

Slide 1



Inquiry in the research process is related to:

Content Literacy

Information Literacy

Inquiry-Based Instruction

Higher-Order Thinking

Information Problem-Solving

Constructivist Learning Theory

Scientific Method

Socratic Method

\*\*And all support the need for educators to be as concerned with the process the student goes through as much as the product.

Sources:

Callison, Danny, "Key Words in Instruction: Content Literacy," *School Library Media Activities Monthly*, Volume XVI, Number 3 November 1999: 38-39, 42, 45.

Carey, James O. "Library Skills, Information Skills, and Information Literacy: Implications for Teaching and Learning." *School Library Media Quarterly*. May 30, 2001.

<<http://www.ala.org/SLMQ/skills.html>>.

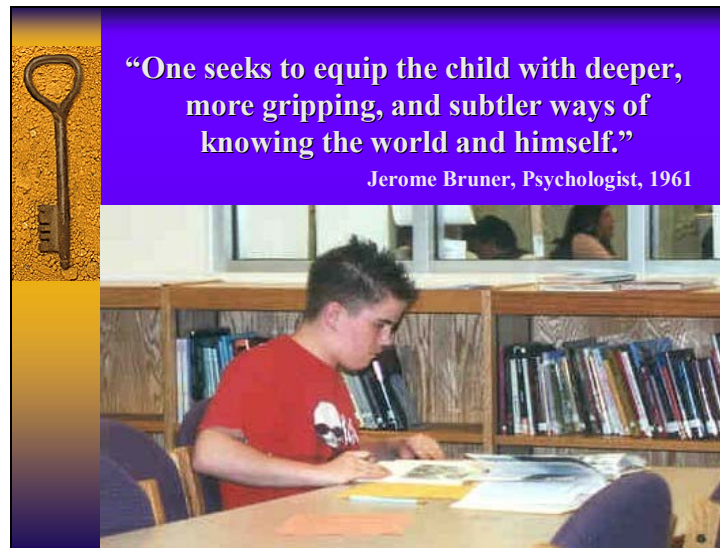
Colburn, Alan. "What Teacher Educators Need to Know about Inquiry-Based Instruction." California State University. June 7, 2001 <<http://www.csulb.edu/~acolburn/AETS.htm>>.

Garlikov, Rick. "The Socratic Method: Teaching by Asking Instead of by Telling." [Online] Available <[http://www.garlikov.com/Soc\\_Meth.html](http://www.garlikov.com/Soc_Meth.html)>, June 7, 2001.

Gordon, Carol. "Students as Authentic Researchers: A New Prescription for the High School Research Assignment." *School Library Media Researcher*, Volume 2, 1999. May 30, 2001. <<http://ala.org/aasl/SLMR/vol2/authentic.html>>.

Wisconsin Education Media Association (1993), reprinted with permission by AASL with additional scenarios by Paula Montgomery (1999). "Information Literacy: A Position Paper on Information Problem Solving." American Association of School Librarians. June 7, 2001 <[http://www.ala.org/aasl/postitions/ps\\_infolit.html](http://www.ala.org/aasl/postitions/ps_infolit.html)>.

Slide 2



“One seeks to equip the child with deeper, more gripping, and subtler ways of knowing the world and himself.”

Jerome Bruner, Psychologist, 1961

## INTRODUCTION

Who are you? (Name, title, school, school population, school climate, etc.)

What is your story? (What challenges brought you to the Inquiry research method?

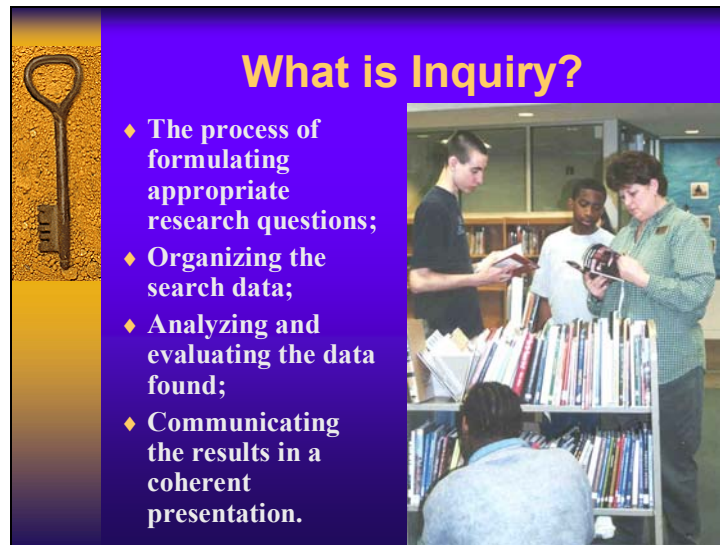
What were you looking for?)

How did I stumble upon Inquiry? (Key words in Instruction instrumental in gaining a better understanding of of the learner, the educator, and the methods--written in a language that we practitioners can understand and find applicable)

Why Inquiry? (Similar to the I-search, but had more flexibility and allowed for student creativity, could be adapted to project-based)

Source:

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**What is Inquiry?**

- ◆ The process of formulating appropriate research questions;
- ◆ Organizing the search data;
- ◆ Analyzing and evaluating the data found;
- ◆ Communicating the results in a coherent presentation.

The slide features a vertical image of a key on the left and a photograph of three students in a library on the right. The students are looking at books and a tablet, engaged in a research activity.

“A Planning Guide for Information Power: Building Partnerships for Learning.” Chicago: American Association of School Librarians, 1999: 43.



**Why is Inquiry Important?**

- ◆ Report Writer to Researcher:
  - Reading
  - Investigating
  - Thinking
  - Presenting
- ◆ Skills Students Develop:
  - Critical Thinking
  - Creative Thinking
  - Problem Solving
  - Meaningful Learning
  - Effective Communication

Allows students to be Independent Thinkers!

We are recognizing that we need to teach children (and ourselves) to think things through. We are teaching children to become independent thinkers, instead of regurgitating information. It gives students the ability to problem solve in life.—Learning the process, it can then be applied to other situations in school and real life.

Source:


Carey, James O. “Library Skills, Information Skills, and Information Literacy: Implications for Teaching and Learning.” *School Library Media Quarterly*. May 30, 2001.

<<http://www.ala.org/SLMQ/skills.html>>.

Gordon, Carol. “Students as Authentic Researchers: A New Prescription for the High School Research Assignment.” *School Library Media Researcher*, Volume 2, 1999. May 30, 2001.


<<http://ala.org/aasl/SLMR/vol2/authentic.html>>

Loertscher, David V. Taxonomies of the School Library Media Program, 2<sup>nd</sup> Edition. San Jose, California: Hi Willow Research and Publishing, 2000.



## INDIANA RESEARCH STANDARDS

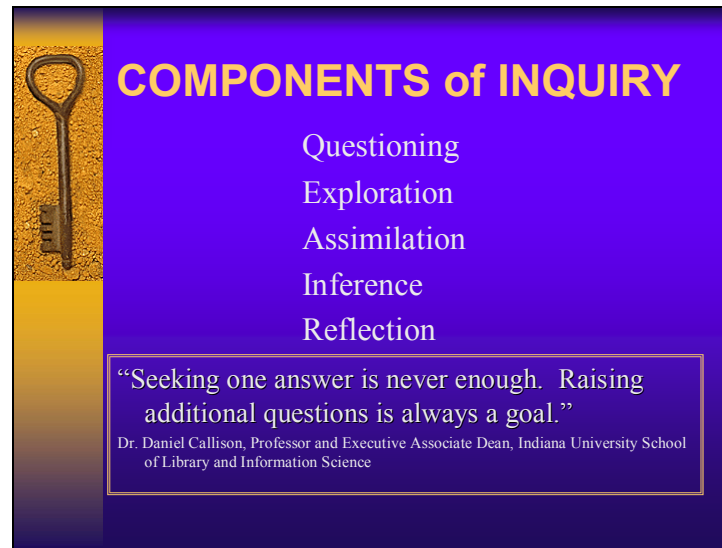
- ◆ Science 5.1.2: Begin to evaluate the validity of claims based on the amount & quality of the evidence cited.
- ◆ Social Studies 4.1.15: Using primary source and secondary source materials, generate a question, seek an answer, and write brief comments about Indiana history.
- ◆ English/Language Arts 7.4.5: Identify topics; ask and evaluate questions; and develop ideas leading to inquiry, investigation, and research.
- ◆ English/Language Arts 9.4.4: Use writing to formulate clear research questions and to compile information from primary and secondary print or Internet sources.



## National Standards

- ◆ **English Language Arts: Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.**

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**COMPONENTS of INQUIRY**

- Questioning
- Exploration
- Assimilation
- Inference
- Reflection

“Seeking one answer is never enough. Raising additional questions is always a goal.”

Dr. Daniel Callison, Professor and Executive Associate Dean, Indiana University School of Library and Information Science

**QUESTIONING:** Accept children’s natural curiosity and need to feel part of the process by students formulating the questions. Help students develop the skills to ask more “refined, focused, relevant, and insightful questions.

**EXPLORATION:** As students explore their environment and the world around them, the exploration become the “systematic search for and examination of resources and information.”

**ASSIMILATION:** The student absorbs knowledge and information. In assimilation, the student does many things with information: accepts it, disregards it, considers other alternatives, and allows the knowledge to alter his/her perception.

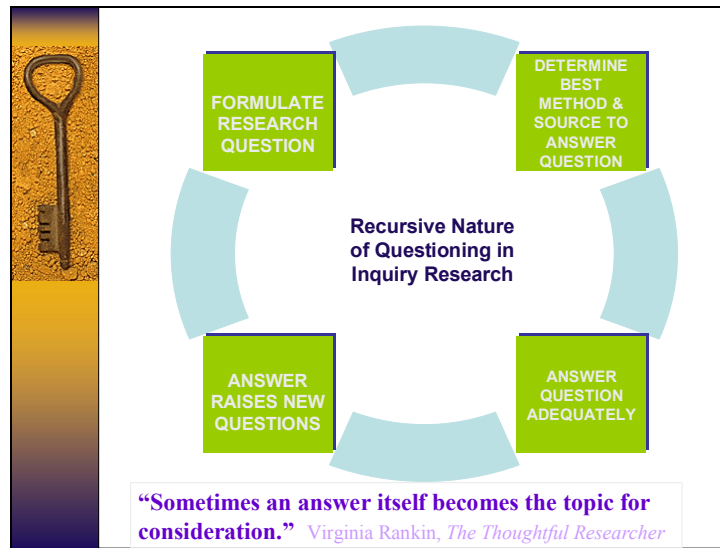
**INFERENCE:** When inferring, the student is “deriving a conclusion from facts and premises” with evidence and drawing conclusions. This is when students may not be satisfied and will develop new questions.

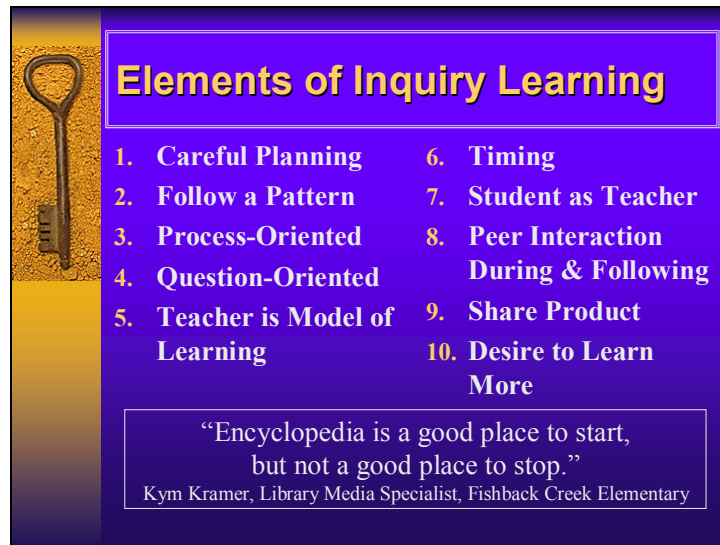
**REFLECTION:** The student examines his inquiry through self-assessment and reflection.

Source:

Callison, Daniel <callison@indiana.edu>. “Chapter 1 Concepts and Components of Information Inquiry Rev. 2 (fwd).” E-mail to Leslie Preddy <lpreddy@mdpt.k12.in.us>. 7/20/01, 11:12 am.

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### Elements of Inquiry Learning

1. Careful Planning
2. Follow a Pattern
3. Process-Oriented
4. Question-Oriented
5. Teacher is Model of Learning
6. Timing
7. Student as Teacher
8. Peer Interaction During & Following
9. Share Product
10. Desire to Learn More

“Encyclopedia is a good place to start, but not a good place to stop.”  
Kym Kramer, Library Media Specialist, Fishback Creek Elementary

Edward Victor listed 10 element of inquiry learning for science education that Dr. Danny Callison of IU’s SLIS had adapted to the inquiry approach to research, which can be used with any discipline at any grade level.

Inquiry required pre-planning, organization, and trial. Planning should include, at minimum, involvement of a teacher and media specialist. The Inquiry must be tailored to the resources available in traditional and non-traditional ways.

Put a procedure in place that is in writing and clear to both the student and teachers/media specialist. The teacher and student should evaluate the student’s performance.

Although research inquiry is not linear, but cyclical, it is important to the learning process that the student, teachers, media specialist understand the importance of documentation and record-keeping. The ideal situation, no matter the discipline, would incorporate the scientific method of keeping everything together and organized in a journal, notebook, or folder.

Inquiry is a cyclical process of formulating questions, determining a method to answer the question while encouraging the use of multiple sources, questioning the adequacy and authority of the answer, allowing the answers to raise other questions to be answered.

The educators no longer act as just the facilitator. Student success in learning requires a project timeline and “checkpoints” throughout the process to help the teachers/media specialist to guide and coach the student toward the next level of success. As an good coach would, this also means

that the educators model the inquiry process and inquiry behavior. Inquiry is reached when the student is able to move forward on his/her own, as well as learn from his/her mistakes.

Evaluating the process, the effort, and the challenge/difficulty is vital to student inquiry.

Be flexible. Ideal would be Block Scheduling, blocks of time beyond the traditional 45 minutes.

Ways around this challenge at the secondary level could be teaming with another teacher for an inquiry project to double the amount of time a student is able to focus on the inquiry each day.

Another opportunity would be to arrange before or after school work sessions.

Allow the “more accomplished students become advisors to the slower groups.” Students can model their success for others. There is nothing more stimulating for a student than to be able to show another student a solution for an especially challenging research problem. Many students have a variety of expertise that could help fellow students succeed: peer editor, visual organizer, technical expert, Internet search wizard, and so on. And, as they say, to know is to teach—allowing a student the opportunity to teach positively reinforces his/her experience.

Allow students to work through the process in teams of two—no more, no less. “The team approach allows for verbal communication during the experience, sharing experiences and reactions, dividing responsibilities, compromising on logistics and conclusions.” Most of the final product, though, should be individual and each student should keep his/her own journal/notebook/folder.

Teams should report their experience and findings, formally or informally, to the class, with the teacher facilitating a discussion of common and unique findings and problems encountered. The final product should be shared with peers, teachers, and, ideally, parents. Parents can be included through Back to School Nights, Project Fairs, Dessert Pitch-Ins, Community Events.

The ideal conclusion to the inquiry process is when “some students and teachers...demonstrate a desire to learn more.” What other questions are still nagging at you? If you had more time, what would you want to learn? Sometimes the question may never be answered or has yet to be answered, but it’s a positive step in the cognitive process to formulate those questions.

Source:

Callison, Daniel. Face to Face Interview. July 17, 2001

Callison, Daniel. “School Library Media Programs & Free Inquiry Learning.” *School Library Journal*. February 1986: 20-24.

Slide 10



Visual-learn through written information (65% of the population)

Auditory-learn through spoken information or reading aloud (30% of the population)

Kinesthetic-learn by imitation and practice (5% of the population)

Source:

[How Your Learning Style Affects Your Use of Mnemonics](http://www.mintoold.com/mneme1sty.html), [Online] Available

<<http://www.mintoold.com/mneme1sty.html>>, June 7, 2001.



Dr. Danny Callison of IU's SLIS, lists 4 advancing levels of inquiry.

**CONTROLLED-** The teacher chooses the topic and the Media Center has enough resources to give all students the opportunity for success. This is when the students receive the basic skills and exercises

**GUIDED-** students work on research, usually in groups, and all students are expected to create the similar final products and/or reports that included similar content.

**MODELED-** Students become the "apprentice" as the teacher and media specialist become the coach. The student has more freedom in topic selection, method, and process. Ideally, the teacher and media specialist model and engage in research alongside students.

**FREE-** Free inquiry is when the student is on his/her own. The student is responsible for everything: selecting the topic, key issues, and questions to choosing the appropriate and unique product for an avenue to presentation and reporting. Free Inquiry is ideal for an independent study. Students are able to see multiple sides of an issue. Students who have been developing inquirers in earlier years can achieve Free Inquiry by their senior year.

Source:

Callison, Daniel. Face to Face Interview. July 17, 2001

Callison, Daniel. "Key Words in Instruction: Inquiry." *School Library Media Activities Monthly*, Volume XV, Number 6 (February 1999): 38-42.



## Steps to Incorporating Inquiry

- ◆ Allow students the intellectual opportunity to select and specify a topic to investigate.
- ◆ Allow students to use a variety of traditional and non-traditional sources which allow for opportunities to interpret, analyze, and evaluate.
- ◆ Offer a variety of options for project conclusion and include a peer evaluation aspect.
- ◆ Evaluate the research process as much as the final product.
- ◆ When possible, involve the school and local community.



Time—Lack of student time on task

To be effective, allow a reasonable amount of time for the inquiry and the final product


Confusion--Students should have clearly defined expectations that students can clearly follow

Poor Design—Project should be an integral part of the standards and curriculum or it is doomed to failure.

Source:

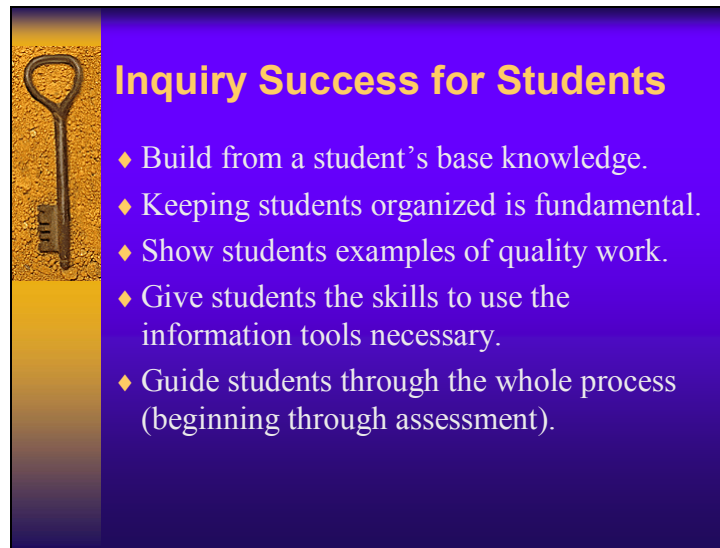
Kuhlthau, Carol C. "Implementing a Process Approach to Information Literacy: A Study Identifying Indicators of Success in Library Media Programs." *School Library Media Quarterly*, Volume 22, Number 1, Fall 1993. June 6, 2001.

<[http://www.ala.org/aasl/SLMR/slmr\\_resources/select\\_huhlthau1.html](http://www.ala.org/aasl/SLMR/slmr_resources/select_huhlthau1.html)>.



## Evaluation

- ◆ Process
  - Meeting Deadlines
  - On-Task Behavior
  - Selecting Sources
  - Asking for Help
  - Keeping Notebook/Journal
  - Self & Peer Assessment
- ◆ Product
  - Written & Oral Aspect
  - Aesthetics
  - Accuracy
  - Coherent
  - Annotated Bibliography



**Inquiry Success for Students**

- ◆ Build from a student's base knowledge.
- ◆ Keeping students organized is fundamental.
- ◆ Show students examples of quality work.
- ◆ Give students the skills to use the information tools necessary.
- ◆ Guide students through the whole process (beginning through assessment).

Base Knowledge—building from what they KNOW instead of what they DON'T know.

Organized—

Examples—No Names or other distinguishing characteristics should be on the examples. If at all possible, examples should be from previous years.

Skills—

Guide—”walk” students step by step through the notebook/journal/folder so that they clearly understand expectations, deadlines, opportunities. Explain everything clearly. Act as the student's guide, or coach, as they move through the research inquiry process. Be observant and go to the aid of students in need before their frustration level becomes unmanageable.

Source:

Gordon, Carol. “Students as Authentic Researchers: A New Prescription for the High School Research Assignment.” *School Library Media Researcher*, Volume 2, 1999. May 30, 2001.

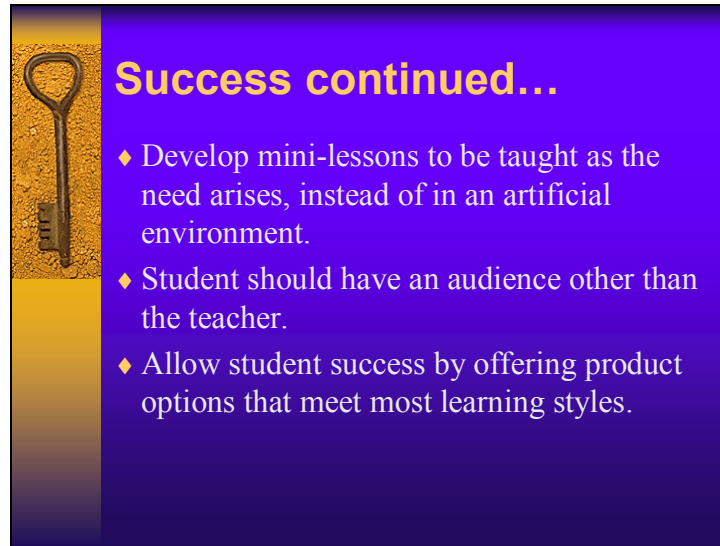
<<http://ala.org/aasl/SLMR/vol2/authentic.html>>

Holland, Holly. “Reaching All Learners: You've got to Know Them to Show Them.” *Middle Ground* April 2000: 10-13.

Kuhlthau, Carol C. “Implementing a Process Approach to Information Literacy: A Study Identifying Indicators of Success in Library Media Programs.” *School Library Media Quarterly*,

Volume 22, Number 1, Fall 1993. June 6, 2001.

<[http://www.ala.org/aasl/SLMR/slmr\\_resources/select\\_huhlthau1.html](http://www.ala.org/aasl/SLMR/slmr_resources/select_huhlthau1.html)>.



**Success continued...**

- ◆ Develop mini-lessons to be taught as the need arises, instead of in an artificial environment.
- ◆ Student should have an audience other than the teacher.
- ◆ Allow student success by offering product options that meet most learning styles.

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-Students should be given opportunity to demonstrate expertise in front of peers.

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Source:

Holland, Holly. "Reaching All Learners: You've got to Know Them to Show Them." *Middle Ground* April 2000: 10-13.

Slide 17




**Research Success Means...**

Help students understand how to interpret what information is important and should be kept and what to disregard throughout the process.

Source:

Carey, James O. "Library Skills, Information Skills, and Information Literacy: Implications for Teaching and Learning." *School Library Media Quarterly*. May 30, 2001.

<<http://www.ala.org/SLMQ/skills.html>>.



“Grading...was not such an overwhelming task this year because I already knew the students had been successful. I knew they had learned something. They were familiar and comfortable with the library and the inquiry process. This was what was important to me and what I had struggled with in the past...”

Julie Sumrall, Teacher  
Freshman Intensive English  
Jefferson High School



Developed by Leslie Preddy, with a grant from the Indiana Department of Education-Office of Learning Resources, the website provides resources free for interested educators. The “Student Inquiry in the Research Process” was developed based on the elements of Information Inquiry designed by Dr. Daniel Callison, Indiana University and LMS Associates, publishers of School Library Media Activities Monthly

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