

Research: Just what does it mean?

A short essay by Barbara A. Jansen

Merriam-Webster definition of “research”:

1 : careful or diligent search

2 : studious inquiry or examination; *especially* : investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws

3 : the collecting of information about a particular subject

Oxford English Dictionary defines it:

1. a. trans. To search into (a matter or subject); to investigate or study closely. Also, to engage in research upon (a subject, a person, etc.).

Just what is research, really? Is it merely a search for facts on a subject, such as the last definition in Merriam-Webster suggests? Is student research in the curriculum areas a simplified search for prepackaged answers? Is the research project merely a game of Trivial Pursuit™ and the final product a topical report of thinly disguised plagiarism as Jamie McKenzie in *Beyond Technology* suggests of many assignments?

Or, is it an effort to have students involved in “diligent searching,” “studious inquiry or examination; *especially* : investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws,” or a “search into (a matter or subject); (by) investigating or studying closely”?

In order for students to be involved in meaningful research, they must search and search again for answers to engaging questions. They must add value to their findings in order to add to an existing body of knowledge. They must explain, problem-solve, and make choices and decisions (McKenzie 132). This is real research. This is the only research that is worthy or our time and theirs.

McKenzie, Jamie. *Beyond Technology: Questioning, Research, and the Information Literate School*. Bellingham, WA: FNO Press, 2000.

On the following pages you will find strategies for promoting higher-level thinking in the research process. They are not difficult to implement and have proven quite effective.

Some Things To Consider About Questioning

By Barbara A. Jansen

“Questions and questioning may be the most powerful technologies of all.”

—Jamie McKenzie in *Beyond Technology*

Teachers and librarians typically assign knowledge and recall level information for students to locate. In itself, there is nothing wrong with this approach. However, consider requiring students to think on a higher level while involved in the entire information-problem-solving process.

The following essay reflects what teachers and librarians can do for students if questioning is central to the learning process:

If knowledge is made up of “answers,” then what are the questions? Too often students leave school never realizing that knowledge is produced and refined in response to questions and inquiry. Too often the design of a course precludes students from asking and pursuing wonderful questions as they arise in the unfolding work, which leads to less engagement. Shouldn’t we try to make coursework more authentic by better revealing how all knowledge is pursued and shaped by questioning? And shouldn’t we help the student simulate or recreate some of the processes by which the knowledge was created?

We can think of curriculum as involving not only teaching what we know, but also helping the student discover how we know it, how we came to know it, and what makes it knowledge. Our aim as teachers, then, is not merely coverage, but also “un-coverage” (Wiggins and McTighe).

No matter the approach, much student behavior can be predicted from the question itself—whether students will be able to just copy and paste information they find to satisfy the assignment, how much students will have to “think” about the information they find, and what type of product they are likely to prepare. Good questions are more likely to produce better learning (Loertscher & Woolls 8).

Consider research that suggests the learning of technical information can be achieved by learning to ask good questions (Allison & Shrigley 79). Knowing how to ask good questions enhances students’ comprehension by focusing on main ideas and making connections among ideas. Very few students ask thought-provoking or higher-level questions about content they are learning in class or through independent projects. Asking questions will increase their comprehension of the subject matter.

Essential Question

Posing an *essential question* causes students to think on a deeper level than mere information gathering. “We are fighting a long history of topical research. Essential questions set students and staff free from this tedious and wasteful ritual. Research becomes motivating and meaningful. An essential question has the following attributes:

- They require students to EVALUATE (make a thoughtful choice between options, with the choice based upon clearly stated criteria);
- SYNTHESIZE (invent a new or different version); or
- ANALYZE (develop a thorough and complex understanding through skillful questioning)”

(McKenzie 77-8).

Essential questions may be characterized by what they do:

- They point to the heart of a subject or topic, especially its controversies.
- They generate multiple plausible answers, perspectives, and research directions-leading to other questions.
- They cast old knowledge, ideas, texts in a new light; they make the familiar strange and the strange familiar.
- They lead to discovery and uncoverage, as opposed to “coverage.” This means that you don't need to know all the information on a particular topic, but know essential information well. Less is more. Less is better. Go in-depth in your study instead of trying to cover a topic that is too broad.
- Essential questions engender further and deepening interest in the subject.
- They are provocative, enticing, and engagingly framed.
- Essential questions are higher-order, in Bloom’s sense: they are always matters of analysis, synthesis, and evaluative judgment. You must “go beyond” the information given.
- Answers to essential questions cannot be found. They must be invented.

For research papers that have a self-selected topic, consider having *students* pose an essential question for exploration. They will develop the essential question after they have had several opportunities to look at the information available on a topic. They should be taught how to develop the question and the supporting unit questions (detailed below). Once they are ready to write the first draft of their paper, they can form a thesis statement from their findings and the new ideas they will add to the body of knowledge on their subject.

Unit (supporting) questions

Sometimes the essential question may be too global or abstract or inaccessible for students. So, more specific questions are often needed to introduce and guide the work on a particular unit of study. These questions are called “unit questions” and tend to be more topic- and subject-specific.

Essential Question	Unit Questions
Must a story have a moral, heroes, and villains?	What is the moral of the story of the Holocaust? Is Huck Finn a hero?
How does an organism's structure enable it to survive in its environment?	What is an organism? How do the structures of amphibians and reptiles support their survival?
What is light?	How do cats see in the dark? Is light a particle or wave?
Do we always mean what we say and say what we mean?	What are sarcasm, irony, and satire? How do these genres allow us to communicate <i>without</i> saying what we mean?
Is U.S. history a history of progress?	Is the gap between rich and poor any better now than it was 100 years ago? Do new technologies always lead to progress?

(Wiggins and McTighe 29-31).

The following categories of unit questions are easy to implement. Begin by asking these of your students so that the research process is not merely a game of Trivial Pursuit™. As your students thinking increases in sophistication, require that they ask these questions of the subjects they are researching.

Asking unit questions from these four types, categorized by Angelo Ciardiello, will aid in increasing students' comprehension of the subject matter:

1. Memory level questions are those to which you will most likely find answers in sources such as books, web sites, and other reference materials. These are the questions that students will "look up" and record on data charts, note cards, Word templates or other graphic organizers. Asking this type of question provides background for the subject. These questions bring forth simple reproduction of facts, formulae, or other items of remembered content.

Thought processes involved while asking and answering these questions are naming, defining, identifying, designating, or giving yes/no responses.

Memory questions begin with these words:

Who...
What...
Where...
When...

Examples of memory questions:

When did Richard III reign?
What games were played during the ancient Greek Olympics?
Who developed the planetary model of the atom?
When does the 21st century officially begin?

2. Convergent thinking questions are those which represent the analysis and integration of given or remembered information. They lead you to an expected end result or answer. Answers to these questions may or may not be found in traditional sources.

Thought processes involved while asking and answering these questions are explaining, stating relationships, and comparing and contrasting.

Convergent thinking questions begin with these words or phrases:

Why

How

In what ways...

Examples of convergent thinking questions:

How does gravity differ from electrostatic attraction?

How was the invasion of Grenada a modern day example of the Monroe Doctrine in action?

Why didn't the Senate vote to impeach President Clinton?

Why was Richard III considered an evil king?

In what ways does Roman drama compare to the heroic epics of Indian literature?

3. Divergent thinking questions are those which represent intellectual operations wherein you are free to generate independently your own ideas, or to take a new direction or perspective on a given topic.

Thought processes involved while asking and answering these questions are predicting, hypothesizing, inferring, or reconstructing.

Divergent thinking questions begin with these words or phrases:

Imagine...

Suppose...

Predict...

If... then...

How might...

Can you create...

What are some possible consequences...

Examples of divergent thinking questions:

Can you imagine ways that soccer typifies Mexican culture?

Suppose that Caesar never returned to Rome from Gaul. Would the Empire have existed?

What predictions can you make regarding the budget surplus if Bush wins?

How might life in the year 2100 differ from today?

The computer corrects spelling. Is it then unnecessary for third graders to take spelling tests?

4. Evaluative thinking questions are those which deal with matters of judgment, value, and choice. They are characterized by their judgmental quality.

Thought processes involved while asking and answering these questions are valuing, judging, defending, or justifying choices.

Evaluative thinking questions begin with these words or phrases:

Defend...

Judge...

Justify...

What do you think about...

What is your opinion about...

Examples of evaluative thinking questions:

What do you think are the advantages of solar power over coal-fired electric plants?

Is it fair that Title IX requires colleges to fund sports for women as well as for men?

How do you feel about raising the driving age to 18?

Justify Pilate's decision to execute Jesus.

Why did you vote for ___?

What do you think of capital punishment for drug dealers?

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