

Inquiry-Based Learning: Its Impact to Students' Motivation

Dorisita S. Edillor¹, Crystal Jade S. Mongas²

¹Southern de Oro Philippines College, Cagayan de Oro City, Philippines

²DepEd Division of Bukidnon, Bukidnon, Philippines

ABSTRACT: As traditional teaching methods evolved, one approach that has gained significant attention is inquiry-based learning. The study sought to examine the relationship between inquiry-based learning strategies and students' motivation among Grade 9 students in the Division of Cagayan de Oro City for the School Year 2024-2025. Employing correlational and casual research designs, the study explored the impact of inquiry-based learning strategies to students' motivation. A total of 255 Grade 9 students were selected through stratified random sampling using Slovin's Formula at five percent margin of error. Data were collected using a two-part researcher-made questionnaire that passed the validity and reliability tests. Statistical tools such as Mean, Standard Deviation, and Pearson Product Moment Correlation Coefficient and Multiple Linear Regression were utilized for data analysis. Results revealed that asking deep questions, self-exploration, ability to solve complex problems contribute significantly to the impact of students' motivation. It is concluded that effective problem-solving plays a vital role in enhancing students' motivation and overall learning outcomes, while completing tasks and assignments related to inquiry-based learning further strengthens students' motivation. Moreover, it is recommended that school administration may create programs and seminars to improve the utilization of inquiry-based learning strategies for the teachers and continue to incorporate tasks and assignments related to inquiry-based learning.

KEYWORDS: inquiry-based learning, motivation, problem-solving, strategies

I. INTRODUCTION

The educational landscape today fosters students' motivation has become a focus for teachers. It plays an important role, which helps students to engage, improve, and support positive learning outcomes. As the outcomes, traditional teaching methods are needed to shift into more learner-centered approaches that help to address the needs of the learners. One of the considerable approaches that can help to achieve this goal is inquiry-based learning.

DepEd Order No. 010 series of 2024, gives emphasis on active learning particularly the use of inquiry-based learning as the learner centered approach, which addresses the needs of the students towards their academic engagement. It also highlights the importance of teaching methods that encourages students to explore, reflect and engage productively across learning areas and discipline and it envisions in preparing students to become lifelong learners by valuing intrinsic motivation for constant progress, sharing of ideas and active engagement in tasks and activities

Meanwhile, Ramaila (2024) pointed out that students with great involvement in inquiry-based learning (IBL) show a meaningful understanding of the subject matter compared to those who were involved with lectured-based settings. He also explained that students perform well in assessment in both understanding and application. It also helps in enhancing the critical thinking skills of the students, and allows them to formulate questions, solution-based oriented, and evaluate information critically.

Additionally, IBL required an ample time, to perform the skills in assessing the evidence, decision making, and integrating ideas, which are indicative factors leading to the lifelong learning of the students. Arifin et al. (2025) recognized that inquiry-based learning is an effective approach that supports the development of students' higher-order thinking, especially when it comes to strengthening their critical thinking abilities.

Fernandez and Marcelo (2024) emphasized that motivation plays an important role in the students' learning process. It influenced their thinking skills, emotional well-being, and as well as nurturing their abilities in applying the skills real-life situations. They also explained that students with strong motivational spirit demonstrate good learning approaches, manage learning situations effectively and enhance a highly practical ability.

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However, despite the efficiency of the utilization of inquiry-based learning across various educational settings, challenges remain in its gap particularly in increasing the students' motivation to engage more deeply in learning. Moreover, in the article presented by Feng and Xiao (2024), explained that students with strong motivation when immersing themselves while learning new skills, they are more to grasp the concept of the lesson. This fundamental inspiration blooms when students' self-values and real-world application scenarios drive their participation.

The researcher aimed to examine the relationship between inquiry-based learning and students' motivation. Given these perspectives, this study sought to explore how inquiry-based learning which focused on questioning, exploration, and problem-solving were associated with students' motivation, especially within the diverse context of Filipino students in the classrooms.

This study was anchored in several key educational theories that emphasized the importance of active learning, student engagement, and the role of inquiry in fostering critical thinking. The theoretical framework that guides this research is based on the Engagement Theory by Kearsley and Shneiderman (1998). Engagement Theory is a framework that outlines how individuals become actively involved and motivated in their educational experiences. It suggests that for learning to be truly effective, students must engage actively in their educational journey on both emotional and cognitive levels. In a classroom implementing Engagement Theory, a possible project could involve designing a sustainable city. Students could investigate actual urban planning challenges, work collaboratively in teams, create models or digital representations of their city, and share their findings with classmates or even local community members. This approach integrates active learning, teamwork, and real-world tasks to enhance students' engagement and comprehension.

Students' involvement in the learning process, where costs encompass emotional drawbacks, diminished cognitive capabilities and psychological pressures. Engagement in learning a specific set of knowledge, featuring a singular state variable that indicates mastery or self-assessed mastery of the subject matter, with control reflecting the immediate cognitive effort focused on the learning task. The associated costs involved emotional and external consequences for inadequate mastery, decreased cognitive resources available for other pursuits, and psychological strains related to participating in the learning task (Lewis, 2022). Practice engagement suggests that people's literacy skills increase as a result of their participation in routine reading and writing activities, and conversely, that literacy skills influence the degree of engagement in these practices. This implies that literacy instruction that enhances involvement in significant activities may lead the improvements in proficiency. Studies have indicated that this strategy appears to be effective in boosting the literacy proficiency of adult learners (Reader et al., 2020).

II. METHODOLOGY

This study used descriptive correlational research design to examine the relationship between inquiry-based learning and students' motivation. This design allows researchers to identify and describe patterns and relationships among variables without manipulating them, making it ideal for educational settings where interventions are not feasible or ethical. By using this approach, researchers can gain insights into how inquiry-based learning influences students' motivation, providing valuable information for educators and policymakers (Nurlaili et al., 2023).

The data collected for Problems 1 and 2 undergone analysis utilizing statistical techniques such as Mean and Standard Deviation. In the case of Problem number 3, the analysis involved the use of Pearson and Product Moment Coefficient of Correlation to ascertain the presence and strength of a significant relationship between the inquiry-based learning strategies and students' motivation.

III. RESULTS AND DISCUSSION

Problem 1. What is the extent of inquiry-based learning strategies as in terms of:

- 1.1 questioning;
- 1.2 exploration; and
- 1.3 problem-solving?

Table 1. Overall Inquiry Based Learning Strategies

Variables	Mean	SD	Description	Interpretation
Questioning	3.88	0.54	Agree	Effective
Exploration	4.02	0.54	Agree	Effective
Problem Solving	4.03	0.54	Agree	Effective
Overall Mean	3.98	0.54	Agree	Effective

Note: 4.21-5.00 Very Effective 3.41-4.20 Effective 2.61-3.40 Fair 1.81-2.60 Less Effective
1.00-1.80 Least Effective

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Table 1 presents the overall extent of inquiry-based learning strategies. It registered an overall Mean of 3.98 with SD=0.54, described as Agree and interpreted as Effective Level. The data imply that the students are able to realize the importance of inquiry-based learning strategies of the teachers in their development and performance. With the strategy, the students become observative and decision makers backed with investigative activities. This allows the students to think carefully before executing series of actions as well as projecting possible series of scenarios and effects. According to González et al. (2023) students that masters the concepts under inquiry-based learning become confident on the things that they do. They do not just take risks without making careful analysis and observations. And when they make decisions, they make sure that it has deeper purpose and meaning.

In the same table, the variable, *Problem Solving* was rated the highest with the Mean of 4.03 with SD=0.54, described as Agree and interpreted as Effective Level. The data imply that the students are able to master the steps and process in problem solving. The students become confident to solve problems that are challenging and needs deeper investigation and analysis. Students have the perception that the process of problem solving has had a significant impact on their ability and willingness to learn. The process helps them become more investigative and determined before making reactions or conclusions, which in turn helps them build their skills in critical thinking. When students are given the opportunity to solve problems, they are able to make thoughtful observations and decisions, and they are not forced to just carry out an activity without first conducting extensive checks and observations. Students make it a point to ensure that they are aware of the potential consequences of any action they take, including whether the consequences are severe or simply mild in nature. Students may enhance their problem-solving ability if the problems presented to them can be incorporated to the real-world experiences and culture-related (Nyoman et al., 2024)

Meanwhile, the variable, *Questioning Strategy* was rated the lowest with Mean of 3.88 with SD=0.54, described as Agree and interpreted as Effective Level. The data imply that the students are able to master the steps in creating series of questions to solve the given problems. The students are also able to adjust to the questioning activities with their teachers. They become attentive to their teachers so that they can analyze the questions and be able to formulate correct responses. The students were of the opinion that the manner of inquiry that was utilized by their instructors during class talks and conversations was beneficial to their growth. The reason for this is that it offered them the opportunity to engage in critical thinking and to pay attention to the comments of their peers. Through the use of a series of questioning techniques, the students have been prompted to engage in an advanced level of thinking regarding the many scenarios that may arise in the problem that has been assigned to them. This method also directs the pupils through the sequence of tasks that they will carry out in order to answer the problem that has been presented to them. On the part of the instructor, they devise strategies for rephrasing their inquiries in the event that their students do not get the purpose of the inquiry on the very first attempt. On the side of the students, it is necessary for them to pay close attention to the class discussion and even to the questions that are posed by the instructor, as this will get them closer to the solution to the problem that has been presented to them (González et al., 2023).

Problem 2. What is the level of students' motivation?

Table 2. Students' Motivation

Indicators	Mean	SD	Description	Interpretation
1. feel motivated to complete tasks and assignments related to inquiry-based learning.	4.05	0.51	Agree	Highly Motivated
2. am interested in learning more about the topics covered through inquiry-based activities.	4.02	0.52	Agree	Highly Motivated
3. believe that inquiry-based learning makes me more interested in the subject matter.	3.97	0.53	Agree	Highly Motivated
4. feel more motivated to learn when I am given the freedom to explore topics independently.	4.03	0.52	Agree	Highly Motivated
5. am eager to participate in activities that require me to think critically and solve problems.	3.85	0.55	Agree	Highly Motivated
6. am excited to learn through hands-on activities and projects in inquiry-based lessons.	3.96	0.54	Agree	Highly Motivated
7. feel that inquiry-based learning sparks my curiosity to know more about different subjects.	4.04	0.51	Agree	Highly Motivated

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8.	feel motivated to put more effort into my schoolwork when inquiry-based learning is used.	3.98	0.53	Agree	Highly Motivated
Overall Mean		3.99	0.53	Agree	Highly Motivated
Note:	4.21-5.00 Very Highly Motivated 1.81-2.60 Less Motivated	3.41-4.20 Highly Motivated 1.00-1.80 Least Motivated	2.61-3.40 Average		

Table 2 presents the overall level of students' motivation based on motivational scores. It registered an overall Mean of 3.99 with SD=0.53, described as Agree and interpreted as Highly Motivated. The data imply that the students have high level of motivation towards their studies. This is because they feel that they are able to understand well the lessons presented to them through the efforts of their teachers and themselves. High level of motivation can lead to being inspired to perform the tasks assigned to the students which can lead to better results. According to Zhang and Wang (2020) students with high motivation performs better at school as they feel that they can finish and comply the tasks assigned to them. Thus, teachers should always make sure that they motivate the students to perform at their best at all times.

In the same table, indicator 1, *I feel motivated to complete tasks and assignments related to inquiry-based learning*, was rated the highest with Mean of 4.05 with SD=0.51, described as Agree and interpreted as Highly Motivated. The data imply that the students like to finish the tasks assigned to them specially if it is related to inquiry-based learning. This can be attributed to the fact that the students are able to understand deeply the lessons presented to them and that they were able to master the steps or strategies in solving problems with aid of inquiry-based learning. According to Bell et al. (2021) inquiry-based learning is beneficial to the students as it guides them to answering difficult problems. It further satisfies their curiosity as they can discuss their ideas with their peers or groupmates.

Meanwhile, indicator 5, *I am eager to participate in activities that require me to think critically and solve problems*, has the lowest Mean of 4.05 and SD=0.51, described as Agree and interpreted as Highly Motivated. The data imply that the students love and are inspired to join in activities where they can exercise their intellectual capacity and be able to share and consolidate ideas of their groupmates. Group activities provide the opportunities for the students to listen and accept that there are times that others have better ideas than them and that there are different ways in answering and solving problems. According to Gonzalez et al. (2023) and Oco (2023) group activities allow the students to collaborate with the minds of others to have a better decision and solution to the assigned task to them. They also learn to appreciate the effort and contribution of others whether it is big or small in nature.

Problem 3. Is there a significant relationship between the extent of inquiry-based learning and the level of students' motivation?

Table 3 showcases the test of correlation between inquiry-based learning strategies and motivation. Independent variable is Inquiry based learning strategies in terms of questioning, exploration, and problem solving while the dependent variable is on motivational scores of the students. *Questioning Strategy* registered a computed r-value of 0.468 with the computed p-value of 0.003. The computed p-value is less than the p-critical value at 0.05 level of significance. The data imply that significant low positive correlation was registered between inquiry-based strategies and students' motivation when questioning strategy is put into consideration. Thus, the null hypothesis is rejected.

Table 3. Test of Correlation Between Inquiry-Based Learning Strategies and Motivation

Variables	r-value	p-value	Level of Correlation	Decision	Interpretation
Questioning	0.468	0.003	Low Positive Correlation	Reject Ho	Significant
Exploration	0.321	0.011	Low Positive correlation	Reject Ho	Significant
Problem Solving	0.545	0.001	Low Positive Correlation	Reject Ho	Significant
Note:	0.91 - 1.00 Very High Positive Correlation 0.51 – 0.70 Moderate Positive Correlation 0.00 – 0.30 Negligible Positive Correlation 0.71 – 0.90 High Positive Correlation 0.31 – 0.50 Low Positive Correlation <i>Significant when computed p-value <0.05</i>				

Questioning Strategy is vital for the students in mastering the inquiry-based learning. It guides them to the different scenarios where they can dig deeper and understand better the situation that will eventually guide them to creating possible steps in crafting the solution. It further helps them satisfy their curiosity. According to Smith et al. (2020) through questioning, the

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students are able to provide answers to their queries with the shared ideas of their classmates. The guide questions of the teachers also provide confirmation of their ideas if it is correct or not as solution to the problems they are currently solving.

Exploration Strategy registered a computed r-value of 0.321 with the computed p-value of 0.011. The computed p-value is less than the p-critical value at 0.05 level of significance. This data imply that significant low positive correlation was registered between inquiry-based strategies and students' motivation when exploration strategy is put into consideration. Thus, the null hypothesis is rejected. Exploration Strategy is also pivotal for the students in mastering the concepts behind inquiry-based learning. This is the time where the students take trial and error on the possible solutions that they were able to accumulate through careful observation and investigation. This part allows them to make tests and make decision on whether to innovate more or they were able to find the right solution and answer. According to Kuhn (2021) exploration strategy is essential for students as it help them in finding and gathering possible solutions or ways in answering a problem. It further enhances their knowledge and skills and accept that there are problems wherein it can be solved in various ways and in easier or complicated manner.

Problem Solving Strategy registered a computed r-value of 0.545 with the computed p-value of 0.001. The computed p-value is less than the p-critical value at 0.05 level of significance. The data imply that significant moderate positive correlation was registered between inquiry-based strategies and students' motivation when problem solving strategy is put into consideration. Thus, the null hypothesis is rejected. Problem solving strategy is vital for the students not just in mastering the concept of inquiry-based learning but in developing their critical thinking skills. This means that by this time the students have mastered the ways and means in answering the problem. Moreover, when they find themselves in challenging situations, they do not easily give up but rather think of remedies for them to further explore and finally solve the obstacles. According to Johnson and Brown (2022) problem solving skills equates with critical thinking skills. Thus, teachers should guide and assist the students in achieving the development and mastery in utilizing problem solving skills in their educational activities.

IV. CONCLUSIONS

Based on the findings presented, the following conclusions can be drawn from the study:

1. The students are encouraged to explore, discover and develop their critical thinking. Thus, inquiry-based learning is effective for students' learning.
2. Students are inspired to learn and study their lessons through inquiry-based learning.
3. Inquiry-based learning was associated with students' motivation.

V. RECOMMENDATIONS

In light of the findings and conclusions outlined above, the following recommendations are presented:

1. Teachers may maintain the use of inquiry-based learning in their classes. Moreover, teachers may continue to improve their skills in the art of questioning.
2. Students may sustain their level of motivation to learn and study so that their performance will continue to improve.
3. Teachers may continuously employ inquiry-based learning approach to their classes.

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