



INQUIRY – BASED LEARNING FOR STUDENTS

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Annotation: It contrasts with traditional education, which generally relies on the teacher presenting facts and their knowledge about the subject. Inquiry-based learning is often assisted by a facilitator rather than a lecturer. Inquirers will identify and research issues and questions to develop knowledge or solutions.

Key words: contrast, subject, traditional, inquiry, scenarios, code, spell

A type of active learning known as inquiry-based learning (also written as enquiry-based learning in British English)[a] begins with the formulation of questions, issues, or situations. It stands in contrast to traditional education, which often depends on the instructor imparting information based on their expertise in the subject. Rather than a lecturer, an inquiry-based learning facilitator frequently supports the process. In order to gain information or find answers, inquirers will recognize problems and do study on them. Problem-based learning is a component of inquiry-based learning, which is typically employed in research projects and small-scale studies. The development and use of thinking and problem-solving abilities is the main and most direct relationship between inquiry-based education and learning.

People use certain learning techniques, such as inquiry-learning.

- Formulating original queries
- Obtaining supporting evidence to answer the question(s)
- Explaining the evidence collected
- Outlining the gathered proof

Linking the explanation to the information discovered over the course of the investigation
Formulating a defense and rationale for the explanation
Creating questions, making observations, researching existing information, designing experiments, building tools for data collection, gathering, evaluating, and interpreting data, formulating hypotheses, and making predictions for further research are all components of inquiry-based learning.



Level

There are several ways to explain inquiry-based learning and teaching, as well as the multiple degrees of inquiry that can take place in those situations. Four levels of investigation are outlined in detail in the paper The Many Levels of investigation by Heather Banchi and Randy Bell (2008)[23].

Level 1: Verification Request

- One specific science subject or topic has been taught by the teacher. Next, the instructor grows

Level 2: Structured Inquiry

The teacher provides the initial question and an outline of the procedure. Students are to formulate explanations of their findings through evaluating and analyzing the data that they collect.

Level 3: Guided Inquiry

The teacher provides only the research question for the students. The students are responsible for designing and following their own procedures to test that question and then communicate their results and findings.

Level 4: Open/True Inquiry

Students formulate their own research question(s), design and follow through with a developed procedure, and communicate their findings and results. This type of inquiry is often seen in science fair contexts where students drive their own investigative questions.

Banchi and Bell (2008) explain that teachers should begin their inquiry instruction at the lower levels and work their way to open inquiry in order to effectively develop students' inquiry skills. Open inquiry activities are only successful if students are motivated by intrinsic interests and if they are equipped with the skills to conduct their own research study.^[24]

Open/true inquiry learning^[edit]

An important aspect of inquiry-based learning is the use of open learning, as evidence suggests that only utilizing lower level inquiry is not enough to develop critical and scientific thinking to the full potential.^{[25][26][27]} Open learning has no prescribed target or result that people have to achieve. There is an emphasis on the individual manipulating information and creating meaning from a set of given materials or circumstances.^[28] In many conventional and structured learning environments, people are told what the outcome is expected to be, and then they are simply expected to 'confirm' or show evidence that this is the case.

Open learning has many benefits.^[27] It means students do not simply perform experiments in a routine like fashion, but actually think about the results they collect



and what they mean. With traditional non-open lessons there is a tendency for students to say that the experiment 'went wrong' when they collect results contrary to what they are told to expect. In open learning there are no wrong results, and students have to evaluate the strengths and weaknesses of the results they collect themselves and decide their value.

Open learning has been developed by a number of science educators including the American [John Dewey](#) and the German [Martin Wagenschein](#).^[b] Wagenschein's ideas particularly complement both open learning and inquiry-based learning in teaching work. He emphasized that students should not be taught bald facts, but should understand and explain what they are learning. His most famous example of this was when he asked physics students to tell him what the speed of a falling object was. Nearly all students would produce an equation, but no students could explain what this equation meant. Wagenschein used this example to show the importance of understanding over knowledge.

Although both guided and open/true inquiry were found to promote science literacy and interest, each has its own advantages. While open/true inquiry may contribute to students' initiative, flexibility and adaptability better than guided inquiry in the long run,^[31] some claim that it may lead to high cognitive load and that guided inquiry is more efficient in terms of time and content learning.^[32]

Inquisitive learning.

Sociologist of education defined **inquisitive learning** as learning that is intrinsically motivate (e.g. by curiosity and interest in knowledge for its own sake), as opposed to acquisitive learning that is extrinsically motivated (e.g. by acquiring high scores on examinations to earn credentials).^{[33][34][35]} However, occasionally the term inquisitive learning is simply used as a synonym for inquiry-based learning.^{[36][37]}

The most common type of collaborative method of teaching in a class is classroom discussion. It is also a democratic way of handling a class, where each student is given equal opportunity to interact and put forth their views. A discussion taking place in a classroom can be either facilitated by a teacher or by a student. A discussion could also follow a presentation or a demonstration. Class discussions can enhance student understanding, add context to academic content, broaden student perspectives, highlight opposing viewpoints, reinforce knowledge, build confidence, and support community in learning. The opportunities for meaningful and engaging in-class discussion may vary widely, depending on the subject matter and format of the course. Motivations for holding planned classroom discussion, however, remain



consistent.^[11] An effective classroom discussion can be achieved by probing more questions among the students, paraphrasing the information received, using questions to develop critical thinking with questions like "Can we take this one step further?;" "What solutions do you think might solve this problem?;" "How does this relate to what we have learned about..?;" "What are the differences between ... ?;" "How does this relate to your own experience?;" "What do you think causes ?;" "What are the implications of ?"^[12]

It is clear from "the impact of teaching strategies on learning strategies in first-year higher education cannot be overlooked nor over interpreted, due to the importance of students' personality and academic motivation which also partly explain why students learn the way they do"^[13] that Donche agrees with the previous points made in the above headings but he also believes that student's personalities contribute to their learning style. The way a student interprets and executes the instruction given by a teacher allows them to learn in a more effective and personal way. This interactive instruction is designed for the students to share their thoughts about a wide range of subjects.^[14]

Class discussions have also proven to be an effective method of bullying prevention and intervention when teachers discuss the issue of bullying and its negative consequences with the entire class. These discussions have shown to increase the number of students who would help other students when they are victimized.^[15]

"Debriefing" is the word used to describe dialogue sessions that center on exchanging and reviewing information following a particular occurrence. Debriefing has several uses, depending on the circumstance.^[16] It allows for introspection and feedback while taking the experiences into account. Feedback to or among the students may be given during a debriefing, although this is not the intended outcome. Allowing the pupils to "thaw" and assess their experience as they move closer to change or transformation is the goal. The idea is to assist them in accepting their experience. It may be necessary to help students through this process of cycle awareness in order for them to fully debrief. Relapses in behavior shouldn't be met with undue criticism from teachers. Once the experience is completely integrated, the students will exit this cycle and get on with the next.^[12]

Debriefing is a daily exercise in most professions. It might be in psychology, healthcare, politics, or business. This is also accepted as an everyday necessity. Classroom Activities To enhance student learning, conduct research to see what strategies and tactics your own classroom use most effectively. Although we have a



lot of knowledge regarding effective teaching generally (e.g., McKeachie, 1999; Chickering and Gamson, 1987; Weimer, 1996), each teaching scenario is different due to a variety of circumstances, including subject, level, student capabilities and learning preferences, instructor abilities and teaching styles, and many more. An educator needs to determine what functions best in a certain circumstance in order to optimize student learning.[17] Every model, family, and approach for instruction and research is crucial to the practice of technology studies. Instructors are human with strengths and shortcomings; they use certain models to counterbalance their deficiencies and enhance their strengths. Here, the instructor is well cognizant of the kind of [knowledge](#) to be constructed. At other times, teachers equip their students with a research method to challenge them to construct new meanings and [knowledge](#). In schools, the research methods are simplified, allowing the students to access the methods at their own levels.^[12]

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