

## Innovation of the Adaptive Social Inquiry Learning Model in Strengthening Students' Creative Thinking Skills

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### ABSTRACT

This study aims to develop the Adaptive Social Inquiry (ASI) learning model as an innovation in strengthening students' creative thinking skills in social studies. The type of research used is Research and Development with the Plomp development model which includes preliminary research, development, and assessment stages. The exploration stage is carried out through teacher and student needs analysis, literature review, and initial measurement of creative thinking skills. The results of the analysis indicate that students' creative thinking skills are still relatively low in the aspects of fluency, flexibility, originality, and elaboration. Next, the development stage is carried out by designing a prototype of the ASI model that integrates inquiry learning syntax with social adaptation, and compiling an assessment instrument validated by experts. The results of expert validation of the instrument, module, graphic design, and language show a very good category, with an instrument reliability of 0.836 ( $\geq 0.70$ ). The ASI model has a systematic and logical learning syntax and is able to facilitate collaboration, communication, and strengthen creative thinking skills. The findings of this study confirm that the ASI model is suitable for use in social science learning and has the potential to be a solution to students' low creative thinking skills. Theoretically, this research contributes to the development of a student-centered learning model, while practically, ASI can support national education policies in realizing superior and globally competitive human resources.

**Keywords:** Creative Thinking Skills, Educational Innovation, Inquiry Social Adaptive, Social Studies Education, Student-Centered Learning

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### INTRODUCTION

The transformation of education in the 21st century requires students to possess higher-order thinking skills, one of which is creative thinking (Trilling & Fadel, 2009). This skill is one of the main pillars of the 21st Century Skills framework because it is directly related to an individual's ability to cope with rapid global change (Nordin et al., 2022). Creative thinking skills are crucial for students' adaptation to increasingly complex scientific, technological, social, and cultural developments (Vella et al., 2024). Therefore, improving creative thinking skills is crucial for achieving 21st-century skills, particularly in learning.

However, various international studies still show low levels of creative thinking skills among Indonesian students. Results from the Program for International Student Assessment (PASI) indicate that Indonesian students' creative thinking and problem-solving skills lag behind those of other countries in the Southeast Asian region (OECD, 2022). This data demonstrates a significant gap between 21st-century demands and the learning outcomes

achieved by the Indonesian education system.

In the context of sociology education, students' lack of creativity has broader implications. Students tend to understand social phenomena textually but are unable to connect them critically and adaptively to the realities of everyday life ([Rosyid, 2024](#)). Yet, sociology education should equip students with reflective, critical, and creative thinking skills to address increasingly complex social problems ([Lamsal, 2024](#)).

On the other hand, the government has affirmed its commitment to improving the quality of education through Asta Cita, which is the direction of national development policy for 2025–2029. One of its main priorities is “realizing quality, inclusive, and competitive education” ([KPPN/Bappenas, 2025](#)). Explicitly enhancing student creativity is a crucial part of supporting Asta Cita 3 (quality education for all) and Asta Cita 5 (development of superior and productive human resources) ([KPPN/Bappenas, 2025](#)). This aligns with the mandate of Law Number 20 of 2003 concerning the National Education System, which emphasizes developing students' potential to become creative, independent, and responsible individuals ([UU No. 20 Tahun 2003, 2003](#)). Therefore, adaptations in the implementation of inquiry-based learning are necessary to accommodate the needs and social realities of students in the classroom.

This adaptation includes selecting issues or problems close to students' lives, teacher facilitation strategies, and group collaboration mechanisms that encourage active involvement of each individual ([Hendra, 2025](#)). Recent research confirms that learning that integrates inquiry with social context can enhance the meaning of learning, because students learn not only from the text but also from the social realities they face every day ([Torrance, 2018](#)). This model emphasizes that creativity is not only the result of individual exploration, but also dynamic social interactions in the classroom ([Lucifora et al., 2025](#)). Therefore, this study proposes the Adaptive Social Inquiry model, namely the integration of inquiry processes with social adaptation.

The Adaptive Social Inquiry Model provides space for students to explore social phenomena in their environment, analyze real-world problems, and develop relevant, creative solutions ([Arinata et al., 2025](#)). Through collaborative group activities, students practice expressing ideas, listening to others' perspectives, and developing collective problem-solving strategies ([Sunu, 2021](#)). The teacher acts as a facilitator, helping guide the inquiry process, adapting learning strategies to classroom dynamics, and ensuring all students actively participate ([Soro et al., 2024](#)).

Based on these realities, innovative learning models are needed that meet the demands of the 21st century, support national policies, and align with the values of Progressive Islam that underpin the Muhammadiyah movement ([Ritonga et al., 2024](#)). One alternative offered is the development of the Adaptive Social Inquiry learning model. This model integrates an inquiry approach with social adaptation, enabling students to build knowledge through a scientific exploration process while simultaneously considering the social context they face. Students are not only required to think creatively individually but are also trained to work together, adapt, and solve social problems collaboratively ([Wati & Sugesti, 2025](#)). Thus, the Adaptive Social Inquiry approach is expected to strengthen three key 21st-century competencies: collaboration, communication, and creativity. Furthermore, this model aligns with national education policies that emphasize the importance of student-centered learning to develop superior and globally competitive human resources.

## METHODS OF RESEARCH

The type of research used in the article entitled Innovation of Adaptive Social Inquiry Learning Model (ASI) in Strengthening Students' Creative Thinking Skills is research and development (R&D). This research uses the Plomp development model which consists of several main stages, namely: (1) preliminary research to identify needs, problems, and learning contexts; (2) the development stage which focuses on the design and construction of the ASI model; and (3) the assessment stage to test the validity of the developed model. (Plomp & Nieveen, 2013). With this approach, research not only produces products in the form of innovative learning models, but also provides theoretical and practical contributions in strengthening students' creative thinking abilities through adaptive, contextual, and social inquiry-based learning.

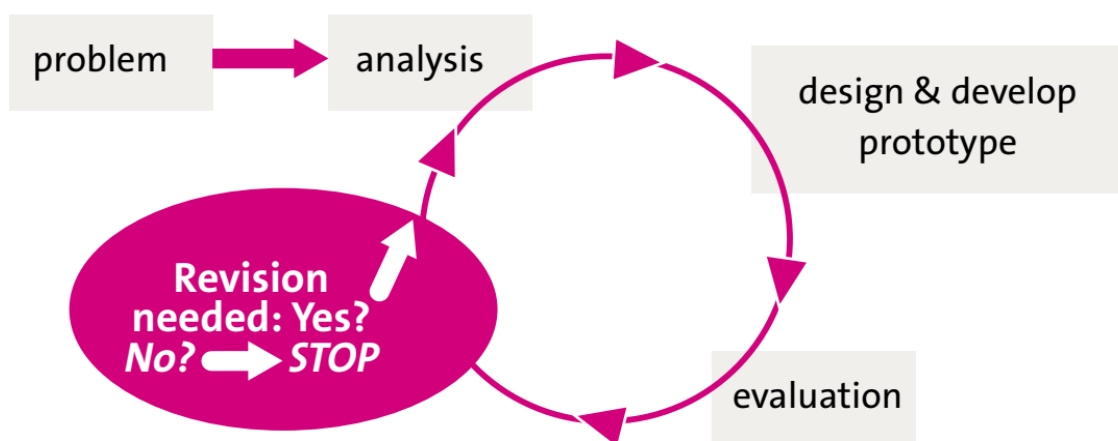


**Figure 1** Research Method Diagram

The first stage is the exploration and development phase. The objectives of the exploration phase are: 1) to conduct a relevant literature review; 2) to assess the current state of learning; 3) to assess the quality of existing learning models; 4) to analyze students' needs for learning models; and 5) to determine a product that best suits their needs. The research strategy used in this study is descriptive-explanatory, which involves collecting broad, comprehensive, and in-depth information regarding the existence and quality of existing learning models, the current learning process, learning styles, and students' needs for the learning media to be developed.

The range of values before the validity test in this study was used to provide an initial overview of the quality of the instrument being developed. The range of values before the validity test in this study was used to provide an initial overview of the quality of the instrument being developed, as shown in Table 1.

**Table 1** Assessment Instrument Category Interval Range

| Interval      | Category  |
|---------------|-----------|
| $X > 96$      | Very Good |
| $80 < X < 96$ | Good      |
| $64 < X < 80$ | Poor      |
| $X < 64$      | Very Poor |

## RESULTS AND DISCUSSION

### *Exploration Stage*

#### *Initial Research*

This stage identifies problems in the learning process and serves as the basis for designing a product in the form of a model to be created. At this stage, a needs analysis was conducted with teachers and students at SD Unismuh Makassar. The collection of empirical data related to the models, media, and assessments used by teachers was followed by interviews to analyze the needs of teachers and students. Interviews with teachers and students indicated that learning at SD Unismuh Makassar did not use models appropriate to social studies lessons, resulting in low student achievement. Learning materials aligned with the curriculum were also lacking, and the materials used did not provide comprehensive content. Based on the analysis of teacher and student interviews, it was concluded that a learning model was needed that was appropriate to the characteristics of social studies material and could facilitate students' creative thinking.

#### *Needs Analysis*

At this stage, the researcher conducted a follow-up to the initial research to determine the needs of practitioners. This stage revealed that students and teachers needed a product in the form of a learning model that could facilitate and exchange ideas in discovering concepts in social studies material, thereby improving learning achievement by empowering the creative thinking skills of 16 students. At this stage, an inquiry-level instrument was used on 56 students at SD Unismuh Makassar to determine the extent to which the inquiry learning model had been implemented and was commonly used by students. The results showed a high level for discovery learning (79.11%), moderate for interactive demonstrations (65.18%), inquiry learning (39.11%), and laboratory inquiry (30%), while students had a low level for real-world applications (28.04%) and hypothetical investigations (25.18%). These criteria were based on statistical calculations referring to [Perdana et al. \(2019\)](#).

The observation sheet consisted of a thinking concept questionnaire to determine what teachers considered important for students to possess. The results indicated that creative thinking skills are essential for students and are crucial in the 21st century. This was evident from the opinions of 12 teachers, who found that 80% of them believed creative thinking skills were essential for students. Therefore, a measurement instrument related to students' creative thinking skills was used.

The next instrument used was seven descriptive questions to determine the extent of students' creative thinking abilities. This measurement was conducted on 56 students. The measurements were conducted in Sociology. The results for each aspect indicated that critical

thinking skills were still relatively low. In terms of creative thinking skills, students' fluency was 45.83% very poor, flexibility 42.50% very poor, origination 44.86% very poor, and elaboration 47.50% very poor.

#### *Literature Study*

At this stage, theoretical and practical studies are conducted on the product to be developed. At this stage, the product developed is a learning model that can empower students' creative thinking skills, so that learning outcomes align with learning objectives. At this stage, it was discovered that the combination of the inquiry learning model and social adaptive elements can be developed into a learning model that is expected to empower students' creative thinking skills.

#### **Product Development Stages**

This stage is divided into three phases: 1) planning; 2) initial development (prototype creation); 3) product testing and revision. For further details, see the explanation below.

#### *Product Development Planning*

In this phase, the researcher formulated the following product development objectives: 1) The learning model developed is the Inquiry Social Adaptive learning model to empower Creative Thinking Skills. 2) This model was developed based on the Inquiry Lesson and Social Adaptive model paradigms. 3) This learning model was developed with the hope of empowering students' creative thinking skills. 4) This model was developed with reference to the Merdeka curriculum.

#### *Initial Product Development*

In the prototype development stage, the first steps are as follows: a) Identifying learning objectives. At this stage, it was discovered that the actual conditions did not align with the expected conditions. In terms of social attitudes, student performance in the field did not meet expectations because many students were still unable to collaborate and interact actively with their peers, hindering them from discovering shared learning concepts for use in everyday life. In terms of knowledge, student learning outcomes in understanding and applying concepts were found to be below expectations. This was evident in the initial test of students' creative thinking skills, which were not yet satisfactory. Therefore, further steps were needed to facilitate student understanding and application of learning outcomes. In terms of skills, students were less able to apply the concepts they had learned effectively and creatively. This was also evident in the initial test of students' creative thinking skills in reasoning and presenting scientific principles learned in chemistry, specifically in concrete contexts. b) In the next stage, an analysis of learning activities was conducted in accordance with the facts and expectations. The facts on the ground indicated that students' creative thinking skills were still weak, requiring further empowerment to develop as expected. This aligns with teachers' opinions that creative thinking is an important skill for students in the 21st century. c) The next stage involved analyzing student behavior and characteristics. This stage revealed that students' learning motivation was high, but learning outcomes were suboptimal because the teacher's learning model was not relevant to the material. Therefore, an innovative learning model is needed that is appropriate and relevant to the students' abilities and the

characteristics of the material being taught. d) This step formulates learning objectives, which are outlined in core competencies and indicators that have been formulated in accordance with the learning objectives. e) The next stage is developing a learning outcome assessment tool based on the learning objectives. The desired learning objective is to empower students' creative thinking skills, thus developing a construct. Before measuring this construct, the instrument is validated by experts. The validation results can be seen in Table 2.

**Table 2** Expert Validation Results for the Assessment Instrument

| No | Aspect                                                  | Number of Items Indicator | Total Assessment Score |
|----|---------------------------------------------------------|---------------------------|------------------------|
| 1  | Teaching Materials                                      | 4                         | 15                     |
| 2  | Learning Process                                        | 5                         | 17                     |
| 3  | Syntax of the Adaptive Social Inquiry Model in Learning | 5                         | 18                     |
| 4  | Assessment                                              | 4                         | 14                     |
| 5  | Activities that Support Learning                        | 3                         | 11                     |
| 6  | Materials that Improve Student Competence               | 5                         | 19                     |
| 7  | Creative Thinking Aspects                               | 6                         | 21                     |
|    | Total                                                   | 32                        | 115                    |

After validating the assessment instrument to be used in learning, a construct validation test was conducted to measure the suitability of the indicators to the items formulated according to the material and theory. Prior to conducting the construct analysis, an analysis of the instrument's difficulty level, discriminatory power, and reliability was conducted to determine the applicable rules for developing an appropriate instrument for use in learning using the Adaptive Social Inquiry model. The results of the discriminatory power analysis can be seen in Table 3.

**Table 3** Results of the Analysis of the Differential Power of Questions

| Item | Biserial Coefficient | Category |
|------|----------------------|----------|
| 1    | 0.407                | Good     |
| 2    | 0.434                | Good     |
| 3    | 0.390                | Good     |
| 4    | 0.910                | Good     |
| 5    | 0.449                | Good     |
| 6    | 0.445                | Good     |
| 7    | 0.391                | Good     |
| 8    | 0.397                | Good     |
| 9    | 0.347                | Good     |
| 10   | 0.443                | Good     |
| 11   | 0.315                | Good     |

In the question, it is known that the item's discrimination power is in the good category, so the item is said to have good discrimination power. Furthermore, the results of the difficulty level analysis for the instrument in the material can be seen in Table 4.

**Table 4** Results of the Analysis of Differential Power of Questions

| Item | Biserial Coefficient | Category |
|------|----------------------|----------|
| 1    | 0.506                | Good     |
| 2    | 0.475                | Good     |
| 3    | 0.472                | Good     |
| 4    | 0.454                | Good     |
| 5    | 0.490                | Good     |
| 6    | 0.500                | Good     |
| 7    | 0.506                | Good     |
| 8    | 0.486                | Good     |
| 9    | 0.442                | Good     |
| 10   | 0.499                | Good     |
| 11   | 0.481                | Good     |

Table 4 shows that the scores for all items range from 0.3 to 0.7. This means that all items that fall into the good criteria for difficulty level are at  $0.3 \leq P \leq 0.7$ . The results of the reliability analysis can be seen in Table 5.

**Table 5** Results of Reliability Analysis on Test Items

| Cronbach's Alpha | N of Items | Category |
|------------------|------------|----------|
| .836             | 11         | Reliable |

After the reliability coefficient was determined, the obtained value was interpreted. The table shows a reliability value of 0.836. This indicates that the assessment instrument for the material has a reliability value of  $\geq 0.70$ .

The next step is to develop a learning strategy that aligns with the objectives of empowering students' creative thinking skills using relevant learning models based on theoretical studies and data. Student learning activities for each syntax are shown in Table 6.

**Table 6** Student Learning Activities for Each Syntax

| Sequence | Syntax                | Learning Activities                                                                                                                                                                                                                                               |
|----------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | Observation Team      | Students work together in teams to observe phenomena that have been provided by the teacher in the form of videos/demonstrations of events to raise problems that will be researched and studied in learning.                                                     |
| 2        | Reconstruction        | Students in their teams generated ideas and collected both qualitative and quantitative data. Data collection was conducted through practical work on preparing tools and materials created by the students in groups.                                            |
| 3        | Socialization         | Students in small groups share ideas between groups regarding the data collected, each student has an important role to participate effectively in the group.                                                                                                     |
| 4        | Verification          | Participants are trained in teams to test and analyze the truth of the facts they find by connecting them with the theoretical basis they already know from the previous stage.                                                                                   |
| 5        | Applied Communication | Students in groups express their opinions using oral or written media through presentations from the results of their group discussions in turns to then agree on the truth with the teacher's correct direction in learning and can be applied in everyday life. |

The syntax of the model assessed has clear, systematic, and logical stages, and can be

used to measure creative thinking (CT). Students are assessed as being able to communicate well and solve a phenomenon by actively working together and can build personal and social relationships when applying the model. After improvements to the ASI Model design, the results of expert validation are shown in Table 7.

**Table 7** Student Learning Activities for Each Syntax

| Component Model     | Score |   |   |   |
|---------------------|-------|---|---|---|
|                     | 1     | 2 | 3 | 4 |
| Syntax              |       |   |   | √ |
| Social systems      |       |   |   | √ |
| Reaction principles |       |   | √ |   |
| Support systems     |       |   | √ |   |
| Learning impacts    |       |   |   | √ |

The expert validation results obtained a score of 18, indicating that the ASI Model is very good. In developing the ASI Model, social studies teaching materials were selected and then a learning module was developed. The learning module was validated by subject matter experts before being used in the classroom. The validation results can be seen in Table 8.

**Table 8** Results of Validation by Material Experts

| No | Aspect                                        | Number of Item Indicators | Total Assessment Score |
|----|-----------------------------------------------|---------------------------|------------------------|
| 1  | Completeness of material                      | 2                         | 8                      |
| 2  | Accuracy of material                          | 1                         | 3                      |
| 3  | Timeliness of material                        | 1                         | 3                      |
| 4  | Material develops thinking skills             | 2                         | 6                      |
| 5  | Material follows scientific systematics       | 2                         | 7                      |
| 6  | Basic concepts of material                    | 5                         | 20                     |
| 7  | Sub-topic concepts of language                | 5                         | 20                     |
| 8  | Concept of images                             | 5                         | 17                     |
| 9  | Material delivery techniques                  | 5                         | 15                     |
| 10 | Material can empower creative thinking skills | 5                         | 15                     |
| 11 | Relevance to everyday life                    | 5                         | 20                     |
|    | Total                                         | 38                        | 134                    |

The expert validation results for the material obtained a score of 134, indicating excellent results. After being assessed as excellent for use in learning, the next step was validation by graphic design experts to determine the attractiveness and suitability of the images to the material. The validation results from the graphic design experts can be seen in Table 9.

**Table 9** Graphic Design Expert Validation Results

| No | Aspect                       | Number of Item Indicators | Total Assessment Score |
|----|------------------------------|---------------------------|------------------------|
| 1  | Physical size of module      | 2                         | 8                      |
| 2  | Layout of module cover       | 4                         | 15                     |
| 3  | Typography of module cover   | 4                         | 16                     |
| 4  | Illustration of module cover | 2                         | 8                      |
| 5  | Layout of module content     | 9                         | 35                     |
| 6  | Typography of module content | 8                         | 32                     |
| 7  | Typography of module content | 4                         | 14                     |
|    | Total                        | 33                        | 128                    |

The expert validation results for the graphic design module obtained a score of 128, which means it is very good and therefore suitable for use in learning. After being assessed as very good for use in learning, the next step was to validate the entire product, including the learning model book and the instruments to be used, with language experts to assess the suitability of good and correct language use. The results of the language expert validation can be seen in Table 10.

**Table 10** Results of Validation by Language Experts

| No | Aspect                                                                         | Number of Item Indicators | Total Assessment Score |
|----|--------------------------------------------------------------------------------|---------------------------|------------------------|
| 1  | Good and correct Indonesian                                                    | 2                         | 7                      |
| 2  | Presentation of the syntax of the Inquiry Social Adaptive (ISA) learning model | 1                         | 4                      |
| 3  | Language Clarity                                                               | 1                         | 3                      |
| 4  | Language Appropriateness                                                       | 2                         | 7                      |
|    | Total                                                                          | 6                         | 21                     |

The expert validation results for the language in the ASI model book and instruments obtained a score of 21, which means very good, making it suitable for use in learning. The results of this study can confirm that the research and development process of the Inquiry Social Adaptive (ASI) model has gone through a series of validity and reliability tests, as well as expert assessments from various aspects, ranging from materials, graphic design, to language. The results obtained indicate that the instruments, modules, and syntax of the ASI model are in the very good category and suitable for use in learning. Thus, the ASI model not only meets theoretical and practical standards, but also has great potential in empowering students' creative thinking skills, especially in social science subjects. This strengthens the argument that the innovation of an inquiry-based learning model that is adaptive to the social context can be a solution to the low creative thinking skills found in the exploration stage, while also making a real contribution to the development of 21st-century education.

## CONCLUSIONS

Based on the results of research and development, it can be concluded that the Adaptive Social Inquiry (ASI) model has proven to be feasible and effective for use in social studies learning to strengthen students' creative thinking skills. The development process, through the stages of exploration, needs, literature review analysis, and expert validation, shows that the instruments, modules, and syntax of the ASI model are in the very good category. This model

is able to integrate the inquiry approach with social adaptation so that students not only learn individually, but also collaborate, communicate, and adapt to real social contexts. The results of validity and reliability tests, as well as expert assessments, confirm that ASI can be a learning innovation that is relevant to the demands of the 21st century, supports national education policies, and addresses the challenge of low students' creative thinking skills. Thus, the ASI model provides theoretical and practical contributions to educational development, as well as being an alternative strategy to improve the quality of social studies learning in elementary schools.

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