

Inquiry-Based Learning

General

Inquiry-based learning (also *enquiry-based learning*, *inquiry learning* or *inquiry-guided learning*) is a **constructivist instructional strategy** widely adopted in the **1970s**¹⁾ and based on **John Dewey's** views on learning as **active, learner-centered** process which should be based on **real-world examples** instead of rote fact memorization. *Inquiry* represents questioning which fosters curiosity in students. Although different authors suggest different inquiry-based strategies, they are usually used to promote

- “active, and increasingly independent, investigation of questions, problems and issues, [alone or in groups,] often for which there is no single answer.”²⁾

What is inquiry-based learning?

The idea of inquiry-based learning is to foster characteristics of good learners and encourage them in the educational process. These characteristics³⁾ include confidence in the ability to learn, enjoying problem-solving, trusting one's own judgement, not fearing being wrong, a flexible point of view, and respect for facts. These qualities, according to Postman and Weingartner⁴⁾ can be fostered through an approach in which the teacher:

- rarely tells the students what they need to know since that would reduce their excitement in finding things out on their own,
- interacts with students mostly through questioning and encourages interaction among students,
- does not accept short answers, but rather tries to deepen them by further questioning,
- rarely summarizes what students' discussion and what they have learned since learning is a continuous process.



The **inquiry-based process of learning** can be described as a cycle based on these activities

mainly through following main steps:

- **Questioning** and curiosity provoked through questioning by the teacher together with taking the responsibility for their own learning by the students starts this process of learning.
- Investigation, gathering of information and **studying materials**, observing and other related activities are then expected to be performed by the students.
- This is followed by a **synthesis** of collected information, building hypotheses and possible explanations and planning on how to prove them.
- Development and presentation of **explanations**. **New questions** may arise at this point.
- Reflection on the original question, the research path, and the conclusions. Newly arisen questions form the beginning of a new cycle.

These steps in general are quite similar to the steps of [problem-based learning](#). Differences between these two approaches are minimal according to some⁵⁾ and appear only in their origins (problem-based learning was developed in medical education and inquiry-based learning in science education), other suggest it is the role of the teacher:

- *“In an inquiry-based approach the tutor is both a facilitator of learning (encouraging/expecting higher-order thinking) and a provider of information. In a PBL approach... the tutor does not provide information related to the problem — that is the responsibility of the learners.”*⁶⁾

Some authors suggest different inquiry-based learning modes depending on the level of scaffolding⁷⁾:

- structured inquiry - when teacher presents a problem and main frames for addressing it,
- guided inquiry - when teacher provides questions to motivate students, but the research they do is self-directed, and
- open inquiry - when students formulate questions and investigate them themselves.

Advantages of inquiry-based learning are **increase in students motivation**, active approach to learning, academic skills and intellectual habits⁸⁾. Students are also encouraged to develop of critical thinking, **reflect on their learning**, use different learning resources and gain **deeper understanding of the course concepts**.⁹⁾

Various areas in which inquiry-based learning has been applied include ecology, endocrinology, political communication, engineering and sociology¹⁰⁾.

What is the practical meaning of inquiry-based learning?

An example of inquiry-based learning is learning about language using a Star-Trek episode as a motivator¹¹⁾. In the Star Trek: The Next Generation episode “Darmok” viewers are introduced to the concept of *Tamarian language* spoken by an alien civilization. Whether this invented language could be an actual human language was debated by many professional linguists. A possible instructional plan for learning about language characteristics based on this episode is the following:

- Show students the “Darmok” episode
- Pose the problem to them: could *Tamarian* be a human language?
- Provide students with resource materials or encourage them to look them up themselves.
- Assist them if necessary on how to research the question and conduct analysis of language properties.

- Analysis of results and reflection.

Criticisms

Keywords and most important names

Bibliography

Centre for Teaching and Learning: What Is Inquiry-Based Learning? Queen's University. Retrieved April 26, 2011.

Postman, Neil, and Charles Weingartner. Teaching as a subversive activity. Dell, 1980.

Lane, J. Inquiry-based Learning. Schreyer Institute for Teaching Excellence, Penn State. 15th September 2007.

Cultural Connections - What is Inquiry Based Learning.

Inquiry Page. University of Illinois. Retrieved April 26, 2011.

Spronken-Smith, Rachel, and Rebecca Walker. Can inquiry-based learning strengthen the links between teaching and disciplinary research? Studies in Higher Education 35, no. 6: 723-740. September 2010.

Read more

Johnston, James Scott. Inquiry and education: John Dewey and the quest for democracy. SUNY Press, 2006.

Benson, Chris, and Christian, Scott. Writing to make a difference: classroom projects for community change. Teachers College Press, 2002.

Brew, A. The nature of research: Inquiry in academic contexts. New York : Routledge/Farmer. 2001.

Allen, P. and Greeves, H. Inquiry-based learning: A case study in Asian Studies. HERDSA News, 21-23. April 2005.

¹⁾
Spronken-Smith, Rachel, and Rebecca Walker. Can inquiry-based learning strengthen the links between teaching and disciplinary research?" Studies in Higher Education 35, no. 6: 723-740. September 2010.

²⁾
Lee, Virginia S. Teaching and Learning Through Inquiry: A Guidebook for Institutions and Instructors, p5. Stylus Publishing, 2004.

³⁾ ⁴⁾
Postman, Neil, and Charles Weingartner. Teaching as a subversive activity. Dell, 1980.

⁵⁾

Hmelo-Silver, C. E, R. G Duncan, and C. A Chinn. Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark (2006). *Educational Psychologist* 42, no. 2: 99–107. 2007.

6)

Savery, J. R. Overview of problem-based learning: Definitions and distinctions. *The Interdisciplinary Journal of Problem-based Learning* 1, no. 1: 9–20. 2006.

7)

Spronken-Smith, Rachel, and Rebecca Walker. Can inquiry-based learning strengthen the links between teaching and disciplinary research? *Studies in Higher Education* 35, no. 6: 723-740. September 2010.

8)

Justice, C., J. Rice, and W. Warry. Academic skill development–inquiry seminars can make a difference: evidence from a quasi-experimental study. *International Journal for the Scholarship of Teaching and Learning* 3, no. 1. 2009.

9)

Lane, J. *Inquiry-based Learning*. Schreyer Institute for Teaching Excellence, Penn State. 15th September 2007.

10)

Spronken-Smith, Rachel, Rebecca Walker, Julie Batchelor, Billy O’Steen, and Tom Angelo. Enablers and constraints to the use of inquiry-based learning in undergraduate education. *Teaching in Higher Education* 16, no. 1: 15-28. February 2011.

11)

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