



High School Students' Creativity in Economics Lessons as A Problems

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Abstract

Over the past decade, innovative learning models such as Project-Based Learning, Problem-Based Learning, and Discovery Learning have been widely implemented to foster student creativity. However, economics education research rarely breaks down creativity into specific indicators, leaving it unclear which dimensions are actually developed through these innovative models. This gap is critical since creativity is essential for understanding real-world economic phenomena, not just theoretical concepts. This study aims to describe senior high school students' creativity levels across four indicators: fluency, flexibility, originality, and elaboration, within economics lessons to provide an empirical basis for instructional improvement. A descriptive quantitative design was employed. From a population of 432 tenth-grade students, 208 students were selected through proportional random sampling. Data were collected using performance-based essay test consisting of four items on the topic of economic agents. The instrument was validated by five experts and demonstrated satisfactory reliability (Cronbach's alpha = 0.790). These findings indicate that simply implementing the instructional syntax of an innovative learning models is insufficient without a supportive learning environment and well-structured guidance. Ultimately, this insight provides a foundation for the development of economics learning models that place greater emphasis on fostering students' creativity.

Keywords: *Students Creativity; Economics Lessons; Originality; Elaboration*

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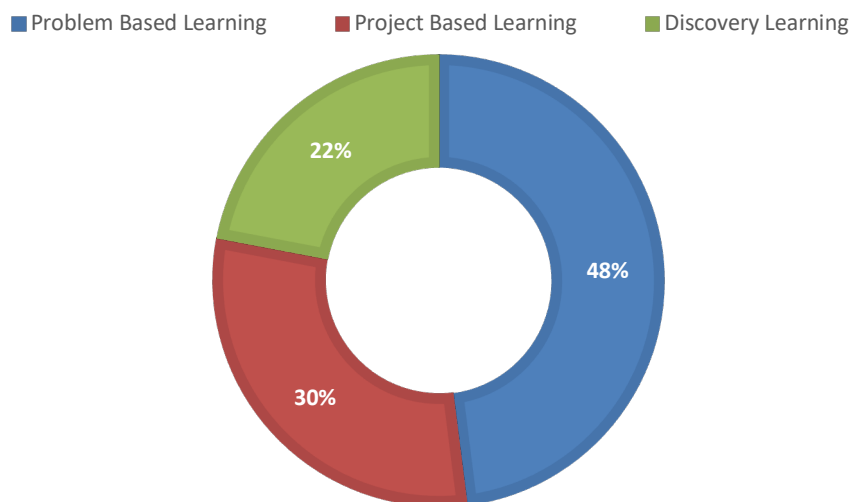
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INTRODUCTION

The challenge of the 21st century is preparing students to adapt to the demands of a rapidly changing work environment (Nursyabani et al., 2025). The impact of the 21st century also includes transformations in the form of advances in science and technology, for example innovations in learning approaches, characterized by modifications to curricula, media, and learning models (Puspa et al., 2023). Transformation in the classroom is guided by teachers as learning designers. Teachers play a role in supporting the educational process by selecting, utilizing, and evaluating technology to facilitate teaching and learning activities (Askahar & Akbar, 2025). Teachers' efforts to facilitate the teaching and learning process are realized through the application of innovative models (Sagita et al., 2025). Various innovative learning models have been used as references by teachers in designing deep learning for their students (Goyal et al., 2022). The Problem Based Learning (PBL) model has successfully improved students' critical thinking skills (Lestari et al., 2026), Project-Based Learning (PjBL) has enhanced student creativity (Hidayatulloh et al., 2023), and Discovery Learning (DL) has been shown to improve students' collaboration skills (Hajar et al., 2025).

Zhang & Ma (2023) stated that PjBL has a significant positive influence on students' creative thinking skills, although the magnitude of this influence varies significantly depending on the duration of implementation, group size, and consistency of the learning model in the classroom. The success of PjBL in enhancing creativity does not occur automatically but depends on how the model is implemented (Sen et al., 2021). The results of this study also align with actual conditions at a high school in Karanganyar Regency. A survey was conducted in January 2026 to map the learning models implemented by teachers, as described below.



Source: Pre-research results at a senior high school in Karanganyar Regency.

Figure 1. Distribution in Innovative Learning Models Implemented by Teachers

It is known that Project-Based Learning (PjBL), Problem-Based Learning (PBL), and Discovery Learning (DL) are the most widely used innovative learning models by teachers. This reflects a paradigm shift among teachers, from conventional learning models to innovative learning models. These models focus on collaborative processes and the development of student knowledge (Purwanto et al., 2026). The skills required in the 21st century are not only teamwork but also emphasize student creativity. The rapid development of digital technology has presented a unique challenge for teachers in implementing innovative learning models that integrate technology as a bridge to optimize student creativity (Belbase et al., 2021). Direct student involvement in learning and the integration of digital technology are expected to enhance student creativity (Cahyaningrum et al., 2025). These differences may stem from the differences in how these models are implemented in the classroom. Previous studies reporting positive effects of PjBL, PBL, and DL were often conducted

under well-controlled or monitored conditions, where teachers received specific training or guidance in facilitating the models. However, in everyday classroom practice, teachers may adopt the procedural steps of these models without the pedagogical flexibility they require to stimulate creative thinking.

These results raise an important contradiction. Both national and international literature consistently state that PjBL, PBL, and DL are capable of enhancing students' creativity, collaboration, or critical thinking, respectively (Hidayatulloh et al., 2023; Lestari et al., 2026; Hajar et al., 2025; Zhang & Ma, 2023). However, the results of preliminary observations show that creativity remains a problem that continues to emerge in daily learning practices, even though the three models have been widely implemented. Furthermore, most previous research measures creativity globally, rather than by dimensions such as fluency, flexibility, originality, and elaboration. This can lead to models appearing to successfully enhance overall creativity, even though certain dimensions are missing (Rehman et al., 2023). Unfortunately, this detail goes unnoticed when creativity is viewed as just one general assessment. This question arises that the application of innovative learning models does not automatically increase creativity, especially when teachers implement the models according to syntax, rather than as a flexible framework to foster the emergence of ideas (Park & Kwon, 2023). This gap between the effectiveness of models reported in the literature and reality is the core issue this study aims to describe.

Creativity is an essential element for creating and generating creative ideas (Habib et al., 2024). In the context of learning, creativity refers to students' ability to generate ideas to solve problems, take risks, and demonstrate a willingness to experiment (Riska et al., 2023). Creativity indicators consist of fluency, flexibility, originality, and elaboration (Torrance, 1974). Fluency is the ability to generate ideas in response to questions or problems and to offer recommendations for action. Flexibility is a student's ability to generate ideas, answers, or questions by exploring various approaches or examples relevant to real-life situations. Originality is the ability to generate new and unique ideas. Elaboration is a student's ability to develop ideas comprehensively and in detail. Understanding creativity as a whole in four indicators is very important because a learning model can strengthen only one indicator without strengthening the others.

The concept of creativity aligns with Constructivism learning theory, which emphasizes active learning through exploration, discussion, and problem-solving (Piaget, 1964). Social constructivism theory (Vygotsky, 1978) states that students' cognitive development, including creative thinking skills, is highly dependent on the teacher's role as a facilitator who adjusts the form and level of support according to the student's Zone of Proximal Development (ZPD) through the scaffolding process. In this mentoring process, teachers can foster fluency by allowing students to propose multiple answers without immediate correction, thereby reducing the fear of making mistakes (Bozkurt et al., 2020). Flexibility can be fostered when teachers intentionally encourage students to view economic problems from more than one perspective before settling on an answer (Miralimovna, 2023). Originality develops when students are given space to construct their own unique solutions rather than copying the teacher's example (Tran et al., 2021). Elaboration is supported when teachers consistently ask students to justify and expand their answers with detail (Karan & Brown, 2022). In this way, the quality of mentoring, not just its presence, determines which dimensions of creativity are actually developed. This principle emphasizes that teachers should be adaptive to adjust the level of student needs and provide space for students to explore ideas independently. Each indicator of creativity is important for students because it supports their reasoning regarding the relevance of learning and the integration of knowledge in real life.

Student-centered learning encourages the generation of new ideas through meaningful experiences (Lathifah et al., 2024). Constructivism theory is closely related to the development of student creativity, as students are encouraged to actively think, explore ideas, and generate original solutions (Wang et al., 2022). These four indicators of creativity are absolutely essential for students, as they play a significant role in supporting their reasoning regarding the relevance of learning and the integration of knowledge into real life. In line with this, previous research on the implementation of innovative learning models has proven successful in impacting student creativity. The PjBL model successfully encourages student creativity, as indicated by increased engagement, self-confidence, and the ability to produce work (Anggipitasari & Widoningtyas, 2025). Students' creative and collaborative abilities have also been successfully enhanced through the PjBL model (Darmono & Maryam, 2025). Not only PjBL, but the Discovery Learning model has also been shown to enhance student creativity, as indicated by active engagement in the learning process (Utomo et al., 2024). These research findings increase the optimism of teachers who have implemented innovative learning

models, but also emphasize that the effectiveness of the model appears to be conditional on the quality of implementation in the classroom, not simply on the choice of model.

Economics, as a subject, has unique characteristics because it encompasses theoretical concepts related to economics and requires reasoning about real-world phenomena, particularly those related to economic growth and development in Indonesia. Referring to the economics curriculum structure, the learning material consists of basic economic concepts, micro and macroeconomics, international economics, and basic financial accounting (Badan Standar, Kurikulum, dan Asesmen Pendidikan [BSKAP], 2025). The concept of creativity is absolutely essential in economics learning in schools, as it supports students' understanding of economics.

However, a gap identified in learning practices at schools is that teachers are too rigid in adhering to the syntax of innovative learning models, thus failing to link and integrate the concept of creativity into their learning. Subsequent observations conducted in February 2026 using structured observation sheets on economics lessons in 12 classes, focusing on teachers' time allocation in implementing the learning syntax and the observed level of student engagement. Observations revealed that teachers' focus was entirely on implementing the syntax, leading students to feel disengaged due to the teacher's repetitive learning template. This pattern is consistent with findings in various other educational contexts. Teachers who are too rigid in applying standard syntax have been shown to limit students' ability to think openly. This situation deserves serious attention, given that students have become accustomed to learning patterns, making learning a routine activity.

Based on previous research and observations, a practical gap was identified between the theoretical findings of previous studies and the phenomena encountered in schools. Therefore, this study aimed to report on the state of student creativity across each indicator: fluency, flexibility, originality, and elaboration, so it can be a basis for teachers to design learning that is more focused on creativity, rather than simply relying on the assumption that implementing the syntax of innovative learning models alone is sufficient to enhance student creativity.

This research is expected to contribute to three aspects. Theoretically, this study enriches the understanding of creativity as a multidimensional construct in the context of economic learning while providing empirical evidence that the application of innovative learning models does not automatically increase overall creativity indicators. Practically, the findings regarding students' creativity achievements in each indicator can serve as a basis for economics teachers to design specific learning strategies to address weak indicators, rather than simply following the model's procedural syntax. In terms of policy, the results of this study can be used as consideration for curriculum developers and educational policy makers in formulating guidelines for implementing innovative learning models that emphasize pedagogical flexibility, rather than simply adherence to standard stages.

METHOD

This research is a quantitative descriptive study. This design was chosen to describe the condition of student creativity across four indicators in a measurable manner that can be generalized to a wider population. The quantitative approach was chosen because the numerical data from performance test results allows for objective comparison of each indicator's achievement across students and conversion into creativity level categories, which serve as an empirical basis for teachers in designing learning improvements. This design does not aim to test relationships between variables or seek cause and effect, but rather simply to describe the distribution of student creativity levels in the context of economics learning in high school. Therefore, a quantitative descriptive design is considered most appropriate for the practical objectives of this study. The study population consisted of 432 10th grade students at a high school in Karanganyar Regency in the 2025/2026 academic year, distributed across 12 classes (X E-1 to X E-12). The sample size is determined based on the Slovin formula with a 95% confidence level (margin of error 5%), resulting in a total sample of 208 students.

The sampling technique used was proportionate random sampling. The determination of the number of samples for each class was carried out proportionally based on the number of students in each class to the total population, so that a sample of 17 students was obtained from classes X E-1 to X E-8, and 18 students from each class X E-9 to X E-12. The selection of students in each class was carried out randomly using the *RAND ()* function in Microsoft Excel. Students were given a serial number based on their attendance number and then sorted based on the random number generated, so that each student had an equal chance of being selected as a sample. Students' creativity was assessed using a performance-based essay test comprising four items, each designed to measure one

of the creativity indicators presented in Table 1. A scoring rubric was embedded within the instrument to ensure consistent and objective evaluation, with a maximum score of 25 assigned to each item.

Table 1. Distribution of Test Items

Creativity	Number of Questions
Fluency	1
Flexibility	1
Originality	1
Elaboration	1

The instrument's content validity was established through expert judgment involving five experts in economics education. Based on their evaluations, the instrument was considered appropriate for use following minor revisions, including refinement of the item wording to conform to standard language conventions and adjustment of the test duration to accommodate the expected response complexity. Instrument reliability was examined through a pilot study involving 30 students who were not included in the main sample. The analysis produced a Cronbach's alpha coefficient of 0.790, indicating satisfactory internal consistency. Following the validation process, the instrument was administered to 208 respondents. Students' creativity scores were calculated using the scoring rubric. Creativity levels were subsequently classified according to the criteria proposed by Munandar (2012), as presented in Table 2.

Table 2. Categories of Student Creativity

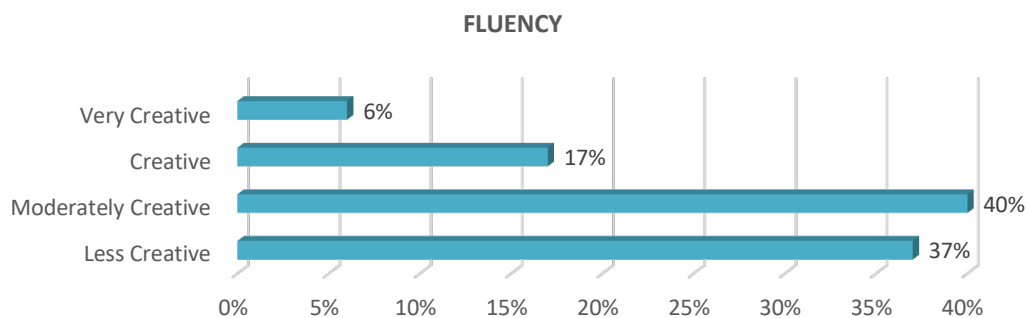
Score	Category
86,00 – 100,0	Very Creative
70,00 – 85,00	Creative
41,00 – 69,00	Moderately Creative
0 – 40,00	Less Creative

RESULTS AND DISCUSSION

Based on the results of the performance test on economic agents, students' creativity across four indicators is reported as follows:

Fluency

Fluency evaluates students' ability to generate ideas or concepts to answer a given question or economic problem. Of the 208 students who completed the performance test, it was found that only 6% were classified as very creative category, 17% as creative, 40% were moderately creative, and 37% were less creative, which can be visualized in detail in Figure 2 below. The findings of this study are derived from articles indexed in the Scopus database concerning education policy, human capital investment, and their impact on societal welfare. These studies were analyzed using a systematic literature review approach, employing a scoping review framework based on PRISMA, in conjunction with bibliometric analysis.



Source: Processed Primary Data, 2026.

Figure 2. Students' Creativity on the Fluency Indicator

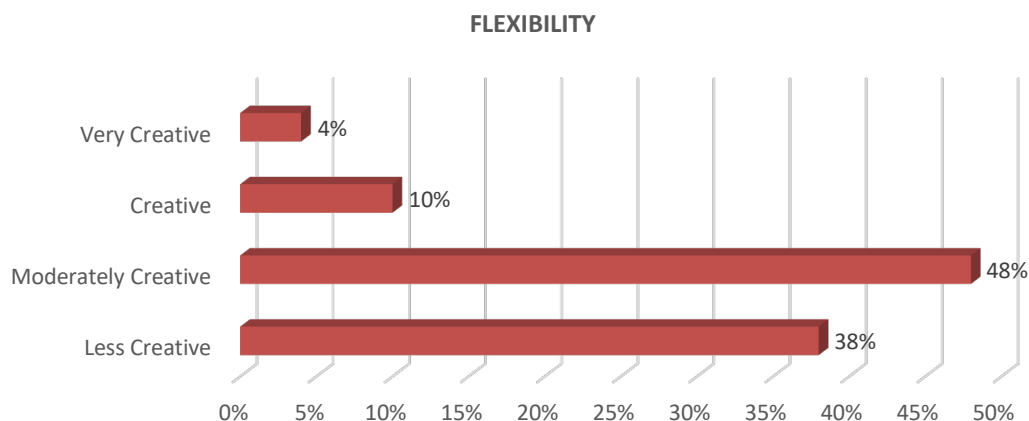
These percentages demonstrate that the majority of students (77%) fall into the moderately creative to less creative categories, indicating that students' ability to think fluently and generate raw ideas is still relatively low. Since this study relies on descriptive performance data, this low fluency can be understood as a reflection of classroom learning habits rather than a definitive psychological trait. It is highly probable that this pattern is linked to students' internal lack of confidence, alongside their unfamiliarity with expressing spontaneous ideas in response to open-ended questions. This assumption aligns with Safitri et al. (2024), who define fluency as the ability to generate ideas or concepts from a question given. This low fluency level indicates that classroom practices have not been optimal in providing students with the safe spaces needed to develop their confidence in expressing ideas fluently.

These results are consistent with the research by Yustina et al. (2021), who found that student fluency could increase through PBL; however, without the optimal execution of this model, fluency scores tended to remain stuck in the moderately creative category. Suyono et al. (2025) confirmed that PjBL effectively increases fluency. However, the empirical reality in this study offers a different perspective, indicating that even though innovative learning models have been introduced, their practical implementation has not been optimal for developing students' intellectual fluency. This gap suggests that the teachers may adopt innovative learning models without fully considering the interactive processes necessary to trigger rapid brainstorming.

According to Piaget's constructivism theory (1964), fluency is closely related to active learning processes that construct knowledge through social interaction. However, the results of this study indicate that fluency has not developed well in the learning process, as students are not given enough space to express their own ideas. The innovative learning model implemented by teachers should provide a strong foundation for students to develop their creativity by encouraging them to express their ideas confidently without fear of making mistakes. This finding refines the constructivism theory by showing that social interaction alone is not enough, so a safe environment is needed for students to dare to express their opinions.

Flexibility

Flexibility evaluates students' ability to think flexibly and find various approaches or examples relevant to real-life. Of the 208 students who completed the performance test, it was found that only 4% were categorized as very creative, 10% as creative, 48% were moderately creative, and 38% were less creative, which can be visualized in detail in Figure 3 below.



Source: Processed Primary Data, 2026.

Figure 3. Students' Creativity on the Flexibility Indicator

These percentages demonstrate that the majority of students (86%) fall into the moderately creative to less creative categories. Since this study relies on descriptive performance data, this low flexibility can be understood as a reflection of students' learning habits rather than a definitive

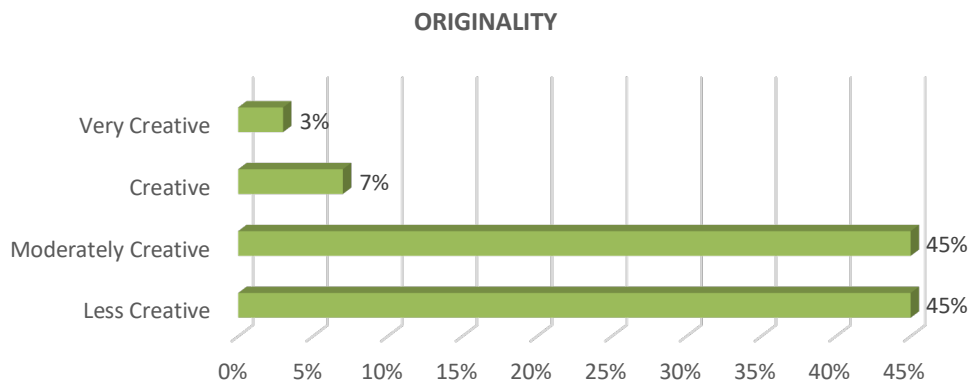
psychological trait. It is highly probable that students are unaccustomed to looking at a single economic issue from multiple angles. This assumption aligns with Munandar (2012), who defines flexibility as the ability to examine problems from multiple perspectives. When the classroom environment rarely challenges students to find alternative answers, their cognitive flexibility naturally tends to stay low.

This is supported by research conducted by Caliskan & Altun (2025), which states that students' flexibility of thinking will not develop if they are not actively involved in the learning process. Similarly, Carriedo et al. (2024) also found that students with low flexibility tend to have lower academic achievement compared to students with high cognitive flexibility. Thus, the low flexibility in this study is in line with these findings, which indicate that students' flexibility of thinking is highly dependent on their active involvement in learning and the quality of the learning experiences they receive. When students are not accustomed to being involved in exploring various perspectives, their flexible thinking skills will not develop optimally.

According to Piaget's (1964) constructivism theory, flexibility develops when students actively seek understanding through direct experience and interaction with the environment. These findings challenge the theory's assumptions by demonstrating that direct experience and environmental interaction alone are insufficient without structured guidance from teachers. This means that students need systematic guidance to explore alternative solutions, not simply being given the opportunity to find them on their own without teacher guidance. Innovative learning models implemented by teachers should be able to develop creativity by training students to see problems from different perspectives.

Originality

Originality evaluates students' ability to generate new and unique ideas or solutions to economic phenomena. Of the 208 students who completed the performance test, it was found that only 3% were categorized as very creative, 7% as creative, 45% were moderately creative, and 45% were less creative, which can be visualized in detail in Figure 4 below.



Source: Processed Primary Data, 2026.

Figure 4. Students' Creativity on the Originality Indicator

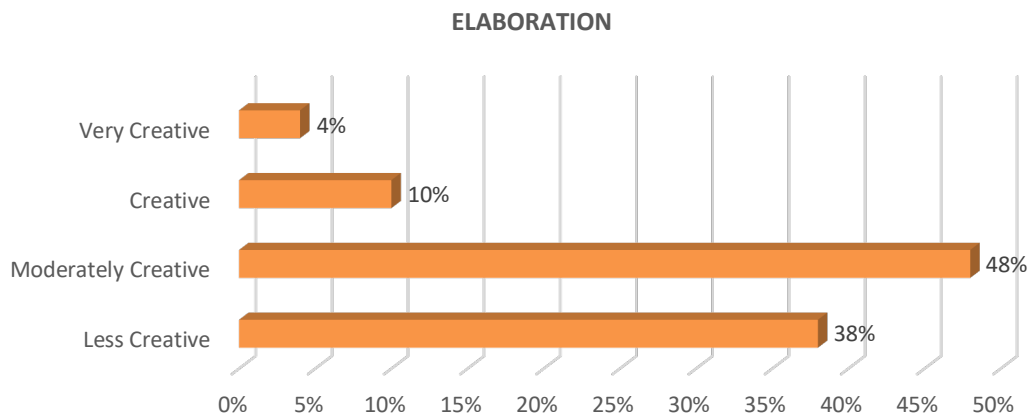
These percentages demonstrate that the majority of students (90%) fall into the moderately creative to less creative categories. Since this study relies on descriptive performance data, this low originality can be understood as a reflection of classroom learning habits rather than a definitive psychological trait. It is highly probable that this pattern point toward a general tendency by their teachers or peers, rather than taking the cognitive risk to formulate original concepts. This assumption aligns with Rahayu et al. (2023) who stated that students' creativity can increase if the educational environment actively encourages students to take risks without the immediate fear of failure.

This results is consistent with the research by Wahyuni & Aini (2025), which found that students are relatively more capable of generating ideas, but struggle to develop them in original and detailed ways. This pattern is further supported by the (Organization for Economic Cooperation and

Development [OECD], 2025), which highlights that students globally tend to find it easier to generate appropriate or correct ideas than original and valuable ones. Therefore, the difficulty in producing original ideas in this study confirms a broader global phenomenon. When students are not accustomed to being given the freedom to think outside the box and are not systematically encouraged to take risks, their ability to generate original ideas does not develop optimally. Based on Piaget's constructivism theory (1964), Originality will emerge when students are given the freedom to explore the environment and construct understanding independently without imitating the results of others. The results of this study support the theory's assumptions by demonstrating that a low level of conceptual freedom and students' heavy dependence on teachers correlate directly with lower originality performance. The innovative learning model that has been implemented by teachers should be able to increase creativity by encouraging students to be confident in creating new ideas that are different from those that already exist.

Elaboration

Elaboration evaluates students' ability to develop and refine ideas informatively and in-depth. Of the 208 students who completed the performance test, it was found that only 4% were categorized as very creative category, 10% as creative, 48% as moderately creative, and 38% as less creative, which can be visualized in detail in Figure 5 below.



These percentages demonstrate that students' ability to expand ideas has not developed optimally, where the majority of students (86%) falling into the moderately creative to less creative categories. Since this study relies on descriptive performance data, this low elaboration can be understood as a reflection of classroom communication habits rather than a definitive psychological trait. It is highly probable that this pattern is linked to students' internal tendency to provide short, superficial answers, combined with a general lack of structured training economic concepts thoroughly. This assumption aligns with Torrance (1974), who defines elaboration is the ability to develop ideas in detail. This low level of elaboration indicates that the learning process has not trained students to explain their answers in detail and systematically.

These results align with research by Narvaza & Manla (2024) who confirmed that students find it easier to generate ideas and think flexibly, but struggle to develop ideas in depth and detail. Similarly, Hua et al. (2023) also reported that students had low elaboration scores, indicating that low elaboration is a global challenge. This low elaboration indicates that the learning process has not trained students to elaborate, provide examples, and explain answers in depth, so the ability to develop ideas in detail has not developed optimally. According to Piaget's (1964) constructivism theory, elaboration developers when students actively connect ideas to their experiences and then develop this understanding into a deeper understanding through the discussion and reflection. The results of this study refine this theory's assumptions by demonstrating that the process of social interaction, peer discussion, and reflection is not enough without the teacher demanding that students elaborate, provide

examples and explain the reasons for each answer. The innovative learning model implemented by teachers should be able to enhance creativity by requiring students to elaborate, provide examples, and explain the reasoning behind each of their answers.

The four indicators reveal a consistent pattern in which students found it relatively easier to generate ideas (fluency) than to develop them into flexible, original, or elaborate responses. Originality emerged as the weakest indicator (90% moderately to less creative), followed closely by flexibility and elaboration (86% each), while fluency showed a comparatively lower proportion (77%). This gradient suggests that the instructional process in this study may have provided sufficient opportunity for idea generation but insufficient scaffolding for students to refine, diversify, or deepen those ideas. In other words, the barriers to student creativity appear to be less about generating ideas and more about what happens after an idea is first generated, suggesting that innovative learning models, if implemented, need to place greater emphasis on the stages following the initial brainstorming.

CONSLUSION

Based on data analysis, it was reported that high school students' creativity in economics lessons focused on the topic of economic agents remained predominantly within the moderately creative to less creative range. This shows that students are more capable of generating general ideas, but encounter major obstacles in developing these ideas in depth and producing unique concepts. This situation indicates that the current learning process tends to encourage students to follow familiar answer patterns rather than thinking divergently and exploratively. Therefore, these findings highlight the urgent need for economics teachers to design lessons that empower students to think flexibly and generate original ideas, rather than simply following a rigid learning syntax. While this study did not directly test digital interventions, the low student scores in originality and elaboration suggest a valuable direction for future learning models that leverage familiar digital resources. However, this approach must be implemented purposefully. Instead of using technology simply for instant information retrieval, teachers should utilize digital platforms as cognitive tools that empower students to solve economic problems in their own way. This study has several limitations that require attention. First, data collection was conducted in only one school, so generalization of the findings requires caution. Second, the use of a descriptive design does not allow for definitive conclusions regarding the underlying causes of low student creativity. Third, the instrument's content validity was assessed only qualitatively by expert, without a quantitative validity index. Based on these limitations, future researchers are advised to develop and empirically test learning models that integrate digital technology to enhance four indicators of student creativity (fluency, flexibility, originality, and elaboration) in economics learning.

DECLARATION OF GENERATIVE AI

The authors declare that no generative AI or AI-assisted technologies were used in the writing process of this manuscript.

CONFLICTING INTEREST STATEMENT

The authors states that there is no conflict of interest in the publication of this article.

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AUTHORSHIP CONTRIBUTION STATEMENT

Elvina Destin Trisnadewi: Conceptualization, Methodology, Writing - Original Draft, Data curation, Validation. Dini Octoria: Supervision, Writing - Review & Editing.

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