



Inquiry –Based Learning: Fostering Critical Competencies and Innovation

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Abstract: *The rapid evolution of the modern world necessitates a dynamic approach to education. Traditional methods often fall short in preparing students for the complexities of the 21st century. Inquiry Based Learning emerges as a powerful pedagogical strategy aimed at developing critical competencies and fostering innovation. This research paper explores the historical background, core components, implementation strategies, benefits, and challenges of Inquiry Based Learning, demonstrating its potential to revolutionize education and prepare students for future challenges. By fostering a culture of questioning and exploration, educators can help students develop critical skills and a lifelong love of learning. This method is applicable across various subjects and educational levels, making it a versatile and effective teaching strategy.*

Keywords: *Inquiry-based Learning, Innovation, Competencies, Effective Teaching Strategy.*

Introduction: This learning model has been developed by applying the very methodology that researchers follow to arrive at new conclusions. Suchman posited that every individual possesses an innate inclination toward inquiry. If this inclination can be harnessed effectively, every student can be afforded the joy of discovery. In other words, if subject matter is presented to students in the form of a puzzle, the urge to inquire drives them to spontaneously seek its solution. In this manner, students can acquire new experiences through self-motivation. Based on this psychological premise regarding the learner, Suchman formulated the Inquiry Training Model of learning.

The fundamental premise of the Inquiry Training Model is the concept that every student possesses an innate spirit of inquiry. By harnessing this inquisitive drive, each student can be individually engaged as an active participant in the process of scientific investigation. The primary objective of this instructional model is to stimulate students' natural curiosity and, ultimately, to foster their awareness regarding the inquiry process itself. In other words, the central aim of this learning model is to emphasize and illuminate the procedural aspects of inquiry. Initially, the students' natural inclination toward inquiry is utilized as the primary vehicle for learning; subsequently, students are guided to reflect upon—and become conscious of—the specific steps and methods through which they conducted their investigation and arrived at their conclusions.

Although the Inquiry Training Model appears, at first glance, to be primarily suited for science education, it can also be effectively applied to the teaching of other school subjects. This model is particularly easy to implement in disciplines such as Geography and Economics. The primary advantage of this model is that it actively engages students and provides them with opportunities to acquire knowledge independently. In short, working within the framework of this teaching model fosters a scientific outlook among students and trains them in the process of drawing conclusions based on collected data.

In the Enquiry Training Model, the teacher operates through five distinct stages. In the first stage, the teacher presents a problematic situation to the students. Typically, during this presentation phase, descriptions of contradictory phenomena are provided. Students are given the opportunity to compare two or more events or scenarios; such a situation is deliberately created to stimulate their curiosity and foster a spirit of inquiry. Furthermore, at this stage of instruction, the teacher explains to the students how to proceed with the investigative process. Generally, during the inquiry phase of this teaching model, the teacher refrains from offering any explanations regarding the subject matter to the students. Instead, the teacher limits their responses to students' questions to simple "yes" or "no" answers.

Therefore, in this initial phase of instruction, the teacher presents the problem and explains the methodology. The subsequent phases of this instructional model are interrelated. In the second phase, students closely observe the problematic situation. They analyze the situation by rearranging its various components. For instance, in the context of a scientific problem, students proceed to conduct experiments. During this phase, they gather additional information to facilitate the solution of the problem. In certain instances, they observe the situation by introducing new elements into it. At this juncture, the teacher may also provide the students with some supplementary information. In essence, the primary objective of the third phase is the collection of data and the conducting of experiments. In the fourth phase, the teacher instructs the students to formulate conclusions based on the experiences derived from their experiments.

Conversely, while many students are capable of gathering information, they often fail to reach a decision. Therefore, at this stage, the teacher encourages various students to express their opinions. Subsequently, the teacher explains these viewpoints and assists the students in arriving at a single, universally acceptable, and accurate conclusion. In the fifth and final stage of the instructional model, the teacher instructs the students to analyze their own inquiry process. They are asked to identify where they made errors during the investigation and to suggest what steps should be taken to rectify them. Essentially, at this stage, the students engage in a process of self-analysis. As a result, they refine their methodological skills and, by harnessing their spirit of inquiry, become motivated to pursue further learning experiences.

The instructional or social environment within the Inquiry Teaching Model can be of two types: controlled or uncontrolled. The nature of this learning environment depends largely on the teacher's perspective. If the teacher so desires, they can maintain complete control over the instructional process by providing students with comprehensive guidance; however, doing so undermines the psychological significance of the inquiry itself. Conversely, if the teacher delegates the entire responsibility for the inquiry to the students, the students are likely to fail in reaching accurate conclusions. Nevertheless, from an ideological standpoint, this inquiry process ought to be uncontrolled. Therefore, a balance must be struck between these two extremes to construct a learning environment that grants students the freedom to gather information and conduct experiments, while simultaneously ensuring that the teacher's guidance remains available whenever needed and that a degree of control is maintained.

Objectives of this study

1. To find out a clear idea of Inquiry– based learning.
2. To find out the relevance and importance of this method in school education.
3. To find out the process of Fostering Critical Competencies through Inquiry– based learning.
4. To find out the application of Inquiry– based learning in various subject.

The inquiry learning model affects the critical thinking skills of students.

Methodology: The main objective of this research paper is to highlight the process of fostering critical thinking through Inquiry – based learning. The study is based on secondary data collected from available resources such as books, journals, articles, magazines. descriptive method and analytical method are followed here.

Characteristics of the Inquiry Teaching Model:

- 1) Active participation of the student in the process of scientific inquiry is essential. Students are naturally curious and spontaneously seek to understand the causes of things—particularly when confronted with a puzzle, at which point they actively search for a solution.
- 2) Knowledge is provisional. Principles are formulated based on various premises; however, after a period of time, new discoveries emerge that render the old principles obsolete and displace them.
- 3) Most problems possess various explanations that appear plausible on the surface. It is rarely the case that a specific problem has only a single, unique answer.
- 4) Once students become aware of a problem and learn to analyze their own thought processes, they can then be directly taught the scientific method.
- 5) Students can be taught a new strategy: to use inquiry to deepen their existing knowledge, and to employ fresh perspectives to seek alternative answers—approaching the subject matter in ways distinct from their initial understanding.
- 6) Students remain constantly aware that the input of others serves to enrich their own thinking. The assistance of peers—combined with a tolerance for their novel ideas—facilitates the exploration of alternative pathways, thereby accelerating the growth of knowledge.

Benefits of Inquiry-Based Learning:

- 1) Inquiry-based learning enhances critical thinking:** It helps students analyze information from various perspectives and assists them in solving complex problems. In doing so, it habituates students to think critically and to resolve problems effectively.
- 2) It fosters the acquisition of advanced communication and critical skills:** One of its most significant aspects is that the teamwork, critical discussions, and diverse presentations students engage in during inquiry-based projects significantly enhance their communication and collaborative skills.
- 3) Fosters a Habit of Lifelong Learning:** Through curiosity and self-directed inquiry, inquiry-based learning stimulates an interest in learning and cultivates habits such as critical thinking, continuous questioning, and independent problem-solving. Students carry these habits with them beyond the classroom.
- 4) Personalized Learning Experiences:** Inquiry-based learning provides every student with the opportunity to explore, delve deeply into a subject, and structure their work in a manner tailored to their specific needs. Consequently, this generates unique learning experiences for each student, aligned with their individual capabilities and interests. These benefits of inquiry-based learning are effectively implemented in practice for the students.

Learning is most effective when students are curious, engaged, and actively exploring concepts of the modern world. In inquiry-based learning, the students themselves take center stage. The very definition of inquiry-based learning highlights the fact that it continuously encourages children to be curious, conduct research, and formulate their own interpretations.

By recognizing the benefits of inquiry-based learning, parents can help take their children's education beyond the confines of textbooks. This fosters the development of critical thinking and creativity skills in children, while simultaneously cultivating a lifelong enthusiasm for learning.

In this approach, rather than passively receiving information, students participate actively by raising questions, seeking solutions, and generating new ideas. This method encourages students to become active participants in their education and fosters a deeper connection with the subject matter. By exploring the nature of inquiry-based learning, students gain the confidence to arrive at their own conclusions. Student learning is most effective when they are curious and motivated to explore. By focusing on questions and problems that are meaningful to them, students develop a sense of ownership over their learning process. By understanding the benefits of inquiry-based learning, teachers and parents can appreciate why this method is superior to traditional rote learning.

Stages of Inquiry-Based Learning: Student-centered teaching methods are highly essential and relevant in the contemporary era, as their objective is to transform the learner from a mere passive recipient of information into an active inquirer. This form of learning can be achieved by following the steps outlined below:

- 1) Questioning:** The first step involves encouraging students to ask questions that are meaningful and relevant to them.
- 2) Inquiry:** Once questions have been posed, students must be provided with—or arrangements must be made for—the opportunity to conduct research and experiments in order to discover the answers.
- 3) Reflection:** The students' conclusions—and the learning process built upon those conclusions—should serve as the central focal point.
- 4) Collaboration:** Students should gain experience in the benefits of inquiry-based learning—such as working in groups and discussing their problems.

Through this process, students become self-reliant, acquiring not only knowledge but also essential skills such as critical thinking, problem-solving, and effective communication. Thus, the benefits of inquiry-based learning are not merely academic, but also social and cognitive.

How can teaching be conducted in the classroom using the Inquiry Inquiry– based learning?

By implementing the Inquiry Teaching Model in the classroom, it is possible to foster students' curiosity and critical thinking skills. This is a student-centered approach in which, rather than providing direct answers, the teacher encourages students to construct knowledge independently through the exploration of real-world problems, open-ended questions, and hands-on experimentation.

Steps for Classroom Implementation:

- 1) Presentation of a Question or Problem:** At the beginning of the lesson, students' thinking is stimulated through the introduction of a real-world problem, a video clip, a story, or a thought-provoking question.
- 2) Inquiry and Investigation:** Students engage in the search for information through group discussions among themselves, data collection, experimentation, or internet research. In this phase, the teacher serves solely as a facilitator.
- 3) Analysis and Interpretation:** By analyzing the collected data, students will identify potential solutions to the problem. They will present their arguments and evidence.

4) Presentation and Discussion: Students will present the results or conclusions of their group work to the entire class and engage in mutual discussion.

5) Evaluation and Reflection: The teacher will evaluate the entire process, while students will reflect on what they have learned or where they may have made mistakes.

Through this method, learning is not limited to mere rote memorization but becomes connected to real life, and students become capable of critical thinking.

Findings of the study

1. Teaching and learning in the experimental class guided learners to be more active in seeking its own concept in the learning process.
2. Inquiry learning model encourages students to find and understand the information.
3. Inquiry is a series of learning activities that emphasize the process of thinking critically
4. The students are trained to think find the information needed to solve a problem.

Conclusion: Inquiry-based learning is an ideal pedagogical approach that emphasizes the active role students play in their educational journey. This method not only facilitates the application of diverse teaching strategies but also fosters a meaningful connection between the student and the subject matter. The objective of this approach extends beyond merely equipping children with the intellectual tools necessary to comprehend the external world; it also actively supports and nurtures their innate curiosity and drive to explore and engage. Within the framework of inquiry-based learning, the integration of technology and the arts serves to further enrich the children's learning experience. Furthermore, in the contemporary era, parental involvement is by no means incompatible with this educational methodology; indeed, parents who seek to steer their children's focus toward inquiry-based learning models are poised to exert an increasingly significant influence on the educational landscape of the future. Thus, the benefits of inquiry-based learning are both immediate and far-reaching. It fosters curiosity, critical thinking, and problem-solving skills, helping children become independent and lifelong learners.

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