The Miniature Guide

to

The Art of

Asking Essential Questions

by
Dr. Linda Elder
and
Dr. Richard Paul

Based on
Critical Thinking Concepts and Socratic Principles

The Foundation for Critical Thinking

The Thinker's Guide to

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Asking Essential Questions

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Dear Reader:

This miniature guide introduces the art of asking essential questions. It is best used in conjunction with *The Miniature Guide to Critical Thinking and The Miniature Guide to How to Study and Learn*

The quality of our lives is determined by the quality of our thinking. The quality of our thinking, in turn, is determined by the quality of our questions, for questions are the engine, the driving force behind thinking. Without questions, we have nothing to think about. Without essential questions, we often fail to focus our thinking on the significant and substantive.

When we ask essential questions, we deal with what is necessary, relevant, and indispensable to a matter at hand. We recognize what is at the heart of the matter. Our thinking is grounded and disciplined. We are ready to learn. We are intellectually able to find our way about.

To be successful in life, one needs to ask essential questions: essential questions when reading, writing, and speaking; when shopping, working, and parenting; when forming friendships, choosing life-partners, and interacting with the mass media and the Internet.

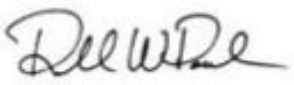
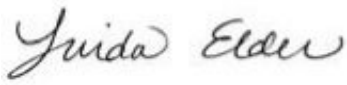
Yet few people are masters of the art of asking essential questions. Most have never thought about why some questions are crucial and others peripheral. Essential questions are rarely studied in school. They are rarely modeled at home. Most people question according to their psychological associations. Their questions are haphazard and scattered.

Essential questions fall into a range of categories. Some essential questions are principally analytic, some principally evaluative. Some apply predominantly to academic subjects, others to our innermost thoughts, feelings, and desires.

As you might expect, the categories and lists of essential questions in this mini-guide are illustrative, not exhaustive. Furthermore, the ideas we provide are useful only to the extent that they are employed daily to ask

essential questions. *Practice* in asking essential questions eventually leads to the *habit* of asking essential questions. But we can never practice asking essential questions if we have no conception of them. This mini-guide is a starting place for understanding concepts that, when applied, lead to essential questions.

Sincerely,

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The Quality of Our Thinking is Given in the Quality of Our Questions

Introduction:
The Power of Essential Questions

It is not possible to be a good thinker and a poor questioner.

Questions define tasks, express problems, and delineate issues. They drive thinking forward. Answers, on the other hand, often signal a full stop in thought. Only when an answer generates further questions does thought continue as inquiry. A mind with no questions is a mind that is not intellectually alive. No questions (asked) equals no understanding (achieved). Superficial questions equal superficial understanding, unclear questions equal unclear understanding. If your mind is not actively generating questions, you are not engaged in substantive learning.

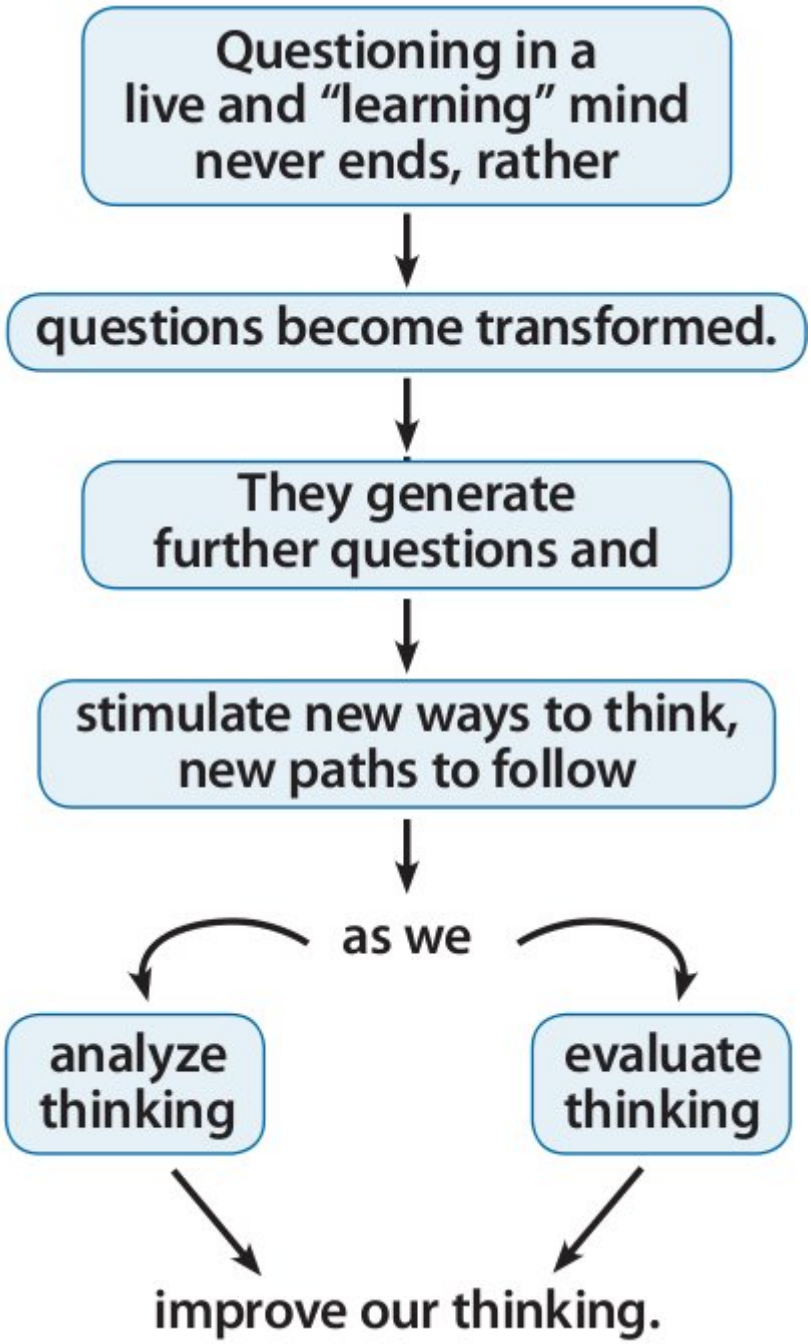
Thinking within disciplines is driven, not by answers, but by essential questions. Had no basic questions been asked by those who laid the foundation for a field — for example, physics or biology — the field would not have been developed in the first place. Every intellectual field is born out of a cluster of essential questions that drive the mind to pursue particular facts and understandings. Biology was born when some humans pursued answers to the questions: "What are the characteristics of living systems? What structures exist in them? What functions do these structures serve?" Biochemistry was born when biologists began to ask questions such as: "What chemical processes underlie living things? How and why do chemical processes within living things interact and change?"

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 significant answers to essential questions, it dies as a field. To think through or rethink anything, one must ask the questions necessary to thinking through the logic of that thing, clearly and precisely.

In this miniature guide, we introduce essential questions as indispensable intellectual tools. We focus on principles essential to formulating, analyzing, assessing, and settling primary questions. You will notice that our categories of question types are not exclusive. There is a

great deal of overlap between them. Deciding what category of question to ask at any point in thinking is a matter of judgment. Having a range of powerful questions to choose from is a matter of knowledge.

Because we cannot be skilled at thinking unless we are skilled at questioning, we strive for a state of mind in which essential questions become second nature. They are the keys to productive thinking, deep learning, and effective living.



Part One: Analytic Questions

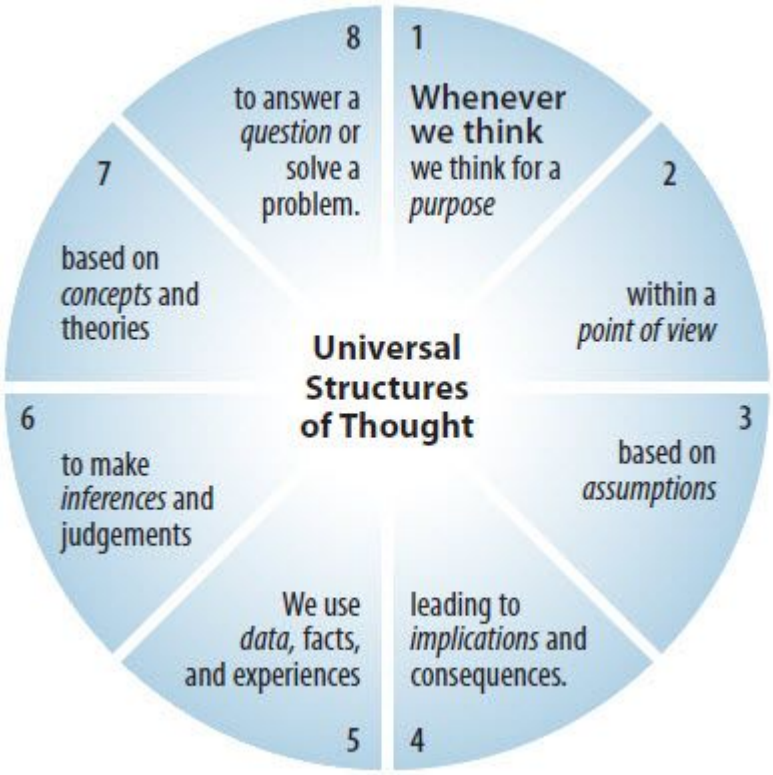
Asking essential analytic questions is vital to excellence in thought. When we analyze, we break a whole into parts. We do this because problems in a "whole" are often a function of problems in one or more of its parts. Success in thinking depends, first of all, on our ability to identify the components of thinking by asking essential questions focused on those components.

Questioning the Structure of Thinking

One powerful way to discipline your questions is to focus on the components of reasoning, or parts of thinking. They are as follows:

As you formulate questions, consider the following guidelines and sample questions:

1. **Questioning Goals and *Purposes*.** 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 we trying to accomplish here?
- What is our central aim or task in this line of thought?
- What is the purpose of this meeting, chapter, relationship, policy, law?
- What is our central agenda?
  What other goals do we need to consider?
- Why are we writing this? Who is our audience? What do we want to persuade them of?

2. **Questioning *Questions*** All thought is responsive to a question. Assume that you do not fully understand a thought until you understand the question that gives rise to it. Questions that focus on questions 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… Do you agree or do you see another question at issue?
- Should we put the question (problem, issue) this way… or that…?
- From a conservative viewpoint the question is …; from a liberal viewpoint it is… Which is the most insightful way to put it, from your perspective?

3. **Questioning *Information*, Data, and Experience**. 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? How could we verify it?
- Have we failed to consider any information or data we need to consider?
- What are these data based on? How were they developed? Is our conclusion based on hard facts or soft data?

4. **Questioning *Inferences* and Conclusions.** 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?

5. **Questioning *Concepts* and Ideas.** 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 the appropriate concept or do we need to re-conceptualize the problem?
- Do we need more facts or do we need to rethink how we are labeling the facts?
- Is our question a*legal,* a *theological*, or an*ethical* one?

6. **Questioning *Assumptions*.** All thought rests upon assumptions. 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:

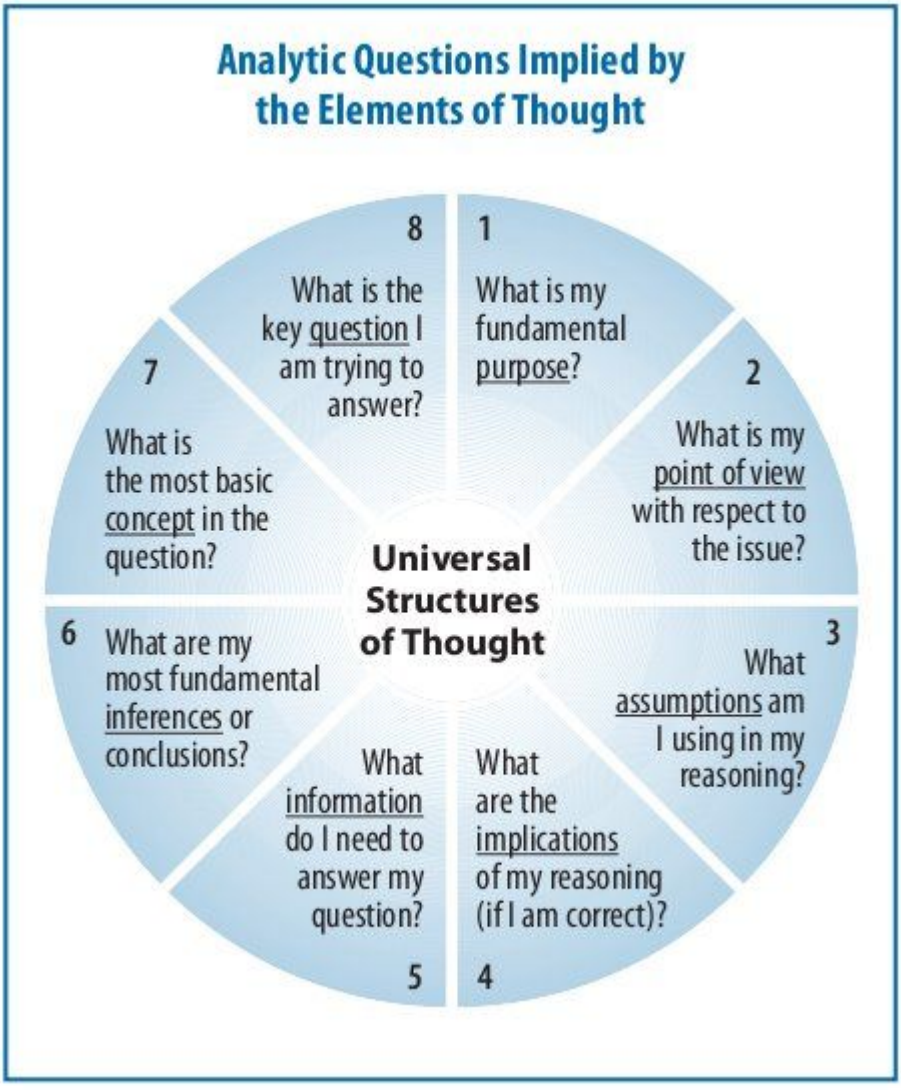
- What exactly are you taking for granted here?
- Why are you assuming that? Shouldn't we rather assume that…?
- What assumptions underlie our point of view? What alternative assumptions might we make?

7. **Questioning *Implications* and Consequences.** All thought is headed in a direction. It not only begins somewhere (resting on assumptions), it also goes somewhere (has implications and consequences). Assume that you do not fully understand a thought unless you know the most important implications and consequences that follow from it. Questions that focus on implications in thinking include:

- What are you implying when you say…?
- If we do this, what is likely to happen as a result?
- Are you implying that …?
- Have you considered the implications of this policy (or practice)?

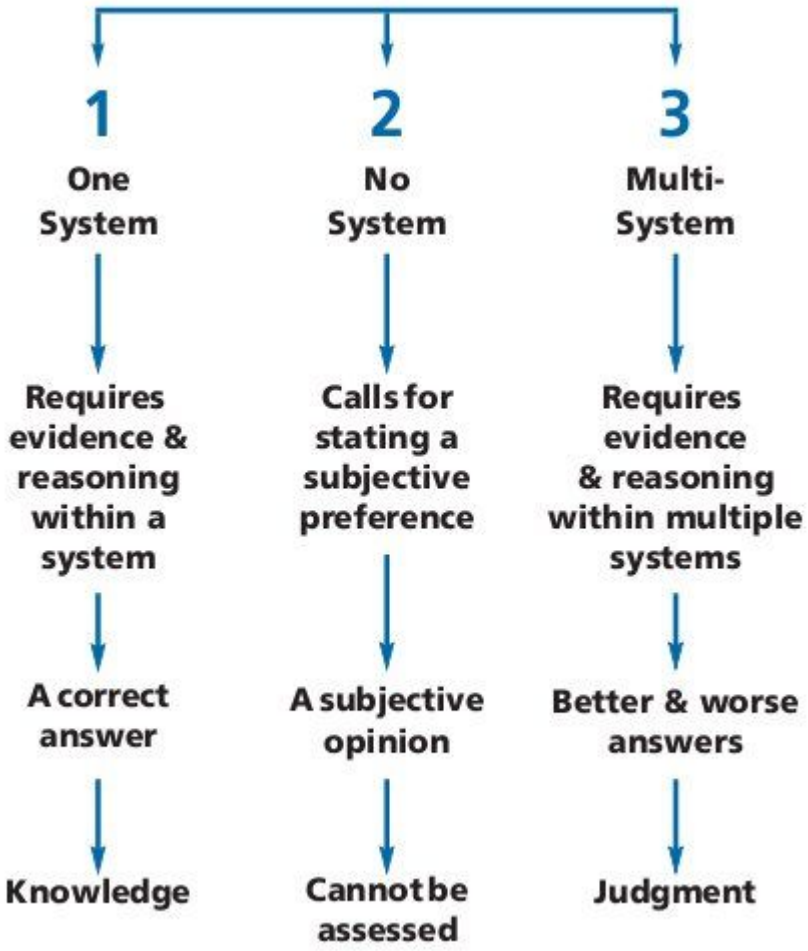
8. **Questioning Viewpoints and Perspectives.** All thought takes place within a point of view or frame of reference. Assume that you do not fully understand a thought until you understand the point of view or frame of reference that places it on an intellectual map. Questions that focus on point of 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?



Three Kinds of Questions

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 us to consider competing answers?



Asking One System, No System, and Conflicting System Questions

There are a number of essential ways to categorize questions for the purpose of analysis. One such way is to focus on the type of reasoning required by the question. With **one system** questions, there is an established procedure or method for finding the answer. With **no system** questions, the question is properly answered in accordance with one's subjective preference; there is no "correct" answer. With **conflicting system** questions, there are multiple competing viewpoints from which, and within which, one might reasonably pursue an answer to the question. There are better and worse answers, but no verifiable "correct" ones, since these are matters about which even experts disagree (hence the "conflict" from system to system).

***Questions of Procedure (established- or one system)* -** These include questions with an established procedure or method for finding the answer. These questions are settled by facts, by definition, or both. They are prominent in mathematics, as well as the physical and biological sciences. Examples:

- 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?
- What is the sum of 659 and 979?
- How is potato soup prepared, according to established Polish tradition?

***Questions of Preference (no system)* -** Questions with as many answers as there are different human preferences (a category in which subjective taste rules). Examples:

- 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? Which is your favorite?
- What color scheme do you prefer in your house?

Questions of Judgment (conflicting systems) - Questions requiring reasoning, but with more than one arguable answer. These are questions that make sense to debate, questions with better-or-worse answers (well-supported and reasoned or poorly-supported and/or poorly-reasoned). Here we are seeking the best answer within a range of possibilities. We evaluate answers to these questions using universal intellectual standards such as clarity, accuracy, relevance, etc. These questions are predominant in the human disciplines (history, philosophy, economics, sociology, art…) Examples:

- 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?
- How can we balance business interest and environmental preservation?
- Is abortion justifiable?
- How progressive should the tax system be?
- Should capital punishment be abolished?
- What is the best economic system?

Questioning Dogmatic Absolutism and Subjective Relativism

Some people, dogmatic absolutists, try to reduce all questions to matters of fact. They think that every question has one and only one correct answer. Others, subjective relativists, try to reduce all questions to matters of subjective opinion. They think that no question has correct or incorrect answers but that all questions whatsoever are matters of opinion: "I have my opinion and you have yours. Mine is right for me and yours is right for you." Neither absolutist nor relativist leaves room for what is crucial to success in human life: matters of *reasoned judgment.*

Many important questions require our best judgment. It is required when we sit on a jury, when we assess a political candidate, when we take sides in a family argument, when we decide to support an educational reform movement, when we decide on how to raise our children, how to spend our money, or how much time to dedicate to public service. Judgment based on sound reasoning goes beyond, but is never to be equated with, fact or opinion alone. When one reasons well through conflicting system questions, one does more than state facts. Furthermore, a well-reasoned position is not to be described as mere "opinion." We sometimes call a judge's verdict an "opinion," but we not only expect, we demand, that it be based on relevant evidence and sound reasoning.

When questions requiring reasoned judgment are reduced to matters of subjective preference, counterfeit critical thinking occurs. Some people, then, come to uncritically assume that everyone's "opinion" is of equal value. Their capacity to appreciate the importance of intellectual standards diminishes, and we can expect to hear comments 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 calling for sound evidence and good reasoning, they

fail to see the difference between offering legitimate reasons and evidence in support of a view and simply asserting the view.

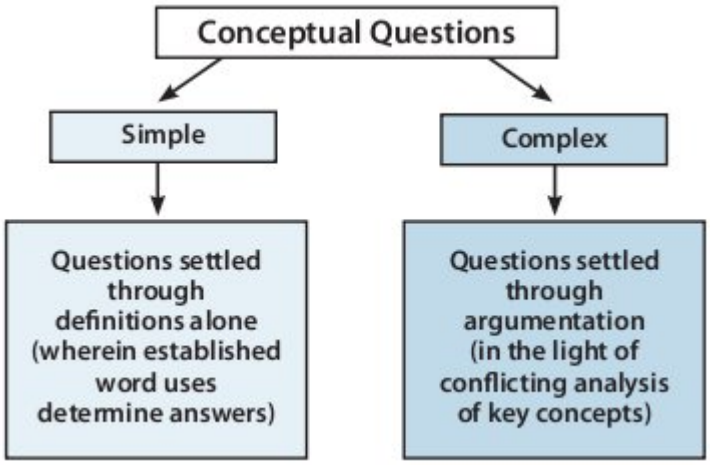
Intellectually responsible persons, in contrast, recognize questions of judgment for what they are: questions requiring the consideration of alternative points of view. Put another way, intellectually responsible persons recognize when a question calls for good reasoning (from multiple points of view), and they behave in accordance with that responsibility. This means that they realize when there is more than one reasonable way to answer a question.

To determine which of these three types of questions we are dealing with (in any given case) we can ask the following questions: Are there relevant facts we need to consider? If yes, then either the facts alone settle the question (and we are dealing with a question of procedure), or the facts can be interpreted in different ways (and the question is debatable). If there are no facts to consider, then it is a matter of personal preference. Remember, if a matter is not one of personal preference, then there must be some facts that bear on the question. If the facts settle the question, then it is a “one system” procedural question.

Questioning Concepts

Concepts are ideas we use in thinking. They enable us to group things in our experience in different categories, classes, or divisions. They are the basis of the labels we give things in our minds. They represent our mental map of the world telling us how things operate and what to expect of them. Through our concepts we define situations, events, relationships, and objects of our experience. Very important issues depend on how we conceptualize things. For example, if we conceptualize "animals" as having no rights, we may not consider it a matter of ethics when they are made to suffer pain. We may take them to be nothing more than "our property," to destroy or maintain as we please. Yet we have the concept of "humane treatment" of animals. What concepts or ideas does it depend upon? What does it presuppose? What does it imply? These are conceptual questions.

Conceptual questions are questions settled through analysis of and/or clarification of one or more concepts within a question. Conceptual questions can be divided into at least two categories: simple and complex.



Simple Conceptual Questions (*Definitional*)

Simple conceptual questions are settled through the criteria implicit in a standard definition of a word or phrase. To answer these questions, we need

merely to understand established meanings of words and how they are properly applied to cases and circumstances. A beginning place for addressing simple conceptual questions is a good dictionary. Consider these examples:

1. What are the basic differences between the meanings of the words ‘socialization,’ ‘training,’ ‘indoctrination,’ and ‘education?’
2. Can a country be called a democracy if the political power is not in the hands of the people?
3. Can you love a person and not care about her/his welfare and interests?
4. If a government wages war on a civilian population, is it guilty of terrorism?
5. If a newspaper article on a contentious issue systematically implies that one side of the issue is correct, should it be considered unbiased?
6. Is torture compatible with respecting one’s basic rights?

Notice that each of these questions are settled as soon as one is clear about the relevant meanings of the key words: socialization, training, indoctrination, education, democracy, love, terrorism, and unbiased. Unless one has good reason to question the established meanings, there is little room for debate. To test what we are saying, look up each of the key words, list the relevant meanings, and insert them into the question in place of the key words.

Thus if democracy is a form of government in which the people rule, then the question, “Can a country be called a democracy if the political power is not in the hands of the people?” becomes “Can a country be said to have *a government in which the people rule* if the political power is not in the hands of the people?” In this form, the question answers itself.

Complex Conceptual Questions *Non-Definitional and Multi-sided*

Now let us turn to complex conceptual questions. In this case, standard definitions do not settle the question, but rather open the argument. Divergent points of view can be brought to bear on the definitions stretching them this way or that. Well-reasoned arguments can be devised from different standpoints. Consequently, there are better and worse answers to complex conceptual questions, but, at the present time, no "correct" or definitive answer (see questions of judgment on page 9).

Consider these examples:

1. To what extent is psychology scientific? To what extent is it not?
2. Is democracy compatible with communism? Are there different forms of democracy? Of communism? Is democracy compatible with capitalism? What does each concept presuppose and imply? What must we consider to decide these questions?
3. What is a true friend? Can you be a true friend to someone you dislike?
4. What is the difference between love, friendship, and mere emotional attachment?
5. Who is most responsible for the failure of the peace process in the Middle East?
6. What countries in the world should be considered rogue states?
7. Which of our laws are just and which unjust? And how does one decide?

To answer complex conceptual questions we need first to analyze the ways educated persons use the concepts that guide the settling of the questions. We need to figure out the most basic meanings of the terms crucial to the questions.

Conceptual Tools for Conceptual Questions

To analyze complex concepts we might use one or more of the following strategies introduced by John Wilson (1963) in *Thinking With Concepts*[1]:

1)**Focus on *model* cases** (paradigm instances of the concept). If we asked the question "Are these two children being treated fairly by their parents?" we might begin to address it by identifying cases in which parents are investing equal resources and displaying equal concern for both of their children. We would then examine the key characteristics of these cases.

2)**Focus on *contrary*cases** (examples depicting the opposite of the concept). Considering contrary cases is useful because we can often better understand a concept through contrast, by considering cases that clearly are not examples of the concept we are exploring. Focusing again on our parent example above, we might look for contrary cases by identifying situations where the children are clearly not being treated fairly by their parents. We might consider a case, for example, in which one child is clearly favored by the parents in contrast to the other. This might be the case of a traditional first-born male. We would then examine the leading characteristics of these cases in contrast to the model cases.

3)**Focus on *related* cases** (concepts and cases that function in relationship with the concept we are exploring, are similar to our concept, or importantly connected to it). With respect to our parenting question, let's consider a similar case. To understand the concept of "equal treatment" in parenting, we might consider the concept of "equal treatment" in coaching. Imagine a coach who spends as much time developing the unskilled players as he does the highly skilled players, rather than favoring some over others. By considering this similar case, we shed light on the concept of "equal treatment." Or, focusing on concepts that function in relationship with another concept, consider the question: What is a cell? To understand a cell, we need to understand other related concepts, such as molecules, nucleotides, DNA, RNA, enzymes, and proteins. We understand these concepts in relationship with one another. We cannot fully understand one

without understanding the others. They are better understood as a group than individually.

4)**Focus on *borderline* cases** (cases with features both of the model case and of cases ordinarily considered different from the model case). In a borderline case, we feel inclined both to apply and withhold the concepts. Again, focusing on our parenting example, let's say that one of the two children is severely disabled and the parents therefore spend the majority of their income on that child, rendering it impossible for them to fund their other child's college education. This might be a borderline case of "equal treatment" because the parents place the needs of the disabled child over the needs of the other child, but they do so for good reason. Or consider a different example. If a child touches a stove and gets burned, the parent might say, "There, you got your punishment!" Yet the parent doesn't mean that the child is literally being punished, but that the child being burned is somewhat like punishment. It has at least some features of punishment. Yet this case would never be used as a dictionary example of the classic meaning of punishment.

Deep conceptual questions are beyond the scope of this miniature guide. Yet we can take Wilson's distinctions and, using them, briefly analyze a few questions.

Consider the question: Is it possible to attain peace in the Middle East? In addressing this question, we need to know how widely or how narrowly we are using the term "Middle East." This should be a straight-forward stipulation ("By the Middle East I have in mind…").

Once this is done, we can move to the more difficult analysis of the concept of "peace" intended in the question. What degree or forms of "peace" does one intend? What forms of "peace" can one imagine? What are some model cases of "peace"? What are some contrary, related and borderline cases? By "peace", do we mean all peoples living in friendship, mutual respect, and mutual security (model case)? What other concepts are intimately connected with "peace" (related cases)? Suppose one country, being militarily superior, in effect fully conquers its "enemies" imposing "peaceful" conditions on them (absence of overt resistance or violation of imposed law). Would such a state be a state of "peace"? Is "peace" consistent with mutual hatred (borderline case)? Or suppose an agreement is reached in which those who sign for one of the groups agree to conditions that the majority of its members reject (borderline case)? Or suppose one of

the groups is forced by vastly inferior military power to accept conditions that are unjust (for example, giving up much of their land and potential development) merely to gain some level of freedom and self-government (borderline case)? Would we consider any of these as achieving "peace?" To figure out what we mean by "peace" we need to consider, in addition to a rich set of cases, the context from which (and the history in which) this question emerges. We need to consider, for example, the current structure of power in the Middle East and the agendas of all of the participant nations, what outcomes are possible and which of those, if any, warrant the term "peace?"

There are no easy answers to complex conceptual questions, but analyzing them helps us understand the nature and limits of our ideas. We are, for example, a long way from understanding the concept of world peace because its meaning is obfuscated by the machinations of power on the one hand, and human irrationality on the other. For the powerful, peace probably comes down to conditions under which their dominance is quietly accepted. Peace then means their group getting what they want, rightly or wrongly. There appears to be two conflicting logics at work: the logic of peace (ideally speaking) and the logic of peace (in a world of vastly unequal military and economic power).

When Considering a Complex Conceptual Question

- Put the question as clearly and precisely as possible.
- Identify significant concepts in the question.
- Analyze the concepts that are problematic.
- Construct the following for each key concept:
    - Model cases
    - Related cases
    - Contrary cases
    - Borderline cases
- Consider multiple viewpoints and context.
- Note implications of possible conceptual decisions.

- Develop possible “answers” to the question with special attention to what makes the issue complex.

Questioning Data, Information, and Experience

Empirical questions are questions primarily answered through determining facts. To answer an empirical question, we need to find out the relevant facts: either by personal experience, research, or other means. We raise empirical questions when we need knowledge about the world and how things function in it.

Empirical questions fall into two categories: those for which the answer has already been determined, and those not yet settled. When dealing with the first type, we identify a reliable source or way to settle the question. These we might call settled empirical questions. The second type is any of those empirical questions that have not yet been legitimately answered. Both depend on facts and our access to them.

Examples of **settled empirical questions:**

- According to available statistics, how many people die each year from AIDS?
- According to available statistics, how many children are annually sold into slavery?
- According to available statistics, how many people are homeless in America?
- Is there an effective vaccination for polio?
- According to available statistics, how many children in the world die each day from malnutrition?
- What are the major ways that electricity is generated?

Examples of **unsettled empirical questions:**

- How can we cure AIDS?
- Is it possible to achieve world peace (and put an end to war)?

- Can a man ever grow to be 11-feet tall?
- Given the rate of destruction to the ocean at the hands of humans, at what point will the ocean no longer be able to revive itself?
- Is it possible to prevent money from being used in politics to serve the interests of the wealthy (at the expense of the larger public interest)?

Sometimes we aren't sure whether an empirical question has been settled. Consider the question: Can a horse jump a nine-foot fence? There is already a host of information available on record-setting jumps by horses. Through our research, we may find that a horse has already jumped a nine-foot fence. If so, the question is settled. If not, we must rely on available information and knowledge to reason through the question. Considerable information is available about the physiology of horses and the physics of jumping. It may or may not be possible for an expert on both to come to a well-supported judgment about the probability of some horse eventually jumping a nine-foot fence. Of course, the question cannot be affirmatively settled until some horse actually jumps the height.

Many questions are not exclusively empirical, but have an important empirical dimension. In that case we need to determine which part of the question is factual, what facts, precisely, are relevant, and how to locate those facts.

Whether settled or unsettled, empirical questions, of course, can also be either simple or complex.

Questioning Questions: Identifying Prior Questions

Whenever we are dealing with complex questions, one tool useful in disciplining our thinking is that of identifying questions presupposed in a question that is our direct concern. In other words, because questions often presuppose other questions having been answered, it is often useful to question a question by figuring out what "prior" questions it assumes, or, alternatively, what other questions it would be helpful for us to answer first, before we try to answer the immediate question at issue. This is especially important when dealing with complex questions. We can often approach a complex question through simpler questions.

Hence, to answer the question "What is multiculturalism?" it would be helpful to first settle the question, "What is culture?" And to settle that question, it would be helpful to answer the question, "What are the factors about a person (nationality, religion, ideology, place of birth…) that determine what culture he or she belongs to?"

To construct a list of prior questions, begin by writing down the main question you are focused on. Then formulate as many questions as you can think of that you would have to answer, or it would be helpful to answer, before answering the first. Then take this list and determine what question or questions you would have to answer, or it would be helpful to answer, prior to answering 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 shed light on the logic of the first question.

Main question: What is history?

Prior questions:

- To what extent do all historians share the same goal?

- Is it possible to include all relevant facts of the past in a history book?
- How many of the events during a given time period are left out in a his tory of that time period?
- Is more left out than is included?
- How does a historian know what to emphasize?
- Can historical value judgements be objective?
- What variables might influence a historian's viewpoint?
- 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 evaluate a historical interpretation?
- How can we begin to evaluate a historical point of view?

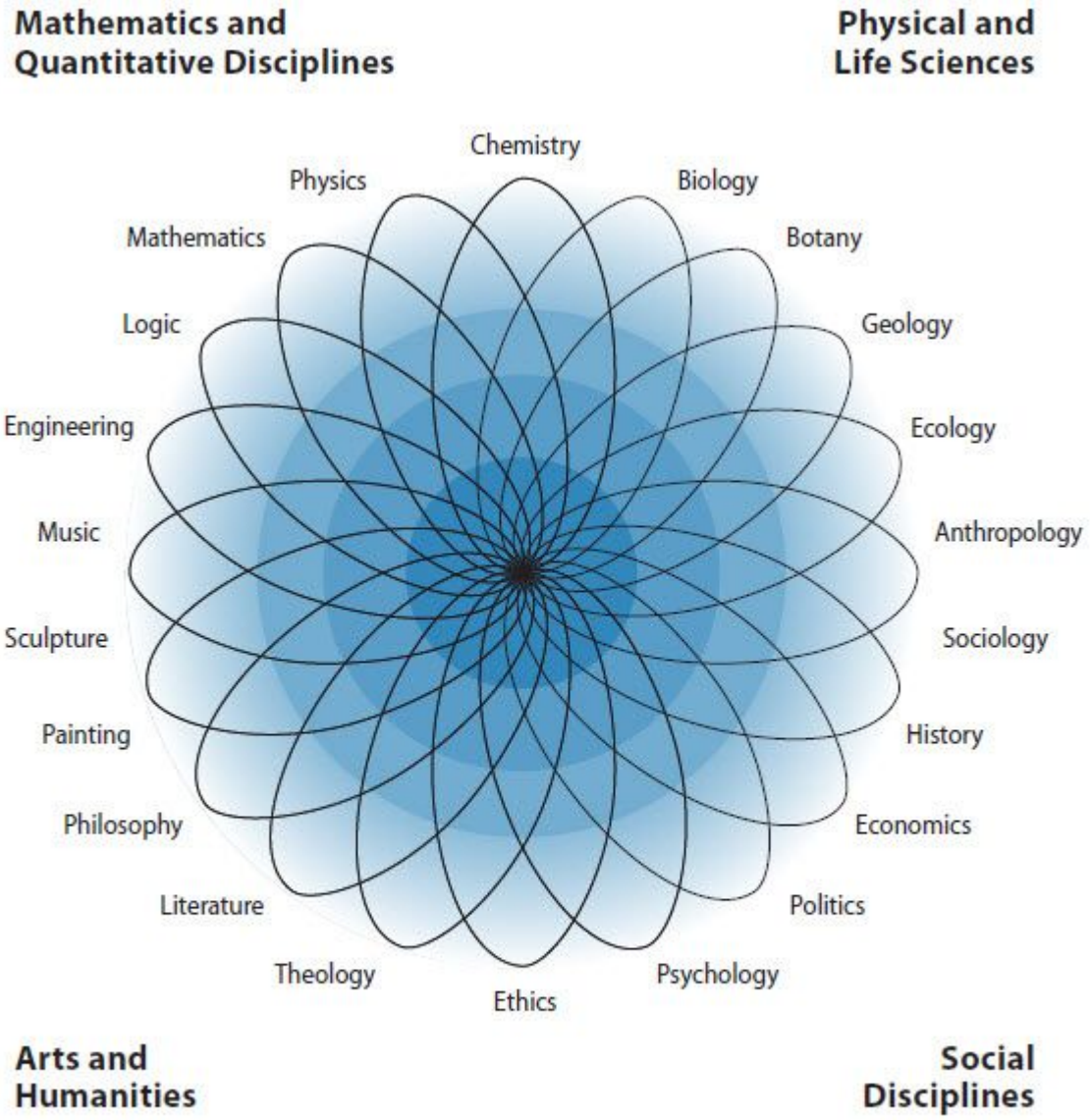
Asking Complex Interdisciplinary Questions

When addressing a complex question covering more than one domain of thought, target prior questions by formulating questions according to domain. Does the 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, formulate questions that force you to consider complexities you otherwise may miss.

When focusing on domains within questions, consider such questions as:

- What are the domains of thinking inherent in this complex question?
- Am I dealing with all the relevant domains within the question?
- Are we leaving out some important domains?

This figure shows some of the domains that might be embedded in a complex question:



Domains of Questions *(by discipline)*

This diagram was adapted from a diagram created by John Trapasso.

Interdisciplinary Questions: An Example

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

Some of the domains of questions inherent in this question:

Economic

- What economic forces support drug use?
- What can be done to minimize the influence of money involved in drug culture?

Political

- What possible solutions to drug abuse are politically unacceptable?
- Are there any potential politically realistic solutions?
- To what extent does the political structure exacerbate the problem?

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?

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?

Biological

- How do genetics play a role in drug abuse?

- What biological changes in the body, resulting from drug abuse, contribute to the problem?

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?

Religious

- What can religious institutions do to reduce the incidence of drug abuse?
- What role are they now playing in regard to the problem?

Cultural

- What cultural beliefs support the drug-abuse problem?
- What can we learn from cultures that have a low incidence of drug abuse?

Questioning in Decision-Making and Problem-Solving

Everyday life is an endless sequence of decisions. Some decisions are small and inconsequential; some large and life-determining. When we consistently make rational decisions, we live a rational life. When we consistently make irrational decisions, we live an irrational life. Rational decisions maximize the quality of one's life without violating the rights or harming the well-being of others. Rational decisions maximize our chances of happiness, successful living, and fulfillment.

The same points can be made for problem-solving. Our daily lives are filled with problem-solving situations. The better we are at solving problems, the more fulfilled and rational are our lives.

The Logic of Decision-Making

To make rational decisions, we need to use our understanding of the logic of decision-making to routinely ask questions that improve the quality of our decisions. Through our questions, we raise the process of decision-making to the level of conscious and deliberate choice.
The logic of decision-making, then, is determined by the need to make a decision and the consequences that follow from that need.

- **The goal:** to decide between some set of alternatives, the one most in keeping with our welfare and the welfare of others.
- **The question:** "At this point in my life, faced with the alternatives (A or B or C or D), which is the one most likely to enhance my welfare and the welfare of others?"

Four keys to sound decision-making are:

1. To recognize when you face an important decision
2. To accurately identify the alternatives
3. To logically evaluate the alternatives

4. To act on the best alternative

Good thinkers routinely ask the following types of questions when making decisions:

- What should be my main goal in making this decision?
- From what point of view am I looking at this decision?
- What is the precise question I am trying to answer?
- What information do I need to answer this question?
- What can I safely assume in reasoning through this decision?
- What are my alternatives in this situation?
- What are some likely implications of my deciding this versus deciding that?

The Logic of Problem-Solving

Most of the points we made about decision-making can also be made about problem-solving. Problems are embedded in the fabric of our lives almost to the same extent as decisions. Every domain of decision-making is also a domain in which we have to solve problems. Every decision has an impact on our problems, either to minimize them or to contribute to them. Poor decisions create problems. Many problems can be avoided by sound decision-making early on.
Problems can be divided into two types:

1. Problems that we ourselves have created by our own decisions and behavior.
2. Problems created by forces outside of us.

Let us then divide each of these into two groups:

1. Problems that we can solve, in whole or in part.
2. Problems beyond our control.

Clearly, we are apt to have the best chance of solving problems that we ourselves have created, for we often have the capacity to reverse decisions we previously made and modify behavior in which we previously engaged.

Guidelines and Guideline Questions for Effective Problem Solving

1. Figure out and regularly rearticulate your goals, purposes, and needs. Recognize problems as emergent obstacles to reaching your goals, achieving your purposes, and satisfying your needs. Ask these questions:

- What are my most important goals? What barriers, if any, exist to my achieving those goals?
- What goal is this problem keeping me from achieving?

2. Identify your problems explicitly; then analyze them. Wherever possible, take problems one by one. Ask these questions:

- What precisely is the problem? Is the problem multidimensional? Do I need to break the problem into multiple problems and analyze each one separately?
- What kind of problem is this?
- What sorts of things will I have to do to solve the problem?
- Is this a problem I have created? If so, how can I avoid creating problems such as this in the future?

3. Figure out the information you need, and actively seek that information. Ask these questions:

- What information do I need to solve the problem?
- How can I obtain the information?

4. Carefully analyze, interpret, and evaluate the information you collect, drawing reasonable inferences. Ask these questions:

- What are the various ways I could reasonably interpret the information relevant to the issue?
- Have I open-mindedly considered the various ways of analyzing the information, or am I refusing to consider some information? In other words, am I being close-minded?

5. Figure out your options for action and evaluate them. Ask these questions:

- What can I do in the short term? In the long term?
- What parts of the problem are under my control? What parts are not?
- How am I limited by money, time, and power?
- What are my options? What are the advantages and disadvantages of each option?

6. Adopt a strategic approach to the problem and follow through on that strategy. This may involve direct action or a carefully thought-through, wait-and-see strategy. Ask these questions:

- How can I approach this problem in the most logical way possible?
- Should I deal with it immediately, or should I slowly and carefully approach the problem?
- What are the advantages of each approach?

7. When you act, monitor the implications of your action as they begin to emerge. Be ready at a moment's notice to revise your strategy if the situation requires it. Be prepared to shift your strategy or your analysis or

statement of the problem, or all three, as more information about the problem becomes available to you. Ask these questions:

- What implications would follow if I decided to act in this way versus in that way?
- Have I really solved the problem, or does it still exist?
- Do I need to change my approach to the problem; change my strategy?

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1 Wilson, J. (1963). Thinking With Concepts. Cambridge: Cambridge University Press. This book provides a rich discussion of conceptual analysis and the use of conceptual analysis in settling questions. We have used Wilson's distinctions as a guide for this section, but have slightly modified his ideas, for the purposes of this miniguide.

Part Two: Evaluative Questions

In the previous section we focused on formulating analytic questions. In this section we deal with questions that call for evaluation or assessment.

Determining Value, Merit, and Worth

Evaluative questions are questions that call on us to determine the value, worth or quality of something or someone. Assessment is integral to virtually all human experience and can be done well or poorly. Our ability to effectively evaluate what is going on and how to act in a situation is directly determined by the quality of the questions we ask in the situation.

Essential Questions for Assessment

1. What am I assessing and why?
2. What precise questions am I trying to answer?
3. What information will I need to adequately complete this assessment?
4. What criteria or standards will I use in the assessment process?
5. Are there any potentially negative implications of my mode of evaluation?
6. Is my plan for evaluation logical, realistic, and practical?

Two Types of Evaluative Questions

All evaluative questions fall into two categories: one system and conflicting system. Evaluative questions are not to be confused with questions of preference (for which subjective choice is the determining factor). *See page 9 for an introduction to the three types of questions.*

Evaluative questions (that can be definitively answered):

- Given industry ratings, what are the best windows for withstanding strong winds?
- Which automobile has the best survival rate in head-on collisions?
- Given industry standards, is this a good hammer for general carpentry?
- What is the quality of air in the Los Angeles area?

Evaluative questions (that call for reasoned judgment between conflicting views):

- What type of car should I buy?
- What type of refrigerator will best suit our needs?
- How should we design this house so as to meet the needs of the family?
- Should I pursue a new career?

Evaluating Reasoning (Overall)

Educated and reasonable thinkers use intellectual standards to assess reasoning. These standards include, but are not limited to, **clarity, precision, accuracy, relevance, depth, breadth, logicalness, and fairness**. Skilled thinkers routinely ask questions specifically targeting these standards.

1. **Questioning Clarity**. Thinking is always more or less ***clear***. 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. **Questioning Precision**. Thinking is always more or less ***precise***. 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 concerns more fully?

3. **Questioning Accuracy**. Thinking is always more or less ***accurate***. 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 source from which they came?

4. **Questioning Relevance**. Thinking is always capable of straying from the task, question, problem, or issue under consideration. 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. **Questioning Depth**. Thinking can function either at the surface of things or probe beneath that surface to deeper matters and issues. To figure out whether a question is deep, we need to determine whether it involves complexities. 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? Are conflicting points of view relevant?
- How are we dealing with the complexities inherent in the question?

6. **Questioning Breadth**. Thinking can be broad or narrow. ***Breadth*** of thinking requires the reasoner to think insightfully within more than one point of view or frame of reference. Questions that focus on breadth in thinking are:

- What points of view are relevant to this issue?
- What relevant points of view have we considered?
- Am I failing to consider this issue from an opposing perspective because I am not open to changing 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 viewpoint. Does it have an ethical dimension?

- I have considered a liberal position on the issue. What would conservatives say?

7. **Questioning Logic**. Thinking is more or less ***logical***. Questions that focus on logic are:

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

8. **Questioning Fairness**. Thinking can be more or less ***fair***. Questions that focus on fairness are:

- Do I have any vested interest in this issue?
- Am I sympathetically representing the viewpoints of others?

Evaluating Reasoning
(The Parts)

In addition to questioning a text analytically, we can question it evaluatively by applying intellectual standards to the elements of reasoning:

1. Focusing on the author's **Purpose**: Is the author's purpose well-stated or clearly implied? Is it justifiable?

2. Focusing on the key **Question** which the written piece answers: Is the question at issue well-stated (or clearly implied)? Is it clear and unbiased? Does the expression of the question do justice to the complexity of the matter at issue? Are the question and purpose directly relevant to each other?

3. Focusing on the most important **Information** presented by the author: Does the writer cite relevant evidence, experiences, and/or information essential to the issue? Is the information accurate? Does the writer address the complexities of the issue?

4. Focusing on the most fundamental **Concepts** at the heart of the author's reasoning: Does the writer clarify key ideas when necessary? Are the ideas relevant and significant?

5. Focusing on the author's **Assumptions**: Does the writer show a sensitivity to what he or she is taking for granted or assuming? Does the writer use questionable assumptions without addressing problems inherent in those assumptions?

6. Focusing on the most important **Inferences** or conclusions in the written piece: Do the inferences made and conclusions drawn clearly follow from the information relevant to the issue, or does the author jump to unjustifiable conclusions? Does the author consider alternative

conclusions where the issue is complex? Can you identify any flaws in the reasoning?

7. Focusing on the author's **Point of View**: Does the author show a sensitivity to alternative relevant viewpoints or lines of reasoning? Does s/he consider and respond to objections from other relevant points of view?

8. Focusing on **Implications**: Does the writer display a sensitivity to the implications and consequences of the position s/he is taking?

Questioning Clarity and Precision

One of the most common problems in addressing complex questions arises when the question at issue is unclear. When the question is unclear or vague, thinking has no clear guide. It wanders without a clear sense of relevance. Thoughts are scattered. But when we take time to clarify a question, we are better able to settle it. We make clear to ourselves the intellectual task at hand and what that task requires of us.

One of the most effective strategies is to add details to the question, to break it down, and to be more exact. We disentangle questions best treated separately. We notice relations and overlap between distinguishable sub-questions.

Consider the following, and the multiple meanings the question might have, depending on the context and situation within which we are asking it. By making the question more precise, we are better able to answer it:

Essential Idea: A question is clear when we know precisely what we need

to do to settle it. A vague interrogative sentence is not a clear question. Don’t try to answer a question until you know precisely what it is asking.

Questioning As We Read

Skilled readers are able to master a subject from books alone, without benefit of lectures or class discussion. It is possible to become educated through reading alone. Skilled readers actively question as they read. They question to understand. They question to evaluate what they are reading. They question to bring important ideas into their thinking.

Skilled readers approach reading as an active dialogue involving routine questioning. Here are some of the questions critical readers ask while reading:

- Why am I reading this? What is my purpose? What do I want to gain?
- What is the author's purpose? What can I learn about the author's point of view by carefully reading the title as well as the preface, introduction, and table of contents?
- From paragraph to paragraph, can I summarize what the author is saying in my own words? What questions do I have?
- Is there some part of this sentence or paragraph that I don't understand? What part am I unsure of? What part am I clear about?
- If I do not understand something, is the author vague or is there a problem with my reading?
- What questions do I have? How important is it for me to get these questions answered before reading further?
- Do I understand the meaning of key terms, or do I need to look them up in a dictionary?
- Is the author using key words in standard or extraordinary ways?
- Are the facts presented credible, or should I question them?
- What are the most significant ideas in this text?
- How is what I am reading relevant to me? How can I connect it to what matters or will matter in my life?
- What is the nature of the question at issue in the text? Do I clearly understand the complexities in it?
- Do I need to investigate the issue further in some other text before moving forward in this one?

Analyzing an Author's Reasoning Through Questions

Critical readers are able to identify the elements of reasoning embedded in a text. Here are some questions (overlapping with those above) which we can ask through understanding the elements of thought:

Purpose: What is the author's purpose?

Question: What question is the author attempting to answer?

Information: What information does the author use in coming to conclusions?

Inferences: What are the main conclusions or inferences made by the author?

Concepts: What are the main ideas that guide the author's thinking?

Assumptions: What does the author take for granted?

Point of View: What is the author looking at, and how is s/he seeing it?

Implications: If the author is correct (or insightful), what are some implications we should recognize?

Questioning As We Write

To write well is to produce written work that is both clear and well-reasoned. To achieve this end, the skilled writer routinely asks questions of self-analysis and assessment.

Analyzing Your Reasoning Before Writing

Prior to writing, it is important to understand clearly the logic of your position. You can best determine this by focusing on the elements of reasoning. You can ask the following types of questions:

Purpose: What is my purpose in writing this piece?
Question: What question(s) am I attempting to answer?
Information: What information do I need to support my position?
Inferences: What do I want to convince the reader of?
Concepts: What are the main ideas I need to use in my thinking to effectively write this piece? Which of these ideas do I need to explicitly define and elaborate?
Assumptions: Should I question what I am taking for granted in writing this piece? Should I explicitly state my assumptions?
Point of View: What am I looking at, and how am I seeing it? Should I include other viewpoints?
Implications: What am I implying? What am I trying to get the reader to believe and/or do?

Evaluating Your Writing As You Write

To write well, you also need to evaluate as you write.

Clarity: Am I clear about what I am saying or is my thinking muddled? For each paragraph, have I stated my main idea, then elaborated it? Have I provided examples to make my points clear? Have I illustrated important

ideas? Have I written sentences that can be interpreted in different ways or have I made my intended meaning clear?

Precision: Have I provided adequate details for the reader to understand precisely what I mean? Do I need more details?

Logic: Do all the ideas in my paper fit logically together? Have I used transitional words to make connections between ideas evident to the reader?

Relevance: In the paper as a whole, do I keep a clear and consistent focus? Do I wander from the main point? In each paragraph, is everything in the paragraph relevant to the main idea in the paragraph?

Significance: What is the most significant question to focus on? What are the most significant concepts? Facts?

Depth: Do I clearly understand what makes the issue complex? Have I sufficiently detailed those complexities?

Fairness: Have I been fair to all viewpoints relevant to the issue or have I presented opposing viewpoints in a "weak" form in order to dismiss them?

Accuracy: Have I made sure that all the information I have presented as factual is so? Are my sources of information credible?

Once you have completed a written piece, you can then use the template on page 24 to evaluate your own reasoning, just as you would to evaluate any author's reasoning.

Asking Ethical Questions

Ethics is the study of what benefits or harms persons and creatures. Human behavior can be either ethically praised (if someone acts to benefit the welfare of others) or criticized (when someone acts so as to harm others). Ethics is not to be confused with social convention, law, or religious beliefs. Unethical acts deny another person or creature an inalienable right. Social convention and laws, as well as religious beliefs, vary enormously along national and cultural lines. All ethical questions are settled in accordance with ethical concepts and principles that do not so vary. Ethical questions can be either simple or complex.

The following classes of harmful acts enable us to define universal rights:

- SLAVERY: Enslaving people, whether individually or in groups.
- GENOCIDE: Systematically killing with the attempt to eliminate a whole nation or ethnic group.
- TERRORISM: Waging war against civilians.
- TORTURE: Inflicting severe pain as an act of revenge or to obtain information from a person.
- SEXISM: Treating people unequally (and harmfully) in virtue of their gender.
- RACISM: Treating people unequally (and harmfully) in virtue of their race or ethnicity.
- MURDER: The pre-meditated killing of people for revenge, pleasure, or to gain advantage.
- ASSAULT: Attacking an innocent person with intent to cause grievous bodily harm.
- RAPE: Forcing an unwilling person to have intercourse.
- FRAUD: Intentional deception to cause someone to give up property or some right.
- DECEIT: Representing something as true which one knows to be false in order to gain a selfish end harmful to another.

- INTIMIDATION: Forcing a person to act against his interest or deter from acting in his interest by threats or violence.
- Putting persons in jail without telling them the charges against them or providing them with a reasonable opportunity to defend themselves.
- Putting persons in jail, or otherwise punishing them, solely for their political or religious views.

Simple ethical questions are questions involving clear-cut ethical principles. Some examples:

- Is it cruel to subject an innocent creature to unnecessary suffering?
- Is it unjust to deny someone a basic human right?
- Is it ethically wrong to cheat or deceive people?
- Is it ethically wrong to torture people in order to exact a confession?
- Is it ethically wrong to use another person to serve your selfish interests?

Complex ethical questions are questions that can be argued in more than one way (using ethical principles). Some examples:

- Under what conditions, if any, should animal experimentation be allowed?
- Is it ethically wrong to kill animals for food?
- To what extent should scientists be allowed to experiment with new viruses (when the virus they create might itself cause harm)?
- Under what conditions should people be kept artificially alive?
- Do scientists have a special ethical responsibility to society?
- Are we ethically justified in engaging in unethical practices in our own defense because our enemies use them against us?
- To what extent are we ethically obligated to contribute to the healthfulness of the environment?
- Under what conditions, if any, is capital punishment ethically justifiable?

Distinguishing Among Questions of Ethics, Questions of Cultural Preference, and Questions of Religion

Ethical questions are often confused with questions from other domains, for example, social conventions, religion and the law. People commonly believe that social conventions, laws, and religious beliefs are self-evidently ethical. Yet social norms, religious theology, and laws all may (inadvertently) advocate unethical behavior. People can be socially ostracized or imprisoned for behavior that is not ethically wrong. Many religions have been used to justify such ethically repugnant practices as racism and slavery.

The following examples highlight confusions of ethics with religion, law, or social conventions:

Confusing ethics and the law:

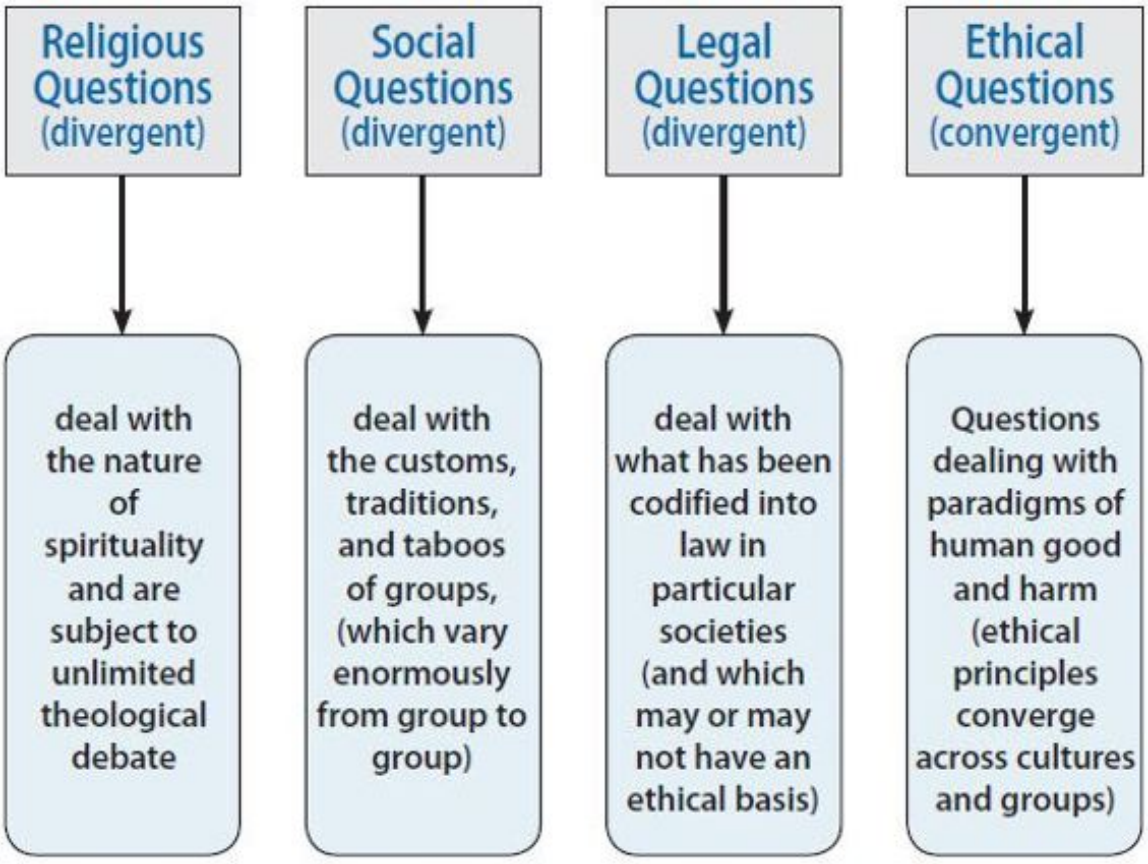
- Many sexual practices (such as homosexuality) have been unjustly punished with life imprisonment or death (under the laws of one society or another).
- Many societies have enforced unjust laws based on racist views.
- Many societies have enforced laws that discriminate against women.
- Many societies have enforced laws that criminalize unpopular beliefs.
- Many societies have made torture and/or slavery legal.

Confusing ethics with social conventions:

- Many societies have created taboos against showing various parts of the body and have severely punished those who violate them.
- Many societies have created taboos denying women the same rights as men.
- Many societies have socially legitimated religious persecution.
- Many societies have socially stigmatized interracial marriages.

Confusing theological beliefs with ethical principles:

- Members of majority religious groups often enforce their beliefs on minorities.
- Members of religious groups often act as if their theological views (which are in fact debatable) are self-evidently true, scorning those who hold other views.
- Members of religious groups often fail to recognize that "sin" is a theological concept, not an ethical one. ("Sin" is defined theologically.)
- Divergent religions defend divergent views of what is sinful (but often expect their views to be enforced on all others as if a matter of ethics).



Religious practices, social expectations, and laws vary across groups. Ethical principles, when properly understood, do not.

Questioning Bias and Propaganda

Democracy can be an effective form of government only to the degree that the public (that rule it in theory) are well-informed about national and international events and can think independently and critically about those events. If the vast majority of citizens do not recognize bias in their nation's news, if they cannot detect ideology, slant, and spin at work, if they cannot recognize propaganda when exposed to it, they cannot reasonably determine what media messages need to be supplemented, counterbalanced, or thrown out entirely.

On the one hand, world-wide news sources are increasingly sophisticated in media logic (the art of "persuading" and manipulating large masses of people). This enables them to create an aura of objectivity and "truthfulness" in the news stories they construct.

On the other hand, only a small minority of citizens are skilled in recognizing bias and propaganda in the news disseminated in their country. Only a relative few are able to detect one-sided portrayals of events or seek out alternative sources of information and opinion to compare to those of their mainstream news media. At present, the overwhelming majority of people in the world, untrained in critical thinking, are at the mercy of the news media in their own country. Their view of the world, which countries they identify as friends and which as enemies, is largely determined for them by that media (and the traditional beliefs and conventions of their society).

What critical readers do is recognize one-sidedness and seek out viewpoints that are dismissed or ignored. They also note which stories are highlighted (e.g., on the front page) and which are buried in the background (e.g., on page 24). **Here are some of the key questions to be asked when analyzing and interpreting news stories:**

- Who is the intended audience?
- What point of view is being privileged?
- What point(s) of view is (are) being dismissed or played down?

- How can I gain access to the point of view being negated (from those who most intelligently defend it)?
- Which stories are featured on the front page and why? What information is "buried" in the article and why?

It is difficult to manipulate critical consumers of the news because:

- They study and question alternative perspectives and world views, learning how to interpret events from the perspective of multiple views.
- They question multiple sources of thought and information, not simply those of the mass media.
- They question the viewpoints embedded in news stories.
- They mentally re-write (reconstruct) news stories through questioning how stories would be told from multiple perspectives.
- They question news constructs in the same way they question other representations of reality (as some blend of fact and interpretation).
- They assess news stories by questioning their clarity, accuracy, relevance, depth, breadth, and significance.
- They question so as to disclose:

- contradictions and inconsistencies in the news.
- the agenda and interests served by a story.
- the facts covered and the facts ignored.
- what is represented as fact (that is in dispute).
- assumptions implicit in stories.
- what is implied (but not openly stated).
- what implications are ignored and what are played up.
- what points of view are systematically put into a favorable light and which in an unfavorable light.
- stories reflecting bias toward the unusual, the dramatic, and the sensational by putting them into perspective or discounting them.
- when social conventions and taboos are being presupposed.

Part Three: Questioning Within Academic Disciplines

To learn any subject well is to actively probe its logic with questions. Yet most students sit passively in class, hoping the teacher will not call on them, asking few questions. When they do ask questions, they tend to ask superficial questions like: Is *this* going to be on the test? Do we have to *know* this? Do we *really* have to write 10 pages for this research paper? But when students take learning seriously, they ask significant questions as a matter of routine. This section focuses on questions that enable one to learn more deeply in any subject, discipline, or class.

Questioning the Fundamental Logic of Academic Disciplines

To understand the most fundamental logic of a discipline is to understand the eight structures of thought that underlie it. To get at this logic, ask the following questions in any course you take or subject you study:

- What are the **purposes**, goals or objectives of the course or discipline?
- What **questions** or problems are central to it?
- What **concepts** will be fundamental?
- What **information** is essential?
- What **point of view(s)** or frame(s) of reference do I need to learn to reason within?
- What **assumptions** define the course or discipline?
- What kinds of **inferences** or conclusions will I need to learn how to reason?
- What are the pay-offs (**implications**) of reasoning well within this discipline?

Students should go to class armed with questions generated by reading their class notes and the textbook. They also might read encyclopedia entries for help with the basic logic of a subject. Some possible start-up questions are:

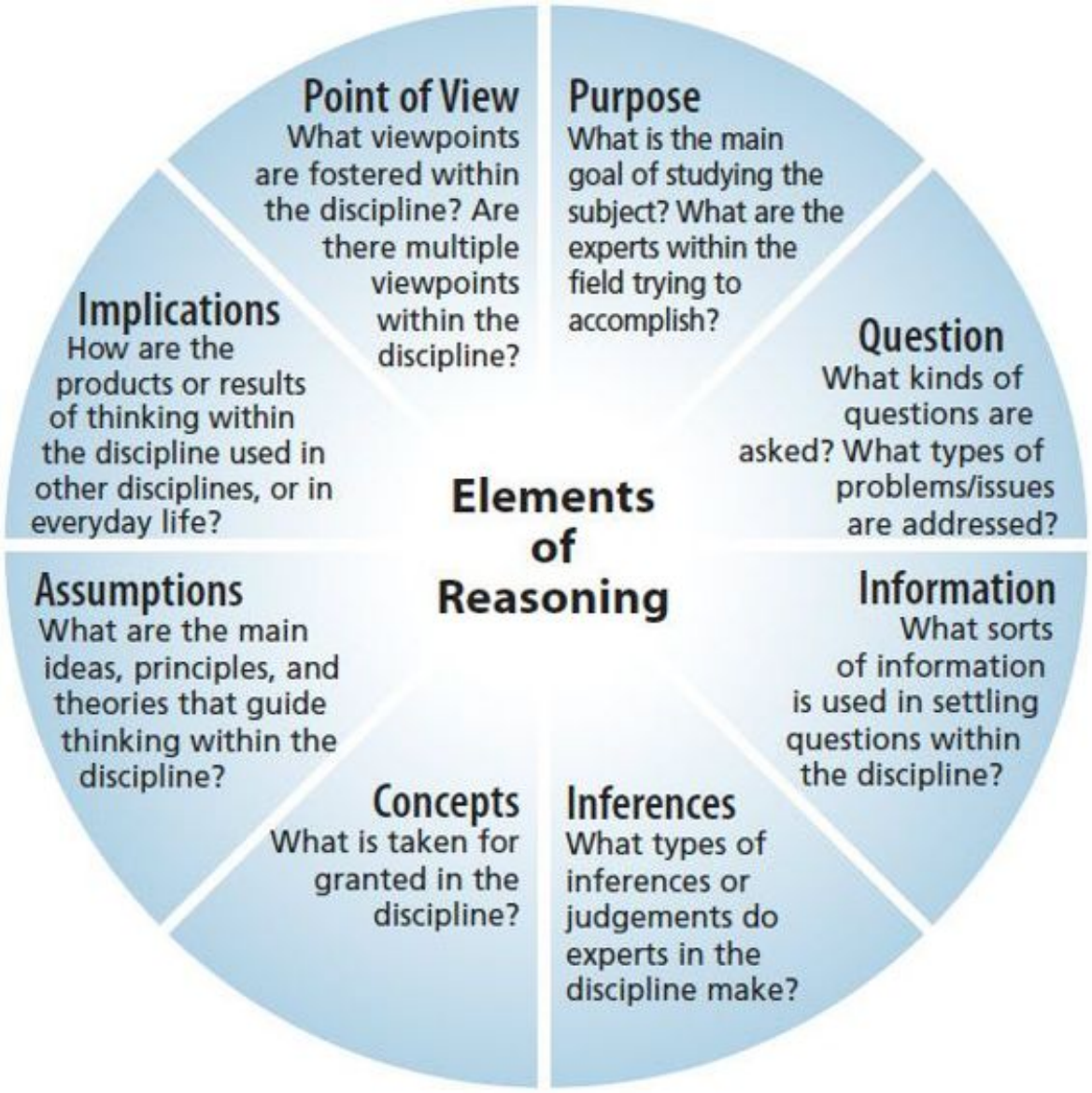
- What are people in this field trying to accomplish?
- What kinds of **questions** do they ask?
- What kinds of problems do they try to solve?
- What sort of **information** or data do they gather?
- How do they go about gathering information in ways distinctive to this field?
- What are the most basic ideas, **concepts**, or theories in this field?

- How should studying this field affect one's **view** of the world?
- How are the products of this field used in everyday life?

These questions can be contextualized for any given class day, chapter in the textbook, or dimension of study. For example, on any given day you might ask one or more of the following questions:

- What is our main **goal** today? What are we trying to accomplish?
- What kinds of **questions** are we asking? What kinds of problems are we trying to solve?
- What sort of **information** or data do we need? Where are we getting that information?
- What is the most basic idea, **concept**, or theory we need to understand to solve the problem we are most immediately posing?
- How should we look at this problem? How does this problem relate to everyday life?

Applying the Elements of Reasoning to Questioning Within a Discipline



Questioning the Status of Disciplines

When studying any discipline, it is important to determine the strengths and weaknesses in it. To do this you must question the status of knowledge and "expert" information in the field, rather than blindly accepting what you read and are told about the discipline. Of course, you must do this through disciplined and responsible thinking, being alert to both strengths and weaknesses. Some critical questions to ask about a field of study are:

- To what extent do competing schools of thought exist within this field?
- To what extent do experts in this field disagree about the answers they give to important questions?
- What other fields deal with this same subject, from a different standpoint perhaps? To what extent do conflicting views exist about this subject in light of these different standpoints?
- To what extent, if at all, is this field properly called a science?
- To what extent can questions asked in the field be answered definitively? To what extent are questions in this field matters of (arguable) judgment?
- To what extent does public pressure influence professionals in the field to compromise their professional practice in light of public prejudice or vested interest?
- To what extent is it likely that professionals within the discipline will act in accordance with their vested or selfish interest, rather than in a fair-minded way? What types of "opportunities" exist for professionals within the field to serve their own interest in lieu of serving those they purport to serve?
- What does the history of the discipline tell us about the status of knowledge in the field? How old is the field? How common is controversy over fundamental terms, theories, and orientation?
- How wide is the likely gap between the promised ideal of instruction in the discipline and the actual results?

Some Critical Questions to Ask About a Textbook:

- If there are competing schools of thought within this field, what is the orientation of the textbook writers? Do they highlight these competing schools and detail the implications of that debate?
- Are other textbooks available that approach this field from a significantly different standpoint? If so, how should we understand the orientation or bias of this textbook?
- Would other experts in this field disagree with any of the answers to important questions given in this textbook? How would they disagree?
- Are there textbooks in other fields dealing with this same subject, from a different standpoint perhaps? To what extent do conflicting views exist about this subject in the light of these different standpoints?
- To what extent does this textbook represent this field as a science? If so, do some experts in the field disagree with this representation? In what sense is it not a science?
- To what extent do the questions asked in this textbook lead to definitive answers? Conversely, to what extent are questions in this textbook matters of (arguable) judgment? And does the textbook help you distinguish between these very different types of questions?

Questioning to Understand the Foundations of Academic Disciplines

Good thinkers are able to formulate and pursue deep questions to get at the essence of a discipline or subject. Rather than strictly relying on the textbook or instructor, they research and probe within the subject through important questions they themselves identify and develop. One might use encyclopedias as a beginning place for formulating essential questions within disciplines. In this section, we provide examples of the kinds of questions one might pursue within any subject. We have included only a few of the many subject areas that exist.

Asking Essential Questions in Science

Science is the study of the physical world and universe through systematic observation and experimentation. One of its primary goals is to identify universally applicable laws and principles about the physical world and its interrelationships. Numerous branches of science form as scientists pose new scientific questions emerging from new scientific knowledge. By asking and pursuing scientific questions we can better understand the physical world and make better decisions about it.

Some fundamental scientific questions include:

- What is science?
- What are some methods scientists use in making discoveries and developing theories? How do these methods differ from study in "non-scientific" fields?
- What kind of systematic study is characteristic of science?
- What significant positive implications have resulted from scientific research?

- What roles do math and logic play in scientific thinking?
- How can scientific research be misused?
- What are the main branches of science and how do they interrelate?
- How is scientific thinking making a contribution to our personal lives? Are there any ways in which it is a threat?
- What are some limitations of science?

Now let us focus on one branch of science: Botany. Botany is the study of plant life and how plants interrelate with the rest of the physical world. Do you see why the following are essential questions in botany?

- What is botany?
- What is plant classification and why is it important?
- How do plants function, both as a group and individually?
- How is plant life important to animal life?
- How is animal life important to plant life?
- How does plant life interact with its natural habitat? How can we maximize the fit between plants and their habitats?
- What are some implications of the loss of plant life on the planet?
- What are some important uses of plant life, in medicine, in lumber production, in food production?
- How can we balance exploitation of plant life for the needs and desires of people with maintaining essential plant life on earth?

Asking Essential Questions in the Social Disciplines

The social disciplines include academic courses that foster understanding of the individuals, groups and institutions that make up human society. They study how humans live together in groups in such a way that their dealings with one another affect their common welfare. The social disciplines focus on gaining and applying knowledge about human relationships and interactions between individuals and their families, religious or ethnic communities, cities, governments, and other social groups. Some branches

of social studies are considered social sciences, though systematic experimentation on humans is difficult. Some of the branches of social studies are history, anthropology, geography, economics, psychology, sociology, and the study of politics.

Let us briefly focus on one social discipline: sociology. Sociology is the study of group behavior, focused both on how groups function as an internal system and how groups influence the behavior of individuals within the group. In every social group, some behavior is required, some behavior is taboo, and some behavior is permitted. Sociology studies the taboos, social conventions, and norms of cultural groups.

Some essential sociological questions:

- What is society? What is culture? To what extent is human behavior controlled by them?
- How do cultural beliefs, customs, mores and taboos come to dominate people's lives?
- How do cultural beliefs, customs, mores, and taboos function within any particular group?
- To what extent are people influenced by cultural views? To what extent do people tend to think for themselves in the face of established views?
- How do the characteristics of people who conform differ from those who dissent?
- What are some of the implications of, and possibilities for, non-conforming behavior?
- Of the groups in which we are members, what behavior is demanded, what behavior is forbidden, and what range of free decision is allowed?
- To what extent do social customs violate human rights?
- To what extent do social norms foster unethical behavior?
- To what extent do cultures tend to confuse social customs with ethics? What phenomena within cultures foster this confusion?

Asking Essential Questions in the Arts

Painting, sculpture, architecture, dance, music, drama, and literature are all attempts to create something that goes beyond simple skill or demonstrable knowledge. They represent modes of seeking to express what is "beautiful," "deep," "insightful," and/or "profound" in nature or in human life. They attempt to transcend or transform the "ordinary," "obvious," or "mundane".

Some essential questions within the arts are:

- How can one learn to discriminate what is "beautiful" or "profound" in painting, sculpture, architecture, dance, music, drama, and literature from what is not?
- How can one learn to appreciate beauty, depth, and insight in the arts?
- What is it to think (and perform) like a painter, sculptor, architect, dancer, composer, or writer?
- How can insight into beauty and profundity in the arts contribute to one's personal life?
- How can insight into beauty and profundity in the arts contribute to the life of society?
- How can we "elevate" our taste and develop insight into "objects" and experiences that are not available to those who have not come to appreciate fine art?
- Why does anyone prefer the superficial, the trivial, the vulgar, and the stereotyped to that which is unique and beautiful?
- Why is it that most people do not think "aesthetically" or "artistically?"
- Why do most seem to prefer the products of the popular media to the products of the "artistic" community?
- What accounts for the fact that most people cannot give an intelligible explanation for their judgments about that they consider "beautiful" in painting, sculpture, architecture, dance, music, drama, or literature?
- Why is it that most people cannot distinguish an artistic question or issue from any other kind of question or issue?

Let us briefly focus on one discipline within art: literature Literature deals with the art of imagining, interpreting, and expressing in language how people do live and how they might live their lives. It focuses on

writings that include ideas of permanent or universal interest and are usually expressed through poetry, novels, history, biography, and essays. Literature is generally divided into fiction and nonfiction. The study of literature fosters the development of skilled understanding and critique of written work, and application of important ideas to one's own life.

Some essential questions within literature:

- What are the most significant ideas implicit in the text?
- To what extent is the author shedding light on our character and lives?
- How does what I am reading apply to my life?
- How would I live differently if I took the ideas of the author seriously?
- What is of universal interest in this writing?
- Why are so (comparatively) few people interested in serious literature?

Part Four: Questioning for Self-Knowledge and Self-Development

We can ask questions that are outwardly oriented, such as those in the previous three sections. We can also ask questions that are inwardly oriented. Outwardly oriented questions are questions we ask about anything other than our inner life. Important outwardly oriented questions help us understand the world better.

Inwardly oriented questions are questions we ask ourselves in order to better understand ourselves. Questions we ask ourselves are vitally important to our development. If we never question ourselves, we incorrectly assume our own infallibility. But fallibility is a major defining characteristic of humans. In this section, we focus on the types of questions we can ask ourselves to develop as thinkers, as persons who have learned to take command of our minds.

Questioning Ourselves as Learners

Questioning ourselves as learners is essential to deep learning. Internalize the following questions, and routinely ask them of yourself.

Idea#1: Do I understand the requirements of every class I am taking, how they will be taught and what will be expected of me? Have I sought out and received advice about how I can best prepare for class?

Idea#2: Do I know my strengths and weaknesses as a student and thinker? Have I tried to find out? Am I in the habit of evaluating aspects of my thinking — my purpose, the question I am trying to answer, the information I am using to answer it, etc.? Can I distinguish what I know for sure from what I merely believe (but may not be true)?

Idea #3: Have I identified the KIND of thinking that is most important in a given class? Think of subjects as forms of thinking (History = historical

thinking; Sociology = sociological thinking; Biology = biological thinking).

Idea #4: Do I ask questions in and out of class? Do I engage myself in lectures and discussions by asking questions?

Idea #5: Am I looking for interconnections? Do I understand the content in every class as a SYSTEM of interconnected understandings? Or do I just memorize random facts like a parrot? Do I study to understand, to figure things out?

Idea #6: Am I practicing the thinking of the subject? Can I explain this thinking with examples and illustrations (to someone who is not in the class)?

Idea #7: Am I reading my textbooks to figure out the THINKING of the author(s)? Do I translate the author's thinking into my thinking (by putting basic points into my own words)? Do I role-play the author (to someone else) explaining the main points of the various sections of the text?

Idea #8: Do I relate content whenever possible to issues and problems and practical situations in my life?

Idea #9: Can I explain the main idea behind the class in my own words? Am I seeking to find the key concept of the course from the first couple of class meetings? For example, in a Biology course, try explaining what biologists are (mainly) trying to figure out. Don't use technical terms in your explanation. Then relate that explanation to each segment of what you are learning in the course. How does each segment fit in?

Idea #10: Do I test myself before I come to class by trying to summarize, orally or in writing, the main points of the previous class meeting? If I cannot summarize main points, I haven't learned them.

Idea #11: Do I check my thinking using intellectual standards? Am I being clear? Accurate? Precise? Relevant? Logical? Am I looking for what is most significant? Am I recognizing complexities?

Idea #12: Do I use writing as a way to learn by writing summaries in my own words of important points from the textbook or other reading material? Can I construct test questions and write out my answers to them?

Idea #13: During lecture, do I actively listen for main points? If we arbitrarily stopped the lecture at various points, could I accurately summarize what the instructor had just said in my own words?

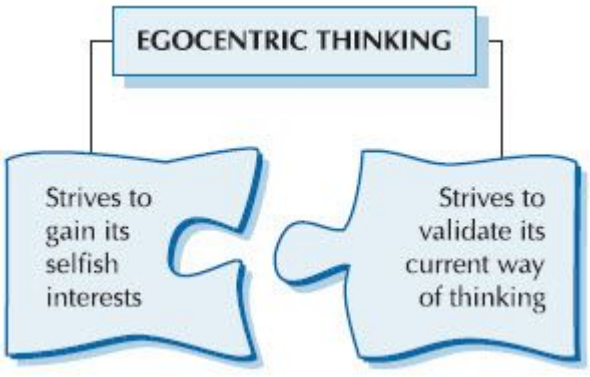
Idea #14: Do I frequently assess my reading? Do I read the textbook actively? Am I asking questions as I read? Do I recognize the points I do and do not understand?

Questioning Our Egocentrism

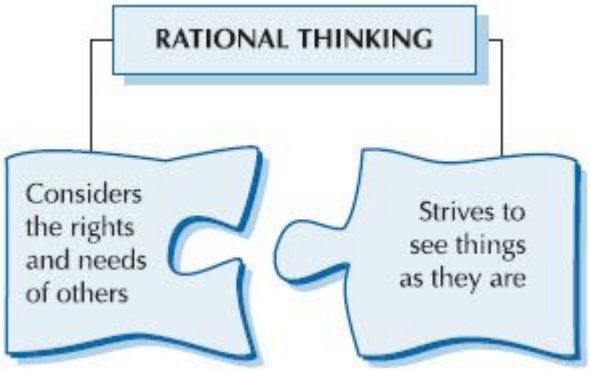
One of the primary barriers to the development of insightful thinking is the natural human tendency toward egocentric thought. Humans naturally see the world in self-serving terms. In other words, we do not naturally consider the rights and needs of others, nor do we naturally appreciate the point of view of others or the limitations in our own point of view. As humans we become explicitly aware of our egocentric thinking only if specially trained to do so. We do not naturally recognize our egocentric assumptions, the egocentric way we use information, the egocentric way we interpret data, the source of our egocentric concepts and ideas, the implications of our egocentric thought. We do not naturally recognize our self-serving perspective.[2]

One of the great barriers to detecting egocentric thought comes from the self-deceptive nature of the human mind. Through self-deception, humans live with the unrealistic but confident sense that we have fundamentally figured out the way things actually are, and that we have done this objectively. We naturally believe in our intuitive perceptions — however inaccurate. In other words, though human thinking is often flawed, it nevertheless sees itself as right, correct, in possession of "the truth." To take command of our egocentric tendencies, we need to actively target these tendencies through questions. In other words, we need to routinely question our motivations and study our own "selfishness" and narrowmindedness.

There are two basic motives of egocentric thinking:



Now contrast the two basic motives of rational thinking:



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2 For a more in-depth discussion of egocentricity in human life, refer to The Miniature Guide to the Human Mind.

Formulating Questions that Target Egocentrism

By focusing on the two motives of egocentric thinking, we can formulate questions that target our own egocentrism, questions specifically designed to uncover selfishness and self-validation. Here are some examples:

- Do I usually consider the views of those who disagree with me? Do I tend to assume that those who disagree with me are wrong?
- Do I tend to place my needs and desires over the needs and desires of others?
- When I have something personal to gain, does my fairness to others diminish?
- Will I personally gain something for myself in this situation if I ignore or distort some information or viewpoint?
- Am I usually willing to consider that I might be wrong?
- Do I tend to ignore information that would require me to rethink my position?
- Do I tend to assume that I know more than I actually do?
- Do I assert information to be true when I don't know for sure that it is?

We can also question the motives of others, through questions such as:

- Is this other person considering my rights and needs, or the rights and needs of others?
- Is he using me to serve his selfish interest?
- Is she distorting what I am saying? If so, why? Does she have something to gain by doing so?
- Is he trying to manipulate me?
- Is she honestly trying to understand what I am saying? Is she able to accurately state what I am trying to say?
- Is she willing to admit she might be wrong?
- Is he open to reason? Or is he close-minded?

- Is she refusing to consider relevant information in order to maintain her viewpoint?
- Is he assuming that he knows more than he does?
- Is she asserting something as true that may not be?

Egocentrism and Power

One of the natural motives of the human mind is the desire for power. All of us need some power. If we are powerless, we are unable to satisfy our needs. Without power, we are at the mercy of others. Hence, the acquisition of power is essential for human life. But we can pursue power through either rational or irrational means, and we can use power to serve rational or irrational ends. Power used irrationally is typically justified egocentrically.

Questioning Our Sociocentrism

Living a human life entails membership in a variety of human groups. This typically includes groups such as nation, culture, profession, religion, family, and peer group. We find ourselves participating in groups before we are aware of ourselves as living beings. What is more, every group to which we belong has some social definition of itself and some (usually unspoken) "rules" guiding the behavior of all members. Each group to which we belong imposes some level of conformity on us as a condition of acceptance. This includes a set of beliefs, behaviors, and taboos.

For most people, blind conformity to group restrictions is automatic and unreflective. Most conform without recognizing their conformity. They internalize group norms and beliefs, take on group identities, and act as "expected" — without the least sense that what they are doing might reasonably be questioned. Most people function in social groups unreflectively assuming the rightness of the system of beliefs, attitudes, and behaviors to which they conform.

This conformity of thought, emotion, and action is not restricted to the masses, or the lowly, or the poor. It is characteristic of people in general, independent of their role in society, independent of status and prestige, independent of years of schooling. Conformity of thought and behavior is the rule in human life;independence and non-conformity, the rare exception.

Sociocentric thinking, as we intend this expression, is egocentric thinking raised to the level of the group. It is as destructive as egocentric thinking, if not more so, as it carries with it the sanction of a social group. When sociocentric thinking is made explicit in the mind of the thinker, its unreasonableness is generally evident. However, just as individuals deceive themselves through egocentric thinking, groups deceive themselves through sociocentric thinking. Just as egocentric thinking functions to serve one's selfish interest, sociocentric thinking functions to serve the selfish interests of the group. Just as egocentric thinking operates to validate the uncritical thinking of the individual, sociocentric thinking operates to validate the uncritical thinking of the group.

Questions we can ask to target our sociocentric tendencies:

- What groups do I belong to and how do they influence my behavior when I am with the group? How do these groups influence my behavior when I am away from the group?
- Is it in my best interest to belong to these groups?
- What does this group require of its members (its demands)?
- What behaviors does this group forbid (its taboos)?
- What behaviors are allowed within the group (its range of free decision)?
- What would happen to me if I went against the taboos of the group or culture? Would I be ostracized? Would I be imprisoned? Would I be killed?
- How does my society influence my behavior?
- What is involved in thinking like an American (a German, a Japanese person)?
- Have I ever thought within the perspective of another culture?
- What beliefs and behaviors does my culture punish? Are these forbidden behaviors unethical, or are they culturally relative?
- What would happen to me if I violated any of the taboos of my culture?

Questioning to Develop Intellectual Dispositions

To cultivate ourselves as fair-minded, intellectually responsible persons, we strive to develop intellectual virtues or dispositions. These attributes are essential to excellence of thought. They determine with what insight and integrity we think.

This section contains brief descriptions of the intellectual virtues, along with related questions that foster their development. *Only to the extent that you are routinely asking these questions of yourself are you developing these virtues*.

Intellectual humility is knowledge of ignorance; sensitivity to what you know and what you do not know. It means being aware of your biases, prejudices, self-deceptive tendencies and the limitations of your viewpoint. Questions that foster intellectual humility include:

- What do I really know (about myself, about the situation, about another person, about my nation, about what is going on in the world)?
- To what extent do my prejudices or biases influence my thinking?
- How do the beliefs I have uncritically accepted keep me from seeing things as they are?

Intellectual courage is the disposition to question beliefs you feel strongly about. It includes questioning the beliefs of your culture and the groups to which you belong, and a willingness to express your views even when they are unpopular. Questions that foster intellectual courage include:

- To what extent have I analyzed the beliefs I hold?
- To what extent have I questioned my beliefs, many of which I learned in childhood?

- To what extent have I demonstrated a willingness to give up my beliefs when sufficient evidence is presented against them?
- To what extent am I willing to stand up against the majority (even though people ridicule me)?

Intellectual empathy is awareness of the need to actively entertain views that differ from our own, especially those we strongly disagree with. It is to accurately reconstruct the viewpoints and reasoning of our opponents and to reason from premises, assumptions, and ideas other than our own. Questions that foster intellectual empathy include:

- To what extent do I accurately represent viewpoints I disagree with?
- Can I summarize the views of my opponents to their satisfaction? Can I see insights in the views of others and prejudices in my own?
- Do I sympathize with the feelings of others in light of their thinking differently than me?

Intellectual integrity consists in holding yourself to the same intellectual standards you expect others to honor (no double standards). Questions that foster intellectual integrity include:

- Do I behave in accordance with what I say I believe, or do I tend to say one thing and do another?
- To what extent do I expect the same of myself as I expect of others?
- To what extent are there contradictions or inconsistencies in my life?
- To what extent do I strive to recognize and eliminate self-deception in my life?

Intellectual perseverance is the disposition to work your way through intellectual complexities despite the frustration inherent in the task. Questions that foster intellectual perseverance include:

- Am I willing to work my way through complexities in an issue or do I tend to give up when I experience difficulty?
- Can I think of a difficult intellectual problem concerning which I have demonstrated patience and determination in working through the difficulties?
- Do I have strategies for dealing with complex problems?
- Do I expect learning to be easy or do I recognize the importance of engaging in challenging intellectual work?

Confidence in reason is based on the belief that one's own higher interests and those of humankind at large are best served by giving the freest play to reason. It means using standards of reasonability as the fundamental criteria by which to judge whether to accept or reject any belief or position. Questions that foster confidence in reason include:

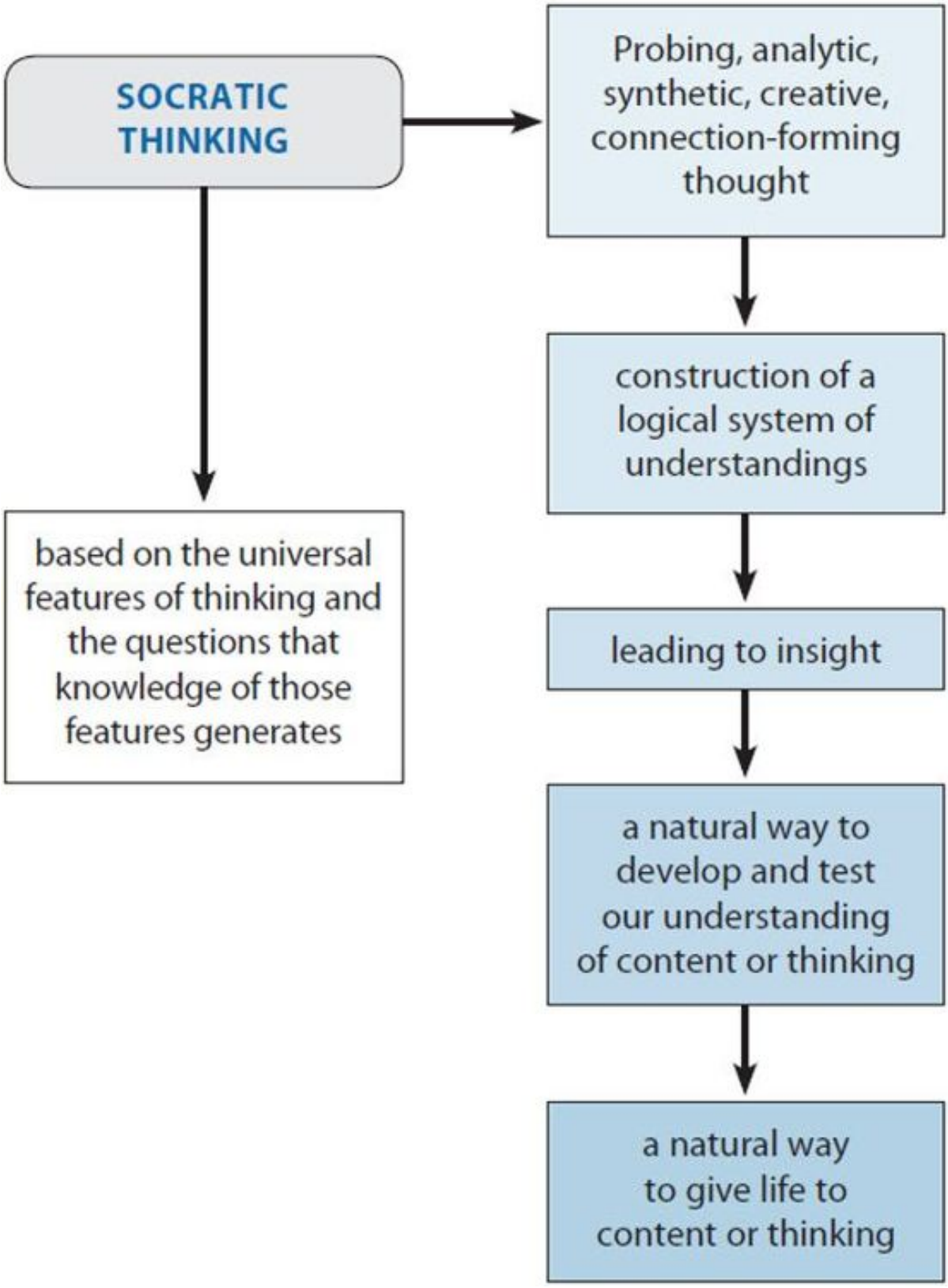
- Am I willing to change my position when the evidence leads to a more reasonable position?
- Do I adhere to principles of sound reasoning when persuading others of my position or do I distort matters to support my position?
- Do I deem it more important to "win" an argument, or see the issue from the most reasonable perspective?
- Do I encourage others to come to their own conclusions or do I try to force my views on them?

Intellectual autonomy is thinking for oneself while adhering to standards of rationality. It means thinking through issues using one's own thinking rather than uncritically accepting the viewpoints of others. Questions that foster intellectual autonomy:

- To what extent am I a conformist?
- To what extent do I uncritically accept what I am told by my government, the media, my peers?
- Do I think through issues on my own or do I merely accept the views of others?

- Having thought through an issue from a rational perspective, am I willing to stand alone despite the irrational criticisms of others?

Socratic Thinking is an Integrated, Disciplined Approach to Thinking.


SOCRATIC THINKING
Probing, analytic, synthetic, creative, connection-forming thought
construction of a logical system of understandings
leading to insight
a natural way to develop and test our understanding of content or thinking
a natural way to give life to content or thinking
based on the universal features of thinking and the questions that knowledge of those features generates

Conclusion: Questioning Systematically and Socratically

When we take command of our thinking, we do so through our questions. We move beyond questions that are undisciplined, fragmented and random. We turn from merely questioning to questioning systematically, comprehensively, and with breadth of vision. This mode of questioning is sometimes called "Socratic" questioning. The Socratic questioner deeply probes thinking. What the word "Socratic" adds to ordinary questioning, then, is systematicity, depth, and a keen interest in assessing the truth or plausibility of things.

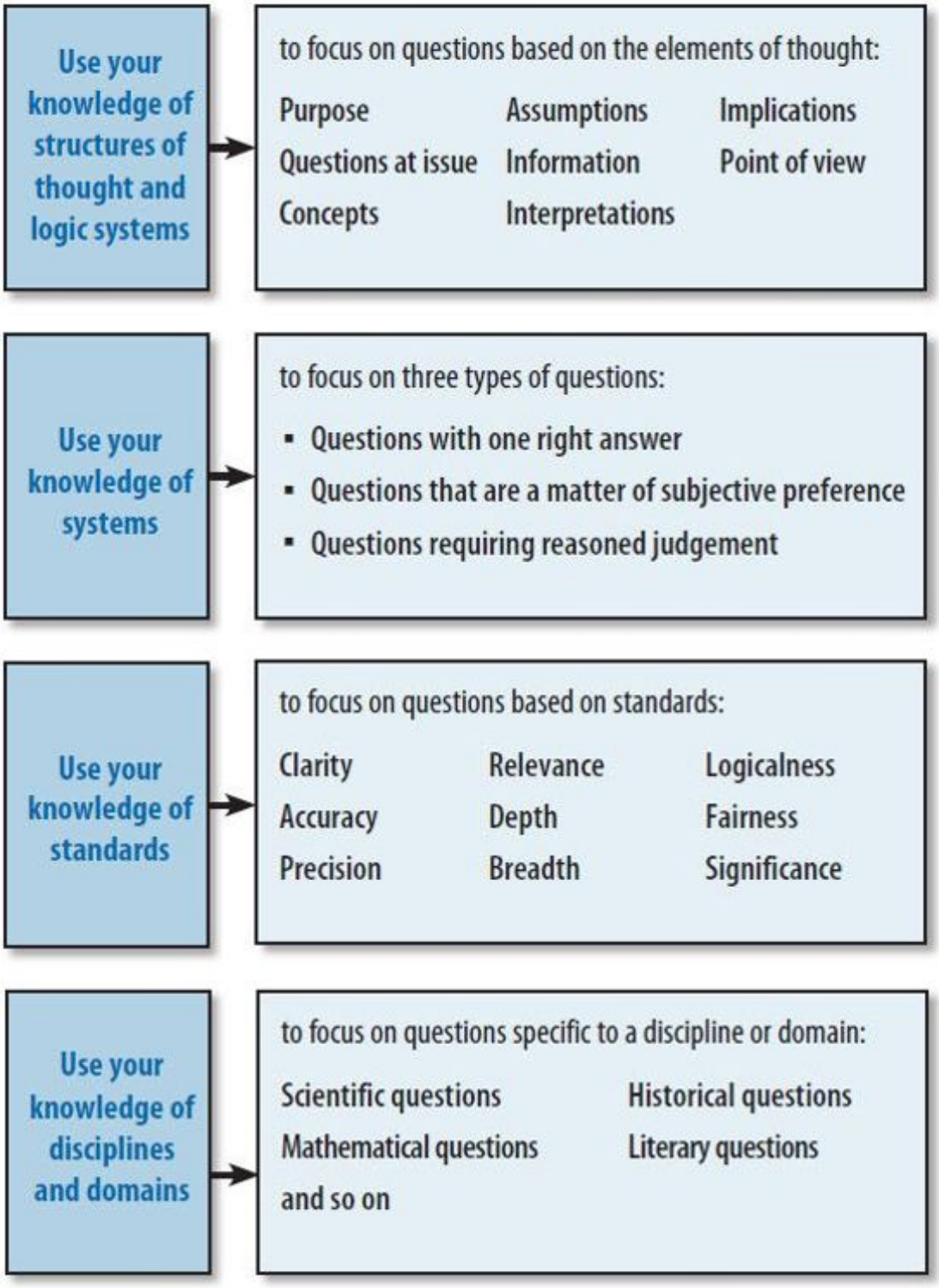
One of the primary goals of developing thinkers is to establish a disciplined, "executive" component in their thinking, a powerful inner voice of reason, to monitor, assess, and repair — in a more rational direction — their thinking, feelings, and action. Socratic questioning provides that inner voice. Here are some of the fundamentals of Socratic questioning, followed by examples of questions you might ask in beginning to 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 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?")

There are many more ways in which we can systematically question what we are learning, what we are reading, writing, saying, what we think and why we think what we do, what others say and what they might mean. Some of these questions have been the focus of this miniguide. Our goal is to practice using these questions often enough that they become second nature to us, so that we become instinctive questioners, those with a disposition to ask the right questions, the essential questions. If we do, we will gain greater and greater command of our thinking, and through that command, command of our emotions and our lives as well.

Four Ways to Generate Questions that Lead to Disciplined Thinking


Use your knowledge of structures of thought and logic systems
to focus on questions based on the elements of thought:
Purpose
Assumptions
Implications
Questions at issue
Information
Point of view
Concepts
Interpretations
Use your knowledge of systems
to focus on three types of questions:
Questions with one right answer
Questions that are a matter of subjective preference
Questions requiring reasoned judgement
Use your knowledge of standards
to focus on questions based on standards:
Clarity
Relevance
Logicalness
Accuracy
Depth
Fairness
Precision
Breadth
Significance
Use your knowledge of disciplines and domains
to focus on questions specific to a discipline or domain:
Scientific questions
Historical questions
Mathematical questions
Literary questions
and so on

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