

CRITICAL THINKING



*Tools for Taking Charge
of Your Learning
and Your Life*

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ASKING QUESTIONS THAT LEAD TO GOOD THINKING

It is not possible to become a good thinker and be a poor questioner. Thinking is not driven by answers but, rather, by questions. Had no questions been asked by those who laid the foundation for a field—for example, physics or biology—the field would not have been developed in the first place. Every intellectual field is born out of a cluster of questions to which answers are either needed or highly desirable. Furthermore, every field stays alive only to the extent that fresh questions are generated and taken seriously as the driving force in thinking. When a field of study is no longer pursuing answers to questions, it becomes extinct. To think through or rethink anything, one must ask questions that stimulate thought.

THE IMPORTANCE OF QUESTIONING

Questions define tasks, express problems, and delineate issues. Answers, on the other hand, often signal a full stop in thought. Only when an answer generates further questions does thought continue its life as such. This is why it is true that only when you have questions are you really thinking and learning. Moreover, the quality of the questions you ask determines the quality of your thinking. When you have no questions, you are not concerned with pursuing any answers.

For example, biologists and biochemists make progress when they ask questions such as, "What are we made of? How do our bodies work? What is life?" They make even more progress when they take their questioning to the subcellular and molecular level. They ask questions about isolated molecules and events on the molecular level: "What are proteins? What are enzymes? What are enzyme reactions? How do molecular events underlie macroscopic phenomena?" (Jevons, 1964). By focusing on these subcellular questions, they can then move to important questions such as, "How do vitamins interact with chemistry in the body to produce healthier functioning? And how do cancer cells differ from normal cells? And what kinds of foods interact with the body's chemistry to lessen the likelihood of the development of cancerous cells?"

The best teachers are usually those who understand the relationship between learning and asking questions. As Jevons (1964) says of his students, "Those who asked questions helped me most, but even those who merely looked puzzled helped a little, by stimulating me to find more effective ways of making myself understood."

Thinking is of no use, then, unless it goes somewhere productive. And the questions we ask determine where our thinking goes. Only when our thinking leads us somewhere important can we learn anything of value to us.

Think for Yourself

6.1

QUESTIONING YOUR QUESTIONS

Answer this question: What are the questions you would most like to answer for yourself? Once you have a short list of three or four, answer these questions: Where are these questions taking you? How is your focus on these questions affecting your behavior, your emotions, your experience, and the quality of your life? For example, too much emphasis on the question, "How can I make the most money?" may lead you to miss the significance of this question, "Am I developing a loving relationship with someone I respect?"

Consider the following ways that questions focusing on the elements of reasoning and intellectual standards force our thinking to a more disciplined level. *Deep* questions drive our thought underneath the surface of things, force us to deal with complexity.

- Questions of *purpose* force us to define our task.

- Questions of *information* force us to look at our sources of information as well as at the quality of our information.
- Questions of *interpretation* force us to examine how we are organizing or giving meaning to information and to consider alternative ways of giving meaning.
- Questions of *assumption* force us to examine what we are taking for granted.
- Questions of *implication* force us to follow where our thinking is leading us.
- Questions of *point of view* force us to examine our point of view and to consider other *relevant* points of view.
- Questions of *relevance* force us to discriminate what does and what does not bear on a question.
- Questions of *accuracy* force us to evaluate and test for truth and correctness.
- Questions of *precision* force us to give details and be specific.
- Questions of *consistency* force us to examine our thinking for contradictions.
- Questions of *logic* force us to consider how we are putting the whole of our thought together, to make sure that it all adds up and makes sense within a reasonable system of some kind.

6.2

Think for Yourself

QUESTIONING THE DEPTH OF YOUR QUESTIONS

Write out your answers to these questions: Are any of the questions you are focused on in your life *deep* questions? To what extent are you questioning your *purposes* and goals? Your *assumptions*? The *implications* of your thought and action? Do you ever question your *point of view*? Do you ever wonder whether your point of view is keeping you from seeing things from an opposing perspective? When?

Do you ever question the *consistency* of your thought and behavior? Do you question the *logicalness* of your thinking? What did answering the above questions, and your reflection on them, tell you about yourself and about your habits of questioning?

DEAD QUESTIONS REFLECT INERT MINDS

Most students ask virtually none of the above thought-stimulating types of questions. Most tend to stick to dead questions such as, "Is this going to be on the test?" Questions such as this usually imply the desire not to think.

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 will probably be silent as well. When this is the case, either you 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.

Think for Yourself

6.3, 6.4

QUESTIONING WHEN YOU READ

Read a chapter in one of your textbooks for the primary purpose of generating 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 see if you can 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 (both 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?

COMING TO TERMS WITH THREE CATEGORIES OF QUESTIONS

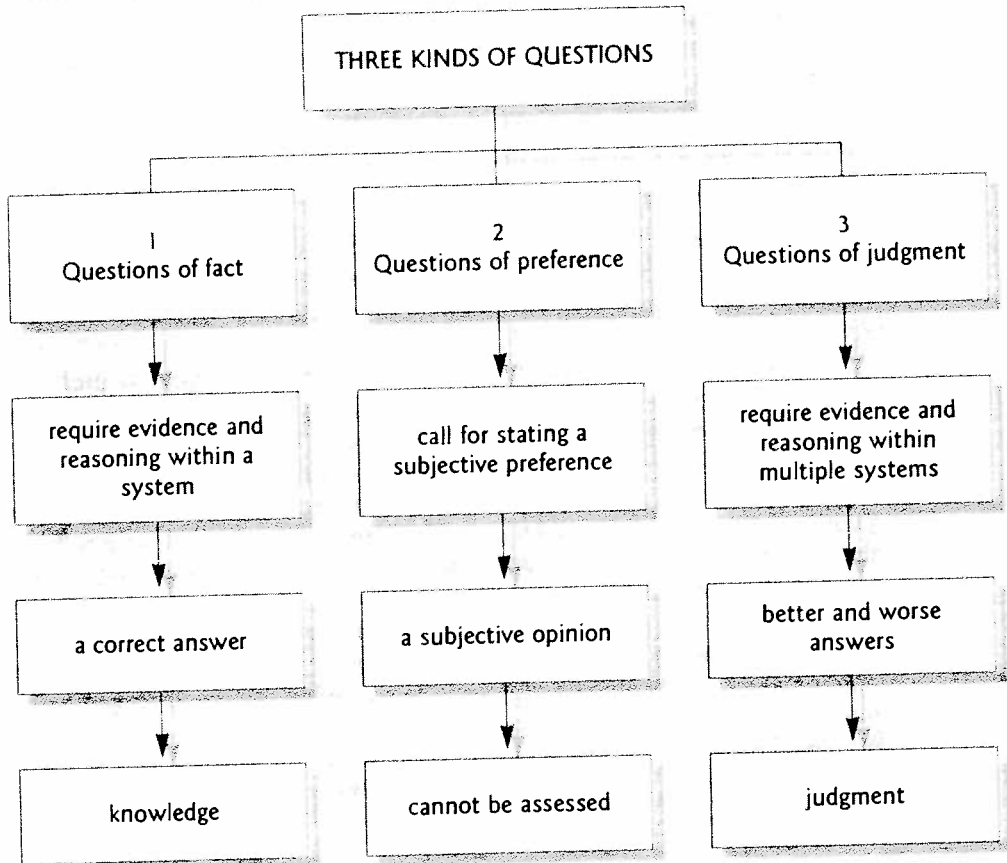
Before we go further in our discussion about how to question deeply, we want to introduce a way of categorizing questions that is useful. This way of classifying questions provides a sort of “jumpstart” in figuring out the kind of reasoning a question calls for.

The three categories of questions are:

I. 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?

FIGURE 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?*



2. **QUESTIONS OF PREFERENCE.** Questions with as many answers as there are different human preferences (a category in which mere subjective opinion rules). These are questions that 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?
- Do you like to go to the opera?
- What is your favorite type of food?

3. **QUESTIONS OF JUDGMENT.** Questions requiring reasoning, but with more than one defensible answer. These are questions that make sense to debate, ques-

tions with better-or-worse answers (well-reasoned or poorly reasoned answers). Here we are seeking the best possible answer given the range of possibilities.

- How can we best address the most basic and significant economic problems of the nation today?
- What can be done to significantly reduce the number of people who become addicted to illegal drugs?
- What is the best thing we can do to save the earth?
- Is abortion morally justifiable?
- Should capital punishment be abolished?

Only the second kind of question (a question of preference) calls for sheer subjective opinion. The third kind is a matter of reasoned judgment. We should rationally evaluate answers to the question using universal intellectual standards such as clarity, depth, consistency, and so forth.

Some people think of all judgments as either fact or subjective preference. They ask questions that elicit either a factual response or an opinion. Yet, the kind of judgment most important to educated people—and the kind we most want to be good at—falls into the third, now almost totally ignored, category: reasoned judgment. A judge in a court of law is expected to engage in reasoned judgment. The judge is expected not only to render a judgment but also to base that judgment on sound, relevant evidence and valid legal reasoning. A judge is under the moral and legal obligation not to base her judgments on subjective preferences, on her personal opinions, as such. Judgment based on sound reasoning goes beyond, and is never to be equated with, fact alone or mere opinion alone. Facts are typically used in reasoning, but good reasoning does more than state facts. Furthermore, a position that is well-reasoned is not to be described as simply “opinion.” Of course, we sometimes call the judge’s verdict an “opinion,” but we not only expect, we *demand* that it be based on relevant and sound reasoning.

When questions that require reasoned judgment are treated as matters of preference, counterfeit critical thinking occurs. Some people, then, come to uncritically assume that everyone’s “subjective opinion” is of equal value. Their capacity to appreciate the importance of intellectual standards diminishes, and we can expect to hear questions such as these: “What if I don’t like these standards? Why shouldn’t I use my own standards? Don’t I have a right to my own opinion? What if I’m just an emotional person? What if I like to follow my intuition? What if I think spirituality is more important than reason? What if I don’t believe in being ‘rational?’” When people reject questions that call for reasoned judgment and deep thought, they fail to see the difference between offering legitimate reasons and evidence in support of a view and simply asserting the view as true.

Intellectually responsible persons, in contrast, recognize questions of judgment for what they are: questions that require the consideration of alternative ways of reasoning. Put another way, intellectually responsible persons recognize when a question calls for good reasoning, and they behave in accor-

dance with that responsibility. This means that they realize when there is more than one reasonable way to answer a question. Moreover, they appreciate the responsibility they have to consider alternative ways of looking at the problem, of entering *in good faith* viewpoints that oppose their own before coming to final judgments.

To summarize, we all need to recognize that questions call on us to do one of three things:

1. to express a subjective preference,
2. to establish an objective fact (within a well-defined system), or
3. to come up with the best of competing answers (generated by competing systems).

We do not fully understand the task we are faced with until we know which of these three is called for in our thinking. Is the question calling for a subjective or personal choice? If so, let's make that choice in terms of our personal preferences. If not, then is there a way to come up with one correct answer to this question (a definite system in which to find the answer)? Or, finally, are we dealing with a question that could reasonably be answered differently within different points of view? In other words, is it debatable? If the latter, what is the best answer to the question, all things considered?

6.5

Think for Yourself

DISTINGUISHING TYPES OF QUESTIONS I

Make a random list of clear and precise questions. Then decide which questions are a matter of fact (with definite right or wrong answers), which questions are matters of subjective preference, and which questions require reasoning and judgment (within multiple perspectives). To make these determinations, you might think through each question in the following way:

1. Ask, "Are there any facts that a reasonable person would have to consider to answer this question?" (If there are some facts you need to consider, the question is not purely a matter of subjective preference.)
2. If there are facts relevant to the question, would all reasonable persons interpret those facts in the same way? If so, it is a question of fact. If not, then presumably the facts can be rationally interpreted differently from different competing reasonable perspectives. It is therefore a question of judgment.

As you study a subject, distinguish among the three types of questions. Look for the questions that have definitive or correct answers. These will be matters settled by definition or fixed, established, and recognized procedures. Identify those questions that are ultimately a matter of personal choice. And, most important, identify those questions that can be legitimately, or at least arguably,

approached from more than one point of view. These latter will arise most commonly when there are competing traditions or schools or theories within the discipline. For example, in psychology there are many competing schools: Freudian, Jungian, Adlerian, rational-emotive, gestalt, and so on. Many issues in psychology will be reasoned through differently depending on the academic allegiance of the reasoner. These issues will call for considering argumentation from a variety of perspectives and will result in different reasoned judgments.

Think for Yourself

6.6

IDENTIFYING TYPES OF QUESTIONS

Identify at least one subject you have studied in school that involves competing traditions or schools of thought. Then identify some questions that would be answered differently depending on the school of thought used to think through the question. Which of the schools of thought do you best understand or identify most with? How might this school of thought be questioned from the perspective of another competing school of thought?

FOLLOWING SOCRATIC QUESTIONING

Now that you are beginning to understand how to categorize questions, let us discuss how we can approach questions in general, so our questions will lead us to better thinking.

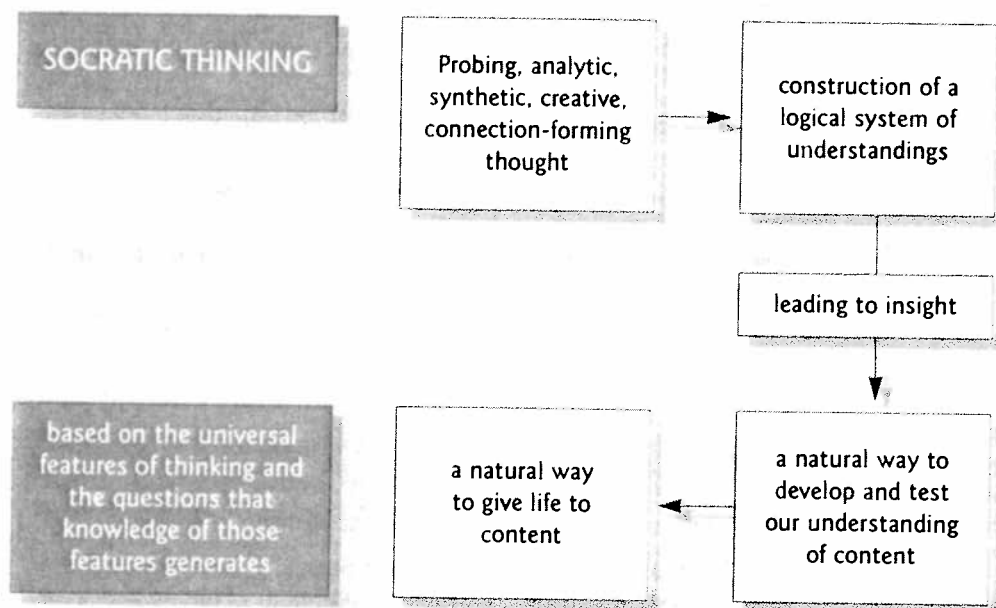
As critical thinkers, we want to go beyond questions that are undisciplined, questions that go in multiple directions with neither rhyme nor reason. Therefore, we turn from merely questioning to what might be termed “Socratic questioning.” What the word “Socratic” adds to ordinary questioning is *systematicity*: depth, and a keen interest in assessing the truth or plausibility of things.

One of the primary goals of critical thinking is to establish a disciplined, “executive” component of thinking in our thinking, a powerful inner voice of reason, to monitor, assess, and repair—in a more rational direction—our thinking, feelings, and action. Socratic questioning provides that inner voice. Here are some of the fundamentals of Socratic questioning, followed by examples of questions you might ask in Socratic dialogue to begin to deeply probe the thinking of another person.

Seek to understand—when possible—the ultimate foundations for what is said or believed, and follow the implications of those foundations through further questions. (You might ask, for example, “On what do you base your beliefs? Could you explain your reasoning to me in more detail so I can more fully understand your position?”)

Recognize that any thought can exist fully only in a network of connected thoughts. Therefore, treat all assertions as a connecting point to further

FIGURE 6.2 *Socratic thinking is an integrated, disciplined approach to thinking.*



thoughts. Pursue those connections. (You might ask, for example, “If what you say is true, wouldn’t x or y also be so?”)

- Treat all thoughts as in need of development. (You might ask: “Could you elaborate on what you are saying so I can better understand you?”)
- Recognize that all questions presuppose prior questions and all thinking presupposes prior thinking. When raising questions, be open to the questions they presuppose. (You might ask, for example, “To answer this complex question, what other questions do we need to answer?”)

6.7

Think for Yourself

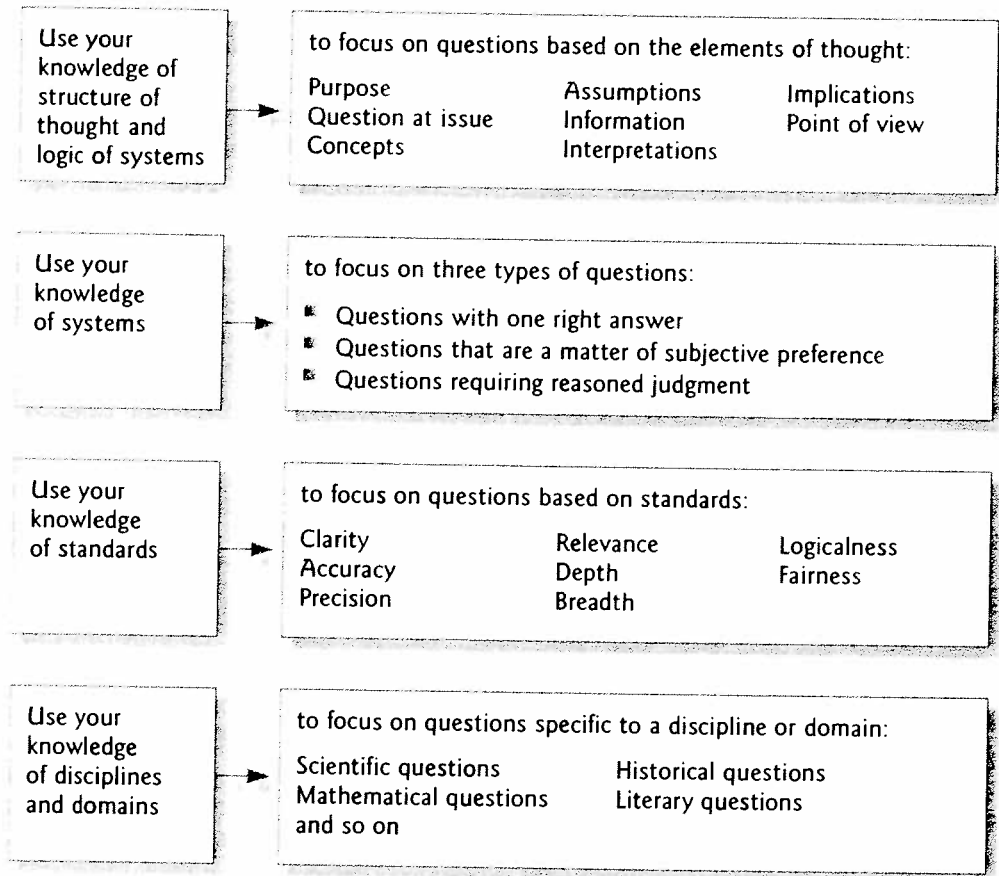
PRACTICING SOCRATIC QUESTIONING

When you become a Socratic questioner, a systematic questioner, you can question anyone about anything—effectively! Try out your questioning skills by questioning someone you know as systematically and as deeply as you can about something he or she deeply believes. Tape-record the discussion. Follow the suggestions given here. When finished, replay the tape and analyze your Socratic questioning abilities. Did you probe beneath the surface of the other person’s thinking? Did you ask for elaboration when needed? Did you pursue connections? Overall, how you would rate yourself as a Socratic questioner?

To take your thinking to the level of disciplined questioning, to think or question Socratically, you can go in several directions:

1. You can focus your questions on types of questions (fact, preference, or judgment).
2. You can focus your questions on assessment, by targeting intellectual standards.
3. You can focus your questions on analysis, by targeting the elements of reasoning.
4. You can learn to “unpack” complex questions by developing questions one would have to answer prior to answering the lead question.
5. You can learn to determine the domains of questions inherent in a complex question.

FIGURE 6.3 *Here are four ways to generate questions that lead to disciplined thinking.*



In the following discussion, we will elaborate these forms of Socratic questioning. Of course, the questions you would ask in a given situation will be determined by the context within which you are thinking. When you become skilled at using these questions, you will begin to see the powerful role they can play in your thinking. And, with practice, they eventually will become intuitive to you. You will begin to naturally ask questions of *clarification* when you are unclear. You will begin to naturally ask questions focused on *information* when the data seem to be inaccurate or otherwise questionable. You will intuitively recognize when people are mistakenly answering questions of judgment with their subjective preference, and so on. Again, intuitive ability comes only after a lot of practice.

Focus Your Thinking on the Type of Question Being Asked

As discussed earlier in this chapter, when you approach questions systematically, you are able to recognize that all thought has three possible functions: to express a subjective preference, to establish an objective fact (within a well-defined system), or to come up with the best of competing answers (generated by competing systems). Assume that you do not fully understand thinking until you know which type of thinking the question is focused on.

Questions you can ask that focus on getting at the type of question you are dealing with are:

- Is the question calling for a subjective or personal choice? If so, let's make that choice in terms of our personal preferences.
- If not, is this a question that has one correct answer, or a definite system in which to find the answer?
- Or are we dealing with a question that would be answered differently within different points of view?
- If the latter, what is the best answer to the question, all things considered?
- Is this person treating a question of judgment as a question of preference by saying he doesn't have to give reasoning for his answer when the question implies that he does?
- Is this person treating a question of judgment as a question for which there is one right answer?

Focus Your Questions on Universal Intellectual Standards for Thought

When you approach questions systematically, you recognize when people are failing to use the universal intellectual standards in their thinking. You also recognize when you are failing to use these standards in your thinking. And you ask questions, specifically targeting the intellectual standards, that upgrade thinking.

From discussions in previous chapters, the guidelines are:

1. Recognize that thinking is always more or less *clear*. Assume that you do not fully understand a thought except to the extent you can elaborate, illustrate, and exemplify it. Questions that focus on *clarity* in thinking are:
 - Could you elaborate on what you are saying?
 - Could you give me an example or illustration of your point?
 - I hear you saying “x.” Am I hearing you correctly, or have I misunderstood you?
2. Recognize that thinking is always more or less *precise*. Assume that you do not fully understand it except to the extent that you can specify it in detail. Questions that focus on *precision* in thinking are:
 - Could you give me more details about that?
 - Could you be more specific?
 - Could you specify your allegations more fully?
3. Recognize that thinking is always more or less *accurate*. Assume that you have not fully assessed it except to the extent that you have checked to determine whether it represents things as they really are. Questions that focus on *accuracy* in thinking are:
 - How could we check that to see if it is true?
 - How could we verify these alleged facts?
 - Can we trust the accuracy of these data given the questionable source from which they come?
4. Recognize that thinking is always capable of straying from the task, question, problem, or issue under consideration. Assume that you have not fully assessed thinking except to the extent that you have ensured that all considerations used in addressing it are genuinely *relevant* to it. Questions that focus on *relevance* in thinking are:
 - I don’t see how what you said bears on the question. Could you show me how it is relevant?
 - Could you explain what you think the connection is between your question and the question we have focused on?
5. Recognize that thinking can either function at the surface of things or probe beneath that surface to deeper matters and issues. Assume that you have not fully assessed a line of thinking except to the extent that you have determined the *depth* required for the task at hand (and compared that with the depth that actually has been achieved). (To figure out whether a question is deep, we need to determine whether it involves complexities that must be considered.) Questions that focus on *depth* in thinking are:
 - Is this question simple or complex? Is it easy or difficult to answer?
 - What makes this a complex question?
 - How are we dealing with the complexities inherent in the question?

6. Recognize that thinking can be more or less broad-minded (or narrow-minded) and that *breadth* of thinking requires the thinker to think insightfully within *more than one point of view or frame of reference*. Assume that you have not fully assessed a line of thinking except to the extent that you have determined how much *breadth* of thinking is required (and how much has in fact been exercised). Questions that focus on *breadth* in thinking are:
- What points of view are relevant to this issue?
 - What relevant points of view have I ignored thus far?
 - Am I failing to consider this issue from an opposing viewpoint because I don't want to change my view?
 - Have I entered the opposing views in good faith, or only enough to find flaws in them?
 - I have looked at the question from an economic point of view. What is the moral point of view?
 - I have considered a liberal position on the issue. What would conservatives say?

6.8

Think for Yourself

FOCUSING YOUR QUESTIONS ON INTELLECTUAL STANDARDS

For each of the categories of questions focusing on intellectual standards (see the previous section), try to come up with one situation in which your failure to use intellectual standards had negative consequences. This might be a situation in which you should have asked a question of clarification and didn't, or should have asked a question focusing on precision and didn't, and so on. State what happened as a result of each failure. For example, you might recall a time when you asked for directions to someone's house but got lost because you failed to ask questions focused on important details.

Focus Your Questions on the Elements of Thought

Another powerful way to discipline your questions is to focus on the elements or parts of thinking. As you formulate your questions, recall the following guidelines:

1. All thought reflects an agenda or *purpose*. Assume that you do not fully understand someone's thought (including your own) until you understand the agenda behind it. Questions that focus on purpose in thinking include:
 - What are you trying to accomplish in saying this?
 - What is your central aim in this line of thought?
 - What is the purpose of this meeting?
 - What is the purpose of this chapter?

- What is the purpose of our relationship?
 - What is my purpose for being in college?
2. All thoughts presuppose an *information* base. Assume that you do not fully understand the thought until you understand the background information (facts, data, experiences) that supports or informs it. Questions that focus on information in thinking include:
 - On what information are you basing that comment?
 - What experience convinced you of this? Could your experience be distorted?
 - How do we know this information is *accurate*?
 - Have we left out any important information that we need to consider?
 3. All thought requires the making of *inferences*, the drawing of conclusions, the creation of meaning. Assume that you do not fully understand a thought until you understand the inferences that have shaped it. Questions that focus on inferences in thinking include:
 - How did you reach that conclusion?
 - Could you explain your reasoning?
 - Is there an alternative plausible conclusion?
 - Given all the facts what is the best possible conclusion?
 4. All thought involves the application of *concepts*. Assume that you do not fully understand a thought until you understand the concepts that define and shape it. Questions that focus on concepts in thinking include:
 - What is the main idea you are using in your reasoning?
 - Could you explain that idea?
 - Are we using our concepts justifiably?
 5. All thought rests upon other thoughts, which are taken for granted or *assumed*. Assume that you do not fully understand a thought until you understand what it takes for granted. Questions that focus on assumptions in thinking include:
 - What exactly are you taking for granted here?
 - Why are you assuming that?
 - Should I question the assumptions I am using about my roommate, my friends, my intimate other, my parents, my instructors, my country?
 6. All thought is headed in a direction. It not only rests upon something (assumptions), but it is also going somewhere (*implications* and consequences). Assume that you do not fully understand a thought unless you know the implications and consequences that follow from it. Questions that focus on implications in thinking include:
 - What are you implying when you say that?
 - What is likely to happen if we do this versus that?
 - Are you implying that . . . ?

7. All thought takes place within a *point of view* or frame of reference. Assume that you do not fully understand a thought until you understand the point of view or frame of reference that places it on an intellectual map. Questions that focus on point of view in thinking include:
- From what point of view are you looking at this?
 - Is there another point of view we should consider?
 - Which of these possible viewpoints makes the most sense given the situation?
8. All thought is responsive to a *question*. Assume that you do not fully understand the thought until you understand the question that gives rise to it. Questions that focus on question in thinking include:
- I am not sure exactly what question you are raising. Could you explain it?
 - Is this question the best one to focus on at this point, or is there a more pressing question we need to address?
 - The question in my mind is this: How do you see the question?
 - How is your question related to the question we have been reasoning through?

6.9

Think for Yourself

FOCUSING YOUR QUESTIONS ON THE ELEMENTS OF REASONING

From each of the eight categories we just outlined, ask yourself at least one question about your view of marriage (or family). For example, you might begin with the question, "In my view, what is the basic purpose or goal of marriage?" (Answer each question after you ask it.)

Afterward, question a friend about his or her views, using the same questions (you should feel free to ask additional questions as they occur to you). Write out an analysis of your questioning process. Do you notice yourself beginning to think at a deeper level—given the questions you are now asking? Did you focus on all eight elements?

Focus Your Questions on Prior Questions

Whenever we are dealing with complex questions, another tool that is useful in disciplining our thinking is to construct prior questions—questions we need to answer before we can answer a more complex question.

Hence, to answer the question "What is multiculturalism?" we should be able to first settle the question, "What is culture?" And to settle that question, we should be able to settle the question, "What are the factors about a person that determine what culture he or she belongs to?" When you learn to formulate and pursue prior questions, you have another important "idea" that you can use to develop your ability to learn in any context.

To construct a list of prior questions, simply write down the main question upon which you are going to focus your discussion, and then formulate as many questions as you can think of that you would have to answer before you could answer the first. Then take this list and determine what question you would have to answer to answer these questions. Continue, following the same procedure for every new set of questions on your list.

As you proceed to construct your list, keep your attention focused on the first question on the list as well as on the last. If you do this well, you should end up with a list of questions that probe the logic of the first question.

As an example of how to construct logically prior questions, consider this list of questions we would need to answer to address the larger question, “What is history?”

- What do historians write about?
- What is “the past”?
- Is it possible to include all of the past in a history book?
- How many of the events during a given time period are left out in a history of that time period?
- Is more left out than is included?
- How does a historian know what to emphasize?
- Do historians make value judgments in deciding what to include and what to leave out?
- Is it possible to simply list facts in a history book, or does all history writing involve interpretations as well as facts?
- Is it possible to decide what to include and exclude and how to interpret facts without adopting a historical point of view?
- How can we begin to judge a historical interpretation?
- How can we begin to judge a historical point of view?

Think for Yourself

6.10

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.

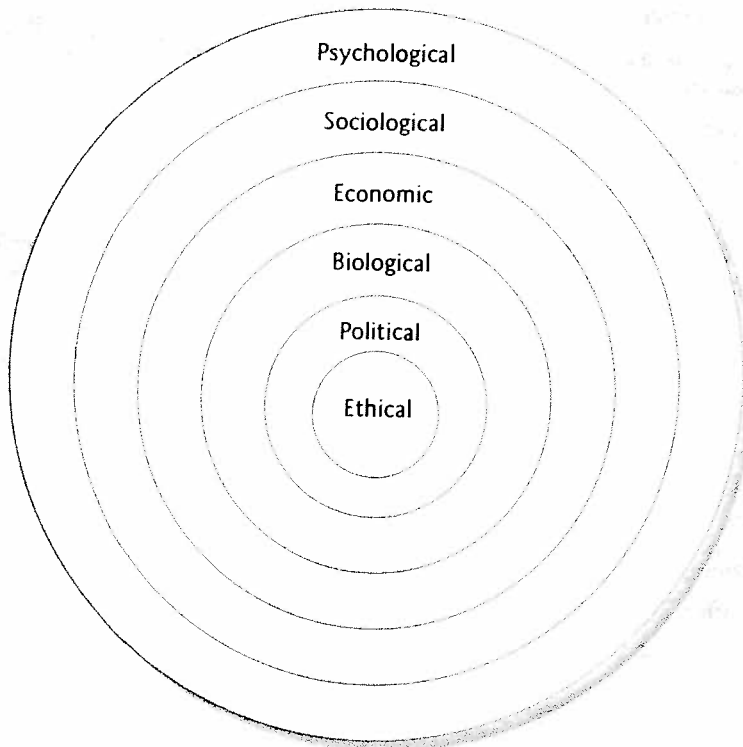
When you have practiced formulating prior questions to complex questions, you will begin to develop a Socratic questioning tool that you can use whenever you need to answer a complicated question. You will notice your mind coming up with questions that are inherent in other questions. You are unpacking ques-

tions to better answer them. You should also then begin to recognize when others are failing to consider the complexities in a question.

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 dimensions? 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.

FIGURE 6.1 *Complex questions have multiple domains. This figure shows just a few domains that might be imbedded in a complex question.*



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?
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 can educational institutions do to reduce the incidence of drug abuse?
 - What role are they 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 the problem?
8. Cultural
 - What cultural beliefs support the drug-abuse problem?
 - What can we learn from cultures that have a low incidence of drug abuse?

6.11

Think for Yourself

FORMULATING QUESTIONS WITHIN DOMAINS OF THINKING

Focus on the question: What can be done to significantly improve the health of the ecosystems on Earth? Using the model above, figure out as many domains within the question that you would have to think within to address the complexities in the question. Then formulate as many questions as you can within each domain. (The question you are originally addressing determines the domains within which you need to think.)

When we can approach questions to target the domains inherent in them, we are able to ask questions such as:

- What are the domains of questions inherent in this complex question?
- Is this person dealing with all the relevant domains within the question?
- Am I leaving out some important domains when reasoning through this issue?

CONCLUSION

Questions play an important role in the mind of a critical thinker. The three types of questions are questions of fact, questions of preference, and questions of judgment. A critical thinker is able to distinguish these forms of questions so as to determine the kind of thinking the question calls for. The ability to ask questions in and of itself is not enough for high-quality thinking to follow, though. Socratic or systematic questioning is a means to disciplined thinking. One method of approaching Socratic questioning is by developing prior questions.

Because there is a sense in which “you think only as well as the questions you ask,” you want to force yourself as a developing thinker to focus on the role that questions are playing in your thinking. To what extent are you asking significant questions? To what extent are you able to figure out whether a question is asking for a factual answer, preference, or reasoned judgment? To what extent are you asking questions that follow a disciplined path, leading to rationally defensible answers? To what extent are you able to take apart complex questions, to figure out questions you would have to answer prior to answering those questions? When you are practicing the fundamental questioning steps we have explored in this chapter, you will find yourself progressing as a questioner—and as a thinker.