

“Inquiry Leading to Understanding” Approach

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Definition

The *Inquiry Leading to Understanding* (ILU) approach is based on the theoretical foundations of constructivist theory drawing from the works of Vygotsky, Piaget, Dewey, and Bruner. This approach focuses on learners deepening their understandings through inquiry and project-based activities reaching the higher cognitive functions of Bloom’s Taxonomy: analysis, synthesis, and evaluation.

Using the ILU approach, students work together to answer an essential question(s) that relates to a curriculum topic by engaging in research and authentic performance activities. Students produce a culminating project where they present their findings and demonstrate understanding. The following stages illustrate the activities students are presented with/do in an ILU project:

Stage 1 – Inquire

- introduce topic, essential question, and goals of the project
- recall and determine prior knowledge
- create subsidiary questions and keywords, and an outline to plan research to answer the essential question(s)

Stage 2 – Investigate

- research topic and collect data using a variety of resources
- organize, cite, and analyze findings

Stage 3 – Synthesize

- formulate a conclusion based on evidence
- create a product that validates and translates findings

Stage 4 – Understand

- answer essential question, present, and defend findings
- reflect on learning
- engage in activities to extend thinking to further understanding

Rationale and Back ground Research

In order for learners to really understand material, instruction should be designed to reach beyond the knowledge and comprehension levels of Bloom’s Taxonomy¹. In the average classroom, 85% of instructional activities only reach the recall or simple

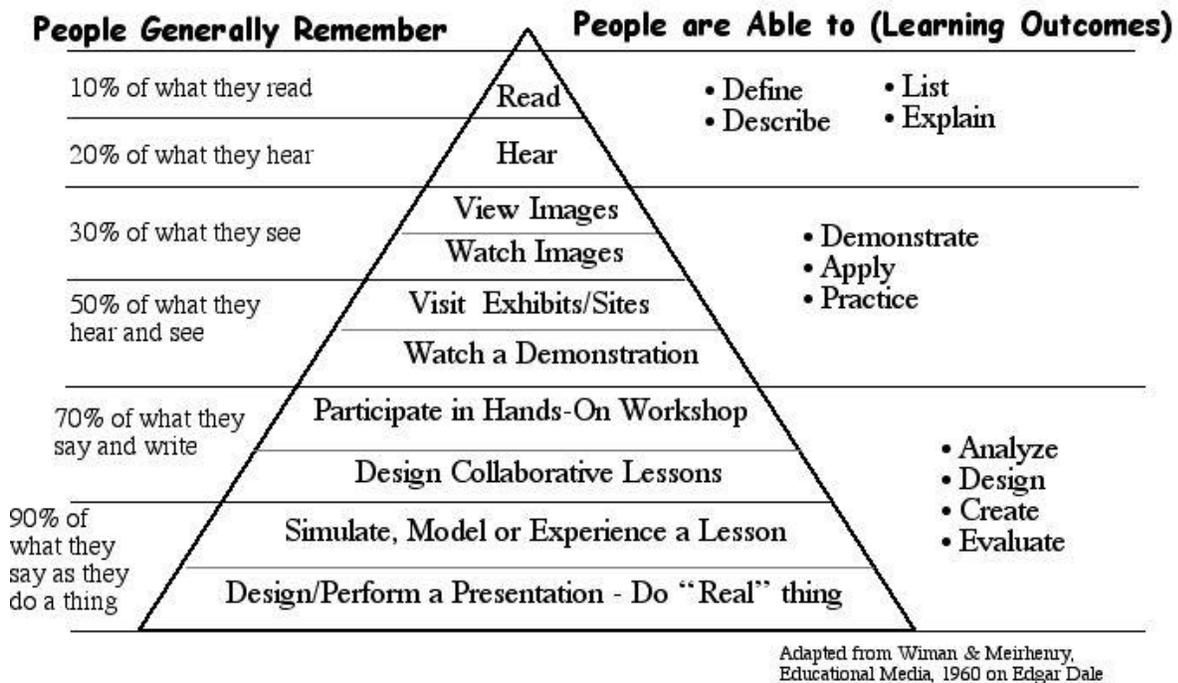
¹ Bloom, B. Online Resource from U. of Victoria

comprehension level.² This is evidenced in brain-based learning notably from R. Caine and G. Caine's book, Making Connections:

- Teachers must immerse learners in complex, interactive experiences that are both rich and real. Educators must take advantage of the brain's ability to parallel process.
- Students must have a personally meaningful challenge. Such challenges stimulate a student's mind to the desired state of alertness.
- In order for a student to gain insight about a problem, there must be intensive analysis of the different ways to approach it, and about learning in general. This is what's known as the "active processing of experience."³

In creating projects that tap into meaningful learning, learners are better able to retain, process, and internalize concepts. According to Edgar Dale, humans retain 90% of what they say as they do a thing:

Dale's Cone of Experience



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This illustrates that information is more likely to be understood and used again. The bottom level of Dale's Cone of Experience⁴ can be achieved through project-based

² Schools of California Online Resources for Education

³ Caine, G. & Caine, R., pg. 113

learning activities that employ critical thinking and problem-solving skills. These activities are more than creating a presentation; they measure if students understand the content by asking them to defend their findings.

In the research by Linda Darling-Hammond, deep understanding has at least 3 features:

1. Requires the use of higher-order cognitive functions
2. Applies learning experiences in meaningful contexts
3. Builds upon prior learning and but presses toward more disciplined understandings⁵

The Inquiry Leading to Understanding approach meets these elements and more. In designing a project that uses this approach, teachers take time to reflect and plan a project so that it meets student needs, reaches multiple intelligences, uses collaboration, addresses an audience and has a real world connection, and promotes further inquiry. What is unique under this approach is that it seeks to include the attainment of 21st century skills yet fundamentally structured around early ideas and theories.

Other Resources that support Inquiry Learning to Understanding:

Backwards Design

<http://it.spring-branch.isd.tenet.edu/institute/resources.htm>

Inquiry-based Learning

<http://www.thirteen.org/edonline/concept2class/month6/index.html>

Learning By Doing

Interactive Learning Environments: Where They've Come From & Where They're Going

http://www.acm.org/sigchi/chi95/Electronic/documnts/tutors/es_bdy.htm

Action Research

North Central Regional Educational Laboratory

<http://www.ncrel.org/sdrs/areas/issues/envrnmnt/drugfree/sa3act.htm>

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⁴ Bray, B. Dale's Cone of Experience.

⁵ Darling-Hammond, L. pg. 109.

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Problem Based Learning. (n.d.). Schools of California online resources for education. Online. Available. July 29, 2002, <http://score.rims.k12.ca.us/problearn.html>