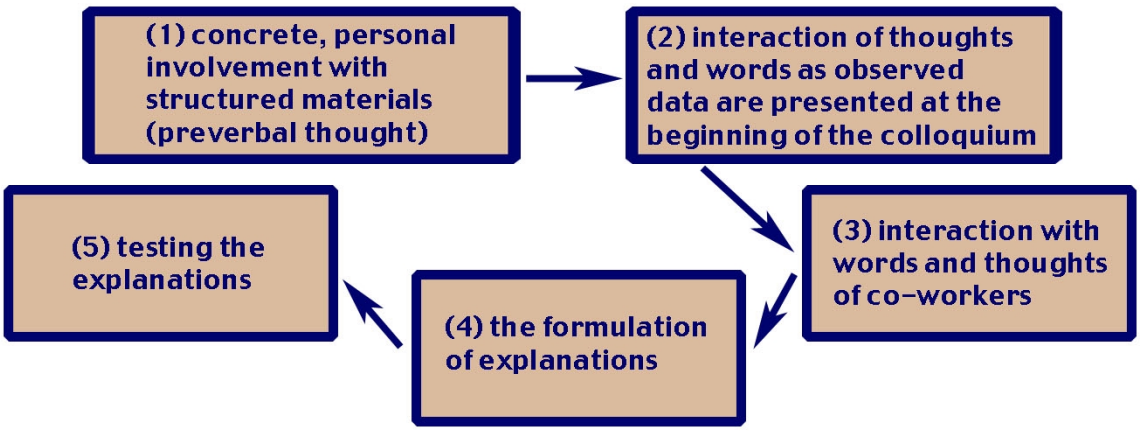
The Investigation-Colloquium Method

The *Investigation-Colloquium Method* was designed over three decades ago (Lansdown et al., 1971) to provide a means for promoting new student learning in science by connecting a concrete experience with reasoning and language. The method is based on the premise that through interaction and dialogue students are more likely to make sense of observations and generate questions that may be systematically pursued in subsequent investigations.

The following diagram illustrates the sequence of stages in students' conceptual progress as described by Lansdown (p. 121):



The teacher plans the first stage to meet pre-determined objectives. It may involve a hands-on engagement by students or an observation of a demonstration. This initial stage is often employed through the use of an eliciting *prompt* (see The Eliciting Prompt: Initiating Student Questioning Via Spontaneous Observation at http://www.designed instruction.com/learningleads/eliciting-prompt.html) that evokes spontaneous reaction and observation from students. The role of the teacher in creating the situation that evokes these elaborations is critical. They provide the spark and the interest to promote the generation of questions by presenting scientific problems initially in such a way that they correspond and build upon experiences that are familiar to students.

The fundamental premise of the method is that we learn by doing and then talking about our discoveries and perceptions. Instructionally, as teachers mediate the discussion

portion of the process, they should strive to redirect and connect students' thoughts and ideas rather than lead the conversation. Again, however, it is of significant importance that the teacher remains involved, as discussed in the following research sidebar.

Improving elementary students' test scores and discussion…

Eugene Trainor's study compared students' oral statements during post-experiment discussions. Students engaging in the I-CM made approximately four times as many statements as those receiving typical instruction (standard control group) or a passive and non-directive approach (second treatment group).

Brooks' findings indicated that students utilizing the I-CM achieved a 30-percent increase on textbook test scores.

The Investigation-Colloquium Method is both based in solid learning theory and supported in scientific research. Its initial development was influenced heavily by Vygotsky's theories and research on the development of thought and language (1962, 1978), and subsequent research (Brooks, 1988; Trainor 1978) indicates that the method effectively takes advantage of the value of verbal interaction in bringing order and understanding to children's experience with a scientific concept. More recent literature indicates increasing alignment with expert opinion. The *National Science Education Standards* (National Research Council [NRC], 1996) support the idea of discourse (i.e., "(Teachers) orchestrate discourse among students about scientific ideas" and "…encourage informal discussion and structure science activities so that students are required to explain and justify their understanding…"). The full text from which the quotes were drawn may be accessed in Chapter 3: Science Teaching Standards in Teaching Standard B and Teaching Standard E (respectively, http://www.nap.edu/readingroom/books/nses/html/3.html#tsb, and http://www.nap.edu/readingroom/books/nses/html/3.html#tse). The term "colloquium" is now commonly accepted and used to refer to gatherings and discussions of professionals around a particular concept or set of ideas or events. Through structured interactive dialogue understandings are enhanced, perspectives are challenged, and needs for further research are established, both individually and as a collective body.

Brooks, R. (1988). *Improving student science achievement in grades 4-6 through hands-on materials and concept verbalization.* Unpublished doctoral dissertation, Nova University.

Lansdown, B., Blackwood, P., & Brandwein, P. (1971). *Teaching elementary science through investigation and colloquium*. New York: Harcourt Brace Jovanovich.

National Research Council. (1996). *National science education standards*. Washington, DC: National Academy Press.

Trainor, E. (1992). The role of investigation and discussion in children's conceptual development in science (Doctoral dissertation. Boston College, 1992). *Dissertation Abstracts International, 40*, 2578A-2579A.

Vygotsky, L. (1962). *Thought and language*. Cambridge, MA: MIT Press.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

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