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## **Inquiry - Based Learning**

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**Abstract.** Inquiry-based learning is a learning process that engages students by making real-world connections through exploration and high-level questioning. It is an approach to learning that encourages students to engage in problem-solving and experiential learning. In guided inquiry, the teacher further empowers student agency by providing several essential questions, having the students select the resources they will use to research their answers, and allowing them to choose how they will demonstrate understanding. Through inquiry, students engage in research around interesting ideas and fundamental questions. Questioning, critical thinking, and the creative development of new knowledge through inquiry are as important ( if not more so ) to learning as information finding through research.

**Keywords.** Inquiry , Based , Learning

### **1. Introduction**

Inquiry-based learning is a form of active learning that starts by posing questions, problems or scenarios. It contrasts with traditional education, which generally relies on the teacher presenting facts and their own knowledge about the subject. Inquiry-based learning is often assisted by a facilitator rather than a lecturer. Inquiries will identify and research issues and questions to develop knowledge or solutions. Inquiry-based learning includes problem-based learning, and is generally used in a small scale investigations and projects, as well as research. The inquiry-based instruction is principally very closely related to the development and practice of thinking and problem solving skills.

According to (Bell, et al , 2010 ) specific learning processes that people engage in during inquiry-based learning include :

- Creating questions of their own
- Obtaining supporting evidence to answer the question(s)
- Explaining the evidence collected
- Connecting the explanation to the knowledge obtained from the investigative process
- Creating an argument and justification for the explanation

Inquiry learning involves developing questions, making observations, doing research to find out what information is already recorded, developing methods for experiments,

developing instruments for data collection, collecting , analyzing, and interpreting data, outlining possible explanations and creating predictions for future study.

The current article aims at dealing with inquiry-based learning as an effective method that develops important soft skills that are key for students performance.

## **2. The Theoretical and Practical Framework of Inquiry-based Learning**

Inquiry-based learning is a student-centered teaching method that encourages students to ask questions and investigate real-world problems. In this type of learning environment, students are actively engaged in the learning process and are given the opportunity to explore their natural curiosities.

### **2.1. Types of Inquiry-based Learning :**

According to SplashLearn (2022) , there are four types of inquiry-based learning :

1. The Structured Inquiry Approach: The Structured inquiry approach is a sequential process that helps students learn how to ask questions and investigate real-world problems. This type of inquiry-based learning is often used in science classes, where students are given a problem to investigate and are taught how to use the scientific process to find a solution.

2. The Open-Ended Inquiry Approach : The open-ended inquiry approach is a more free-form approach to inquiry-based learning. In this type of learning environment, students are given the freedom to explore their interests and ask questions about the topic they are studying. This type of inquiry-based learning is often used in humanities classes, where students are asked to explore a topic in depth and debate different viewpoints.

3. The Problem-Based Inquiry Approach : A problem-based inquiry approach is a problem-solving approach to inquiry-based learning. In this type of approach, students are given a real-world problem to solve. This type of inquiry-based learning is often used in mathematics and engineering classes, where students are asked to apply what they have learned to solve a real-world problem.

4. The Guided Inquiry Approach : The guided inquiry approach is a teacher-led approach to inquiry-based learning. In this type of approach, the teacher guides the students through the inquiry process and helps them to ask questions and find solutions to real-world problems. This type of inquiry-based learning is often used in elementary and middle school classrooms.

### **2.2 Strategies of Inquiry-based Learning :**

An inquiry-based approach leads to a more exciting and relevant learning environment. The classroom strategies for inquiry-based learning promotes active communication, problem solving, ideation, etc. The following strategies mentioned by Nayfeld ( 2019 ) are used in the classroom :

1. Let Students explore and learn through play
2. Turn a lesson into a project ( or project-based learning opportunity )
3. Stop being the expert
4. Have a ( good ) plan for questions
5. Create a “Wonder Wall “
6. Highlight the evolution of student questions

The four steps of inquiry-based learning are :

- Students develop questions that they are hungry to answer
- Research the topic using time in class
- Have students present what they have learned

- Ask students to reflect on what worked about the process and what didn't

The teacher's role is critical in inquiry learning, but the role is different from that for which most teachers have been prepared. The teacher becomes the leader of the learning, or the facilitator of the learning process. Modeling is extremely important for younger learners.

By leaving space in their lessons for authentic curiosity to take hold, teachers can enable deeper learning. inquiry-based learning focuses on moving students beyond general curiosity into the realms of critical thinking and understanding.

Inquiry-based class should follow the following steps :

- \* Step 1 / Introduction
- \* Step 2 / Unique affordances and resources
- \* Step 3 / Virtual Explanation
- \* Step 4 / Lesson Plan Presentation
- \* Step 5 / Written Reflection Prompts
- \* Step 6 / lesson Plan Analysis
- \* Step 7 / Post Survey

The strategies can be illustrated in the following diagram :



### **3. The Importance of Inquiry-Based Learning**

Inquiry-based learning is a contrastive approach where the overall goal is for students to make meaning. While teachers may guide the inquiry to various degrees (externally facilitated) and set parameters for a classroom inquiry, true inquiry is internally motivated. (Kuhlthau et al, 2007 : 11)

Inquiry-based learning has important effects because of the following :

1. Fundamentally, students are more engaged with the subject. Learning is perceived as being more relevant to their own needs, thus they are enthusiastic and ready to learn.
2. Students can expand on what they have learned by following their own research interests.
3. Inquiry-based learning allows students to develop a more flexible approach to their studies, giving them the freedom and the responsibility to organize their own pattern of work within the time constraints of the task.
4. Working within and communicating to a group are vital for a student's employability.

5. Self-directed learning not only develops key skills for postgraduate study, but also leads to original thought that contributes to large research projects, papers and publications.

6. For teaching staff, developing an inquiry-based learning module helps to understand the learning process and the changing needs of students.

#### 4. Conclusion

Inquiry-based learning is a student-centered teaching method that motivates students to ask questions and investigate real problems.

The inquiry-based structure of learning has a lot of flexibility. Teachers frequently begin from inquiry-based science lessons, but the inquiry-based approach can be implemented into student learning to any lesson and subject. These transferable skills can be used to help students become more effective learners in the long run. This approach to teaching is a way of building skills for the long time.

Inquiry-based learning nurtures passions and talents, increases motivation and engagement, allows students to develop their research skills and fortifies the importance of asking questions.

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