

PEER-LED TEAM LEARNING LEADER TRAINING

MAY I INQUIRE ABOUT...? HOW TO GENERATE KNOWLEDGE BY ASKING QUESTIONS

PAVEL MUKHIN

Inquiry is a learning method that focuses on generating questions and actively pursuing and generating knowledge as opposed to passively receiving it. It has been shown to work in teaching youngsters in grade school as well as being effective in college-level liberal arts courses. This article gives one interpretation of what inquiry is and suggests how it might be used in a college classroom.

Educators generally agree that a college education should promote critical thinking and the ability to observe oneself in a detached way. These attributes are employed often in scientific reasoning and methods. According to Socrates, science is a way of making connections between events and observing and predicting how they follow from each other. This definition also fits critical, liberal thinking.

Introductory science courses often teach students facts rather than methods of generating theories. Students learn concepts and formulas so that they can solve specific problems. While it is important to solve problems and to learn how to solve them, it is also important to understand the context of those problems and why human beings are concerned with them in the first place. The particular science that the student is learning may be one of many ways of looking at a problem. Science is concerned with the generation and testing of hypotheses and deduction of theories from observations.

Besides learning to be critical thinkers, students need to make a personal connection to the information with which they are presented. People, including students, tend to reject new information if it does not fit in with their old prejudices and habits. That is why teachers must concern themselves with making sure that students acquire information and “make it stick,” by helping students to internalize it.

Inquiry is based in the scientific method, which teaches detachment, impartial observation, and critical thinking (Short, et al., 1996). Inquiry allows students to take the lead in acquiring knowledge and teaches them to differentiate among authorities. Concepts taught through inquiry are treated as a science project – students look at concepts, make guesses, and then actively seek out sources and authorities. The job of the instructor is to get the students to make a commitment to an authority and to make that commitment consciously. In this way, inquiry promotes internalization of personalized knowledge. This method of learning is immediately useful in the social sciences and it can be applied in science education as well.

According to Nathaniel Cantor (1961), an educator who was concerned with the development of liberal education during the 1950s and 1960s, basic science courses are important to students in all disciplines. Cantor maintained that these courses are important precisely because of their potential to teach students how to differentiate among sources of information and theories. Like William Perry (2001), Cantor also believed that the ultimate goal of a liberal education is to distance students from dualistic reasoning. He *noted that those*

dualistic modes must be challenged and that the students must learn to understand that information and events in the world exist but that they are not inherently good or bad. He insisted that this learning only occurs through scientific reasoning and making commitments. The theme of making conscious commitments is a central theme in the writing of both educators.

Inquiry has been employed successfully in grammar school by a group of teachers (Short, et al., 1996) on the West Coast of the US. They allowed their first-graders to ask questions and noted what interested particular groups. The teachers then developed topics to accommodate all questions. For example, students who asked questions about submarines, fish, underwater rocks, and plants were all placed into the same group. The groups were encouraged to treat the learning as research. The teachers guided their students' search for sources and conclusions but did not provide them with "truth." After completing their research the students made group presentations of the information that they gathered. The presentation formats ranged from posters to "show and tell" to skits. After the presentations the students kept in the classroom all the resources that they had gathered and were free to look at them later even as they moved on to new topics. This last aspect of their inquiry is important to Vygotsky's idea of scaffolding that new knowledge is built upon past learning (Roth, Goldstein, Marcus, 2001).

Yes, inquiry can be implemented in college and Peer-Led Team Learning is the evidence. As they are generally presented, most introductory science courses do not promote independent thinking, and perpetuate students' quests for the right answer and the desire to be left alone with their prejudices and assumptions. Perhaps the large lecture format is not the best place to implement inquiry. Yet it would be possible and is necessary to incorporate its concepts. Besides changing curricula at their core it is necessary to train both teachers and students to learn by inquiry. Teachers like Short et al. (1996) are already reaching the youngest pupils. PLTL is training the future generation of college teachers.

*Pavel Mukhin
Peer Leader
The City College of New York, CUNY*

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