industry for the community.

"If no one made brem, the community might have a hard time earning money from selling it." (S-R1)

This excerpt (S-R1) illustrates that students were able to reason through a simple cause-and-effect relationship between the existence of the local industry and the community's source of income, which is a concrete indicator corresponding to the fourth row of Table 4 concerning understanding of community economic activity. Other students also showed awareness of the importance of appreciating the work processes of the local community.

"Now I know that making brem isn't easy because there are so many steps involved." (S-R2)

This excerpt (S-R2) shows a shift in students' perspective from merely recognizing brem as a consumer product to becoming aware of the work process and effort behind it. This statement serves as a bridge to the development of the affective dimension of socio-financial literacy discussed in the following subsection.

3.5 Observed Indicators of Students' Socio-Financial Literacy

The implementation results show students' observed socio-financial literacy performance after participating in the critical-pedagogy-based lesson, as assessed through four indicators presented in Table 6. Students demonstrated an understanding of economic activity and the relationship between economic activity and community social life. These observed indicators are consistent with an understanding of financial literacy that emphasizes the importance of considering the social dimensions of economic activity and decision-making (OECD, 2020). Students' socio-financial literacy performance was assessed through four indicators summarized in Table 6.

Table 6. Indicators of Students' Socio-Financial Literacy

Aspect Observed	Number of Students	Percentage (%)
Understanding the brem production process	24	85.7%
Understanding the relationship between economics and social life	22	78.6%
Able to explain the economic benefits for the community	23	82.1%
Showing an attitude of appreciation for local products	25	89.3%

Bisa, dan justru lebih enak dibaca jika dibagi menjadi dua paragraf. Pemisahan yang paling logis adalah setelah penjelasan indikator keempat, lalu paragraf kedua berisi interpretasi pola, kehati-hatian, dukungan literatur, dan transisi ke temuan guru.

As with Table 6, the four rows of Table 5 need to be interpreted separately, since each represents a different stage of socio-financial literacy, ranging from factual understanding to affective attitude. The first row, understanding the brom production process (85.7%), measures students' factual understanding of the production stages, which provides the foundational knowledge needed before students can understand its broader social and economic dimensions. The second row, understanding the relationship between economics and social life (78.6%), is the lowest percentage in this table and measures students' ability to connect production activity with its impact on community life, as reflected, for example, in excerpt S-R1. The relatively lower percentage on this row indicates that relational thinking, or connecting socio-economic cause and effect, is a cognitively more challenging aspect for fourth-grade students compared to purely factual aspects. The third row, able to explain the economic benefits for the community (82.1%), measures students' ability to articulate the collective benefits of economic activity, showing that most students had already moved from merely understanding toward being able to explain. The fourth row, showing an attitude of appreciation for local products (89.3%), is the highest percentage in this table and serves as the indicator of the affective dimension, reflecting attitude rather than merely knowledge. This interpretation is empirically supported by excerpt S-R2 regarding students' awareness of the complexity of the work process behind the brom product.

The pattern in Table 6, in which the affective indicator, appreciation of local products, reached the highest percentage while the relational-understanding indicator reached the lowest, suggests that within this single implementation, the affective dimension was more readily observed than the relational-analytical dimension. This descriptive pattern should be interpreted with caution, as the study did not include baseline or comparative data to establish relative effectiveness. This finding supports research showing that financial literacy learning based on real experience produces deeper understanding and forms a positive attitude toward community economic activity (Sidiq et al., 2023). The classroom teacher reported a change in student engagement.

"Usually the children just memorize types of economic activity, but now they are starting to understand how the community works and earns income." (G-W4)

This excerpt (G-W4) serves as qualitative confirmation from the teacher of the change in students' understanding reflected quantitatively in the second and third rows of Table 6, namely a shift from merely memorizing types of economic activity toward understanding the process and its social relationships.

"Children who are usually passive started daring to speak up during discussion because they felt the topic was close to their lives." (G-W5)

This excerpt (G-W5) reinforces the finding in Table 5 regarding engagement in group discussion (89.3%), while also providing a qualitative explanation for why this engagement could occur, namely because of the closeness of the topic to students' everyday lived experience

4. Discussion

The research results show that IPS learning based on critical pedagogy through the context of the Brem Madiun industry was able to present learning that is more contextual and meaningful for elementary school students. The use of a local context

familiar to students became an effective bridge between the abstract concept of economic activity and the real experience of community life. This finding is consistent with the argument that learning needs to be connected to social reality through dialogue and a problem-posing process so that students are able to build understanding reflectively and critically (Chalaune, 2021).

The active engagement of students during the lesson, shown by the high percentage of participation in group discussion (89.3%), indicates that the critical pedagogy approach provides space for meaningful dialogue and reflection in the learning process. This finding supports research on the role of dialogic approaches in encouraging active participation and the quality of students' critical thinking in the classroom (Hardman, 2019; Teo, 2019). This result also reinforces findings that contextual learning improves learning outcomes and engagement among students in IPS subjects (Hukunala et al., 2021).

It is also important to note that a high participation rate alone does not by itself demonstrate the enactment of critical pedagogy, since active participation can equally occur in general contextual learning. What distinguished this lesson was the dialogical and problem-posing structure of the discussion, in which students were guided with open questions about the social consequences of economic roles (for example, what would happen to the community if brem production stopped) rather than being asked to recall information. This problem-posing quality, reflected in students' reasoning in excerpts S-R1 and S-R2, is closer to the process of conscientization central to Freire's critical pedagogy (Freire 1970; Takona 2025) than participation rate alone would suggest.

The use of the Brem Madiun industry as a learning context added a new dimension to students' understanding of economic activity. Students began to understand that economic activity relates to buying-and-selling transactions while also involving a complex production process, the role of the workforce, and the collective fulfillment of community needs. This condition affirms the importance of presenting concrete experience and real context so that elementary school students are able to understand economic concepts more fully, as shown by a study on teaching economic concepts to lower-grade students (Rodgers et al., 2007). This finding is also in line with the results of implementing local-wisdom-based learning, which shows that local context helps students understand the social meaning of community economic activity more deeply (Kharismawati, 2023). This condition differs from previous IPS learning, which tended to be descriptive and oriented toward rote memorization of concepts.

Beyond the observed conceptual understanding, critical-pedagogy-based learning also revealed an affective dimension of students' socio-financial literacy. The attitude of appreciation for local products and the work of the local community that emerged during reflection is an indicator that the lesson went beyond the cognitive dimension alone. This affective dimension is an important aspect of socio-financial literacy, consistent with the notion of critical and compassionate financial literacy, which extends financial literacy beyond technical money-management skills to include broader social and ethical considerations (Lucey & Henning, 2021). This finding is reinforced by research showing that financial learning based on real experience can shape positive attitudes and behavior among elementary school students toward financial management (Batty et al., 2015; Mancone et al., 2024; Nanda et al., 2023), as well as by studies showing that the integration of local wisdom values contributes to forming an attitude of appreciation for local culture and products among elementary school students (Asrial et al., 2021; Lyesmaya et al., 2020).

From the perspective of Educational Design Research (EDR), the research results show that the gradual process of developing the lesson, from needs analysis through

implementation reflection, produced a design that is responsive to real classroom conditions. This iterative process allows for design adjustments based on field findings, consistent with the EDR principle put forward by McKenney and Reeves (2018). Integrating financial literacy into the elementary IPS curriculum also requires the support of contextual learning tools and adequate teacher training, as identified in a study on the challenges of integrating financial literacy at the primary and secondary education levels. Thus, this study produces preliminary findings on the potential of critical pedagogy in this context and contributes to the development of a local-context-based IPS learning design model with the potential to be replicated in other elementary schools with different local industry contexts

5. Conclusion

This study shows that a critical pedagogy approach integrated with the context of the Brem Madiun industry can support the development of socio-financial literacy among fourth-grade elementary school students. Through the Educational Design Research (EDR) framework, consisting of the stages of analysis and exploration, design and development, and implementation and reflection, this study produced an IPS learning design developed based on real classroom needs and validated through expert assessment using Aiken's V index. This iterative process allowed the learning design to be adjusted at each stage based on teacher input and field conditions, resulting in a learning product responsive to the context of an elementary school in a region with a local brem-based industry.

In terms of student engagement, the application of the local industry context showed potential in supporting active participation in group discussion (89.3%), although students' ability to express opinions individually (78.6%) remained at a lower level than other indicators of social engagement, making this a note for improvement in the next development cycle. As this finding is based on a single implementation without baseline or comparative data, it should be read as preliminary evidence rather than a demonstration of effectiveness. In terms of conceptual understanding, students demonstrated the ability to connect economic material with everyday experience (82.1%) and to understand the complexity of community economic activity (85.7%), indicating that the local industry context helped students make sense of economic activity as a social process involving production, distribution, and the roles of many parties in society. In terms of socio-financial literacy, students showed an understanding of the relationship between economic activity and social life (78.6%), although the observed proportion for this indicator was lower than that for the affective indicator of appreciation for local products (89.3%). Within this initial implementation, this pattern suggests that the affective indicator was more frequently observed than the more complex relational-understanding indicator.

Theoretically, these findings strengthen the argument that integrating critical pedagogy with a local industrial context can be a relevant strategy for developing socio-financial literacy at the basic education level, while also complementing prior financial literacy studies, which have so far focused more on technical money-management skills than on the critical-reflective dimension concerning the relationship between economics and social structure. Practically, this study produces a contextual learning tool that can serve as a reference for elementary school teachers in other regions with similar local industry potential, with adjustments made to the characteristics of the industry and the social conditions of each region.

This study has a limitation in that its implementation scope was confined to a single learning session in one class at one school, so the resulting findings are contextual in

nature and do not yet depict the sustained development of students' socio-financial literacy over time. Future research is recommended to expand the scope of subjects and the duration of implementation in the next EDR cycle, and to develop a more standardized socio-financial literacy instrument so that the development of students' abilities can be measured more comprehensively before and after the lesson. In addition, observation scoring in this study relied primarily on the researcher's assessment without formal inter-rater reliability testing, which is a methodological limitation to be addressed in future cycles.

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