

6.9 *Think for Yourself*

CONSTRUCTING A LIST OF PRIOR QUESTIONS

Formulate a complex question to which you would like to find an answer. Then use the procedure of constructing prior questions until you have a list of at least 10 questions. Afterward, see if you have gained insight into how the first question has to be thought through in light of the prior questions you formulated.

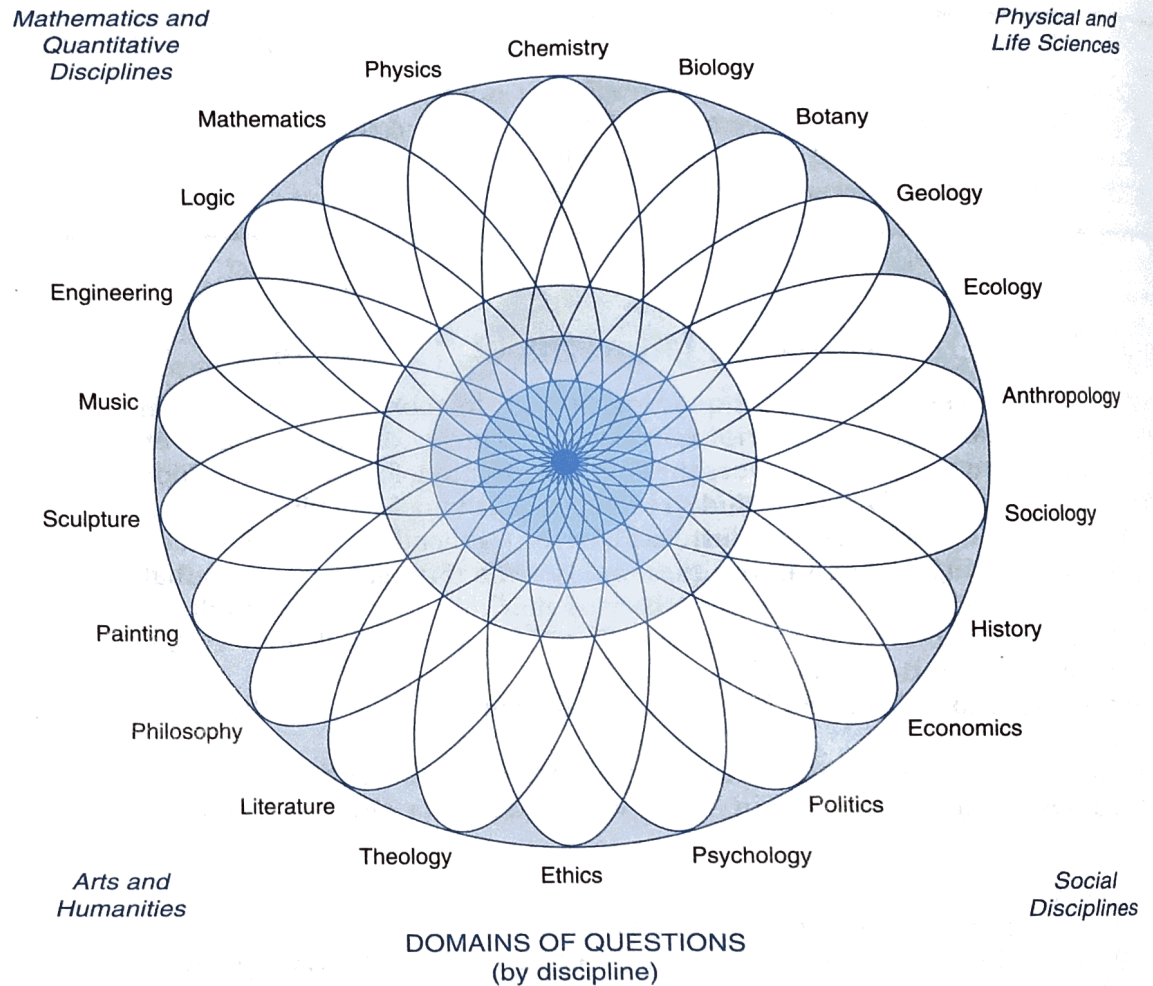
Focus Your Questions on Domains of Thinking

When you are addressing a complex question that covers more than one domain of thought, you can target your prior questions by figuring out the domains of thinking inherent in the question. Does the complex question, for example, include an economic dimension? Does it include a biological, sociological, cultural, political, ethical, psychological, religious, historical, or some other dimension? For each dimension of thinking inherent in the question, you can formulate questions that force you to consider complexities you otherwise may miss. Consider the following question, some of the domains imbedded in the question, and some of the questions imbedded in those domains.

Complex question: What can be done about the number of people who abuse illegal drugs?

Domains inherent in the question, along with some questions we would have to address within each domain before we could answer our complex question, are:

1. Economic
 - What economic forces support drug use?
 - What can be done to minimize the influence of money involved in drug sales?
2. Political
 - What possible solutions to drug abuse are politically unacceptable?
 - Are there any realistic solutions that the power structure would accept?
 - To what extent does the political structure exacerbate the problem?
3. Social/Sociological
 - What social structures and practices support drug abuse?
 - How does gang membership contribute to drug abuse?
 - How does membership within any group contribute to the problem or, conversely, insulate group members from abusing drugs?
4. Psychological
 - How do factors such as stress, individual personality differences, and childhood traumas support drug abuse?
 - What role, if any, does human irrationality play in drug abuse?

EXHIBIT 6.4 *Complex questions have multiple domains.*

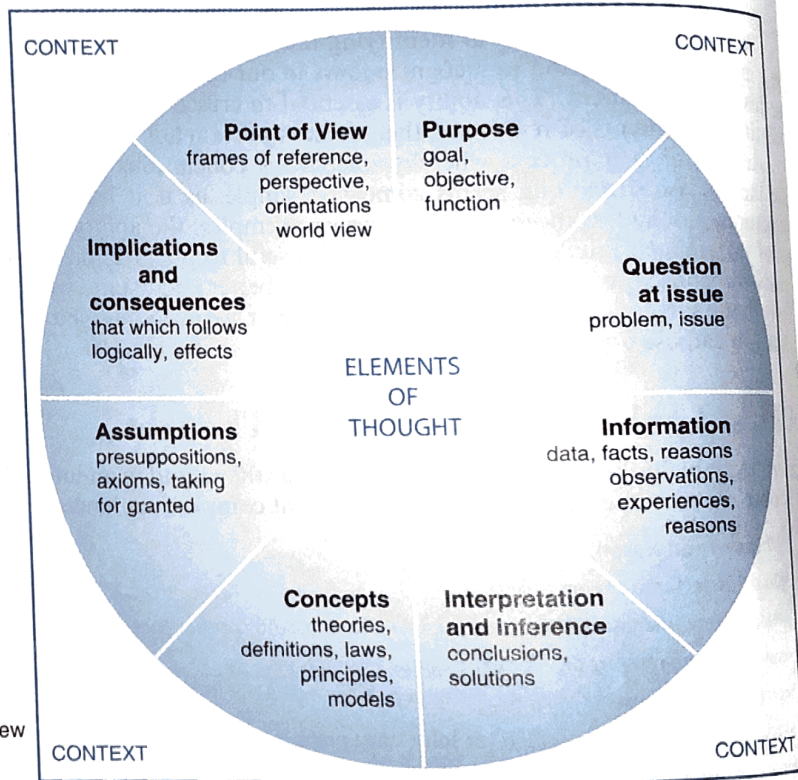
5. Biological
 - How do genetics play a role in drug abuse?
 - What biological changes in the body resulting from drug abuse contribute to the problem?
6. Educational
 - What role are educational institutions now playing to support or diminish the problem?
7. Religious
 - What can religious institutions do to reduce the incidence of drug abuse?
 - What role are they now playing in regard to drug abuse?
8. Cultural
 - What cultural beliefs support the drug-abuse problem?
 - What can we learn from cultures that have a low incidence of drug abuse?

EXHIBIT 4.4 *All thinking is defined by the eight elements that comprise it.*

Eight basic structures are present in all thinking: Whenever we think, we think for a purpose within a point of view based on assumptions leading to implications and consequences. We use concepts, ideas, and theories to interpret data, facts, and experiences to answer questions, solve problems, and resolve issues.

Thinking, then:

- generates purposes
- raises questions
- uses information
- uses concepts
- makes inferences
- makes assumptions
- generates implications
- embodies a point of view



Let us now examine, at least provisionally, each of these crucial concepts. We will be using them throughout this book, so it is essential for them to become a comfortable part of your own critical thinking vocabulary. As you read these initial explanations, see whether you can elaborate upon them in your own words with an example drawn from your own experience.

By reasoning, we mean to *make sense of something by giving it some meaning in one's mind*. Virtually all thinking is part of our sense-making activities. We hear scratching at the door and think, "It's the dog." We see dark clouds in the sky and think, "It looks like rain." Some of this activity operates at a subconscious level. For example, all the sights and sounds about me have meaning for me without my explicitly noticing that they do. Most of our reasoning is unspectacular; it tends to become explicit to us only when someone challenges it and we have

to defend it ("pleasant."). The out what to do these decisions

In saying the world, they do not values. Our thinking we act, even in some thinking—including about, the direction after in our thinking the level of complexity

By reasoning comprehensive some angle. We often give For example, philosophical or secularly. We or both. One (what their own understand to

By using which we intend example, in the important. In or the other other ideas. other concepts discipline (technical vocabulary concepts that make sense strike, ball, we must in rules would

By reasoning think about face questions. Therefore, "What is to solve?" or well, we must and issues we have to

EXHIBIT 5.1 *To evaluate thinking, we must apply intellectual standards to the elements of thought.*

Clarity

Understandable; the meaning can be grasped

Could you elaborate further? Could you give me an example? Could you illustrate what you mean?

Accuracy

Free from errors or distortions; true

How could we check on that? How could we find out if that is true? How could we verify or test that?

Precision

Exact to the necessary level of detail

Could you be more specific? Could you give me more details? Could you be more exact?

Relevance

Relating to the matter at hand

How does that relate to the problem? How does that bear on the question? How does that help us with the issue?

Depth

Containing complexities and multiple interrelationships

What factors make this a difficult problem? What are some of the complexities of this question? What are some of the difficulties we need to deal with?

Breadth

Encompassing multiple viewpoints

Do we need to look at this from another perspective? Do we need to consider another point of view? Do we need to look at this in other ways?

Logic

The parts make sense together; no contradictions

Does all this make sense together? Does your first paragraph fit in with your last? Does what you say follow from the evidence?

Significance

Focusing on the important; not trivial

Is this the most important problem to consider? Is this the central idea to focus on? Which of these facts are most important?

Fairness

Justifiable; not self-serving or one-sided

Is my thinking justifiable in context? Am I taking into account the thinking of others? Is my purpose fair given the situation? Am I using my concepts in keeping with educated usage, or am I distorting them to get what I want?

DEAD QUESTIONS REFLECT INERT MINDS

Most students ask virtually none of these thought-stimulating types of questions. Most tend to stick to dead questions such as, “Is this going to be on the test?” This sort of question usually implies the desire not to think at all.

We must continually remind ourselves that thinking begins within some content only when questions are generated. No questions (asked) equals no understanding (achieved). Superficial questions equal superficial understanding; unclear questions equal unclear understanding. If you sit in class in silence, your mind probably will be silent as well. When this is the case, you either will ask no questions or your questions will tend to be superficial, ill-formed, and self-serving. You should strive for a state of mind in which, even when you are outwardly quiet, you are inwardly asking questions. You should formulate questions that will lead you to productive learning.

If you want to learn deeply and independently, you should always strive to study so that what you do stimulates your thinking with questions that lead to further questions.

The best thinkers ask live questions that lead to knowledge and further questions that lead to knowledge and yet further questions.

Isaac Newton at age 19 drew up a list of questions under 45 headings. His goal was constantly to question the nature of matter, place, time, and motion.

6.2, 6.3 *Think for Yourself*

QUESTIONING AS YOU READ

Read a chapter in one of your textbooks specifically to generate questions. Only when you are asking questions as you read are you reading critically. After reading each section, or every few paragraphs, make a list of all the questions you have about what you are reading. Then try to answer these questions—either by looking in the textbook or by raising them in class.

QUESTIONING YOUR QUESTIONING ABILITY

At this point in your intellectual development, to what extent would you call yourself a skilled or deep questioner? That is, how would you rate the overall quality of the questions you are asking (those that you share with others and those you keep to yourself)? Do you know anyone who you would say is a deep questioner? If so, what makes you think this person questions deeply?

THREE CATEGORIES OF QUESTIONS

Before we go further in our discussion about how to question deeply, we want to introduce a useful way of categorizing questions. This way of classifying questions provides a “jumpstart” in discovering the kind of reasoning a question calls for.

The three categories of questions are:

1. Questions of fact. Questions with one right answer (Factual questions fall into this category.)

- What is the boiling point of lead?
- What is the size of this room?
- What is the differential of this equation?
- How does the hard drive on a computer operate?

2. Questions of preference. Questions with as many answers as there are different human preferences (a category in which mere subjective opinion rules). These questions ask you to express a preference.

- Which would you prefer, a vacation in the mountains or one at the seashore?
- How do you like to wear your hair?

EXHIBIT 6.1 *In approaching a question, it is useful to figure out what type it is. Is it a question with one definitive answer? Is it a question that calls for a subjective choice? Or does the question require you to consider competing answers?*

