



High school students' learning motivation in mathematics learning in the independent curriculum



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ARTICLE INFO

Keywords:

Independent;
Curriculum;
Learning
motivation;
Mathematics;
Learning;

ABSTRACT

Learning motivation is a crucial factor in mathematics learning in high school, particularly in the implementation of the Independent Curriculum. However, it still shows variation and tends to decline during the transition period. This study aims to describe students' learning motivation and analyze the intrinsic and extrinsic factors that influence it in mathematics learning under the Independent Curriculum. The study used a descriptive qualitative approach and was conducted at SMA Negeri 6 Kediri City. The research subjects consisted of six tenth-grade students selected through purposive sampling based on differences in academic ability levels. Data were collected through observation, semi-structured interviews, and documentation. Data analysis was conducted using the Miles and Huberman model, which includes data reduction, data presentation, and conclusion drawing. The results showed that students' learning motivation was categorized as high, medium, and low, influenced by intrinsic and extrinsic motivational factors. The main findings indicate that the most dominant factors influencing learning motivation were interesting learning activities and active student involvement, while the lack of learning variation was the main cause of low motivation in some students.

1. Introduction

Learning motivation is one of the internal factors that plays an important role in the success of mathematics learning at the Senior High School (SMA) level [1]. Motivation not only functions as an initial driver for students to engage in learning activities, but also as a force that maintains student persistence in facing abstract and challenging mathematics material [2]. Students with adequate levels of motivation tend to show more consistent learning efforts, thus having positive implications for the achievement of learning outcomes [3], [4]. Empirical findings show that learning motivation has a significant relationship with student learning

outcomes, especially in mathematics [5].

However, conditions on the ground show a different reality. Many high school students actually experience a decline in enthusiasm for learning mathematics [6]. The assumption that mathematics is a difficult and frightening subject has created a negative mindset in students, which results in low attention and engagement during the learning process [7]. This situation is further exacerbated by limited supporting facilities. A similar finding was also found by Gupi & Singaperbangsa Karawang, who noted that a decline in motivation to learn mathematics is common, especially during transitional periods such as the pandemic and curriculum changes [8].

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In this context, the implementation of the Independent Curriculum is seen as a strategic effort to address the problem of student learning motivation [9]. The Independent Curriculum emphasizes flexible learning, oriented towards conceptual understanding, and provides space for students to be actively involved through contextual and meaningful learning experiences [10]. Learning that links material to real situations is believed to be able to increase students' interest in learning and curiosity about mathematics [11]. Other opinions also emphasize that the contextual learning approach in the Independent Curriculum has the potential to strengthen student engagement and improve the quality of the learning experience [12].

Previous research has generally not been able to deeply explore the experiences, perceptions, and factors underlying student learning motivation. This is in line with the findings [13] which show that the learning motivation of grade XII students is in the moderate category, but has not revealed in detail the dynamics of this motivation in the context of ongoing learning. Departing from this condition, this study uses a qualitative approach to examine in more depth the dynamics of student learning motivation during the learning process, particularly in the context of the implementation of the Independent Curriculum at the high school level, so that it is hoped that it can provide a new perspective on how students respond to more flexible and student-centered mathematics learning. Based on this description, this study focuses on exploring how students' learning motivation forms, develops, and changes during the learning process. It is hoped that the results of this study will enrich the body of qualitative studies on mathematics learning motivation at the high school level and provide new perspectives that complement previous research findings, particularly in the context of implementing the Independent Curriculum.

2. Method

2.1 Research Design and Setting

This research was conducted at SMA Negeri 6 Kediri City for approximately two weeks in the odd semester of the 2025/2026 academic year. The study used a qualitative method with a descriptive analysis approach. This approach was selected because the research aimed to describe students' learning motivation in mathematics learning naturally and in depth, without giving special treatment to the participants [14].

2.2 Data Sources and Participants

The primary data were obtained from grade X students at SMA Negeri 6 Kediri City, while secondary data were gathered from supporting documents and related sources. The research subjects were selected using purposive sampling, namely by selecting participants who were considered able to provide relevant information about learning motivation in mathematics learning under the Independent Curriculum [14].

2.3 Data Collection Techniques

Data collection techniques included observation, interviews, and documentation. Observations were conducted to identify students' behavior and participation during mathematics learning, especially those related to learning motivation indicators. Interviews were used to explore students' perceptions, experiences, and reasons for their learning behavior. Documentation was used to support and confirm the data obtained from observations and interviews [14].

2.4 Data Analysis

Data analysis followed the model developed by Miles and Huberman, which consists of data reduction, data presentation, and conclusion drawing. In the data reduction stage, the researcher selected data relevant to learning motivation indicators. The data were then presented in descriptive narratives and tables to show patterns of motivation. Conclusions were drawn by interpreting the relationship between students' behavior, interview results, and the fulfillment of learning motivation indicators [14].

3. Results and discussion

3.1. Learning Motivation Indicators

Learning motivation indicators in this study refer to Slavin's theory as cited in Lestari, which includes the desire and will to succeed, drive and need for learning, hopes and aspirations for the future, rewards for learning, interesting learning activities, and a conducive learning environment. These indicators were used to analyze students' motivational patterns during mathematics learning under the Independent Curriculum [15].

3.2. Data Presentation of Students' Learning Motivation

The research results are presented based on the

fulfillment of learning motivation indicators for each student subject. The indicators are coded as follows:

Learning motivation indicators:

- {1} Desire and Will to Succeed
- {2} Drive and Need for Learning
- {3} Hopes and Aspirations for the Future
- {4} Rewards for Learning
- {5} Interesting Learning Activities
- {6} Conducive Learning Environment

Table 1

Research Results on Learning Motivation Indicators

Subjec t	Learning Motivation Indicators					
	{1}	{2}	{3}	{4}	{4}	{5}
GAB	√	√	√	√	√	√
KIF	√	√	√	√	√	√
EZS	√	-	√	-	√	-
MLF	√	√	-	√	-	-
JNF	-	√	-	-	-	√
MDP	√	-	√	-	-	-

The check mark (√) indicates that the indicator was fulfilled, while the dash (-) indicates that the indicator was not fulfilled.

Based on Table 1, students with high motivation, such as GAB and KIF, showed that internal factors, including the desire to succeed and the drive to learn, were the main factors supporting active engagement in learning. Students with moderate motivation, such as EZS and MLF, showed partial fulfillment of motivation indicators, while students with low motivation, such as JNF and MDP, showed weaker internal drive and were more dependent on external learning conditions.

Students' learning motivation was reflected in their behavior during mathematics learning. Students with high motivation demonstrated a strong desire to succeed, consistency in learning, and active participation in class. In contrast, students with lower motivation tended to be passive, less confident, and more dependent on teacher encouragement or interesting learning activities.

Interviews with teachers indicated that the Independent Curriculum encouraged more student-centered learning and emphasized active participation. During the learning process, several students showed positive motivational changes, such as increased courage to ask questions, willingness to participate in discussions, and greater interest when mathematics was connected to everyday life contexts.

3.3. Motivation Patterns and Conclusion Drawing

Based on the six learning motivation indicators,

the findings show that highly motivated students tended to have strong internal drives, while students with low motivation were more influenced by external factors such as learning methods, classroom atmosphere, and teacher appreciation. Internal factors were reflected in students' desire to succeed, need to learn, and future aspirations. External factors appeared in the form of learning activities, rewards, and a conducive learning environment.

Overall, students perceived mathematics learning under the Independent Curriculum as more meaningful when learning activities were engaging, varied, and linked to everyday life. Such learning helped students understand the relevance of mathematics and encouraged them to participate more actively. However, not all students responded in the same way, indicating that motivation is dynamic and influenced by students' individual characteristics and classroom conditions.

3.4 Discussion

The findings indicate that students' learning motivation in mathematics under the Independent Curriculum varied across high, moderate, and low categories. This variation shows that the implementation of a student-centered curriculum does not automatically produce the same motivational response among all students. Motivation depends on the interaction between internal factors, learning experiences, and the classroom environment [16].

The low learning motivation shown by some students was reflected in passive behavior, limited involvement, and low initiative during mathematics learning. This condition supports the view that learning motivation is influenced by students' perceptions of mathematics and by the extent to which learning activities are considered meaningful, interesting, and achievable [16].

Conversely, the emergence of high motivation among some students indicates that learning involving active participation, interaction, and varied activities can foster students' interest in mathematics. This finding is consistent with the principles of the Independent Curriculum, which emphasizes meaningful learning, student autonomy, and contextual activities [17-20].

The study also shows that student learning motivation is dynamic and can change during the learning process. Uneven motivational changes across students indicate that teachers play a strategic role in designing adaptive learning. Teachers need to provide support, appreciation, and learning

experiences that are relevant to students' needs and characteristics [21-25].

Overall, the discussion confirms that students' learning motivation in mathematics learning under the Independent Curriculum still needs to be strengthened [26]. Developing appropriate learning strategies is therefore an important factor in improving students' engagement, confidence, and persistence in learning mathematics [27-32].

4. Conclusion

Based on the findings, students' learning motivation in mathematics learning during the implementation of the Independent Curriculum at SMA Negeri 6 Kediri City varied. The variation was reflected in differences in the fulfillment of learning motivation indicators, including the desire to succeed, drive and need for learning, future aspirations, rewards, interesting learning activities, and a conducive learning environment.

Good learning motivation was indicated by a desire to succeed, a strong drive to learn, active engagement, and positive responses to interesting learning supported by a conducive environment. Conversely, low motivation was reflected in limited learning drive, weak response to appreciation, and low interest in learning activities.

Mathematics teachers are encouraged to continue developing student-centered learning strategies, particularly by creating engaging, collaborative, contextual, and varied learning activities. Schools are also expected to support the implementation of the Independent Curriculum by providing learning environments that strengthen students' motivation and participation in mathematics learning.

CRedit authorship contribution statement

Ovilia Nur Wida: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft. **Darsono:** Supervision, Validation, Writing – review & editing. **Dian Devita Yohanie:** Validation, Resources, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Acknowledgment

The authors gratefully acknowledge SMA Negeri 6 Kediri City for supporting this research. The authors also thank the mathematics teacher, students, and all parties who contributed to the completion of this study.

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