The Thinker's 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**

# Introduction:
# The Power of Essential Questions

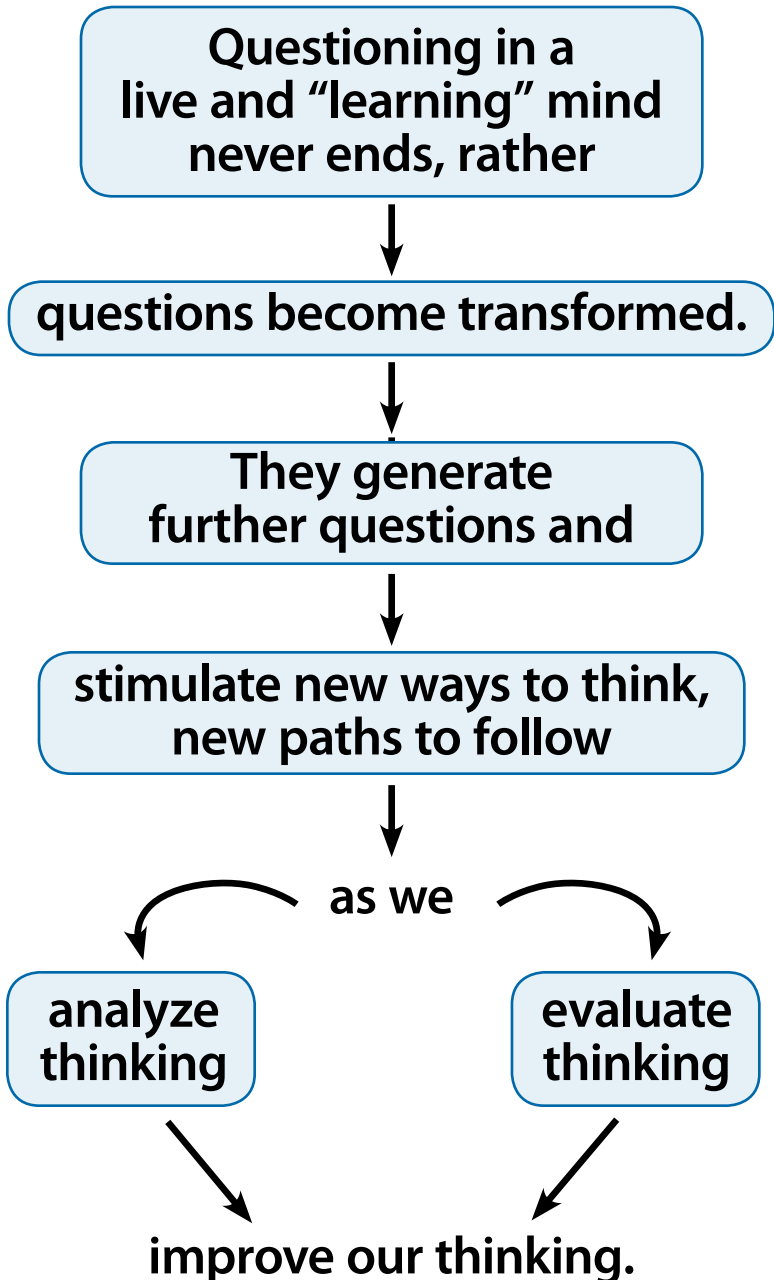It is not possible to be a good thinker and a poor questioner.

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.

**Questioning in a
live and "learning" mind
never ends, rather**

↓

**questions become transformed.**

↓

**They generate
further questions and**

↓

**stimulate new ways to think,
new paths to follow**

↓

**as we**

**analyze
thinking**          **evaluate
thinking**

**improve our thinking.**

# 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:

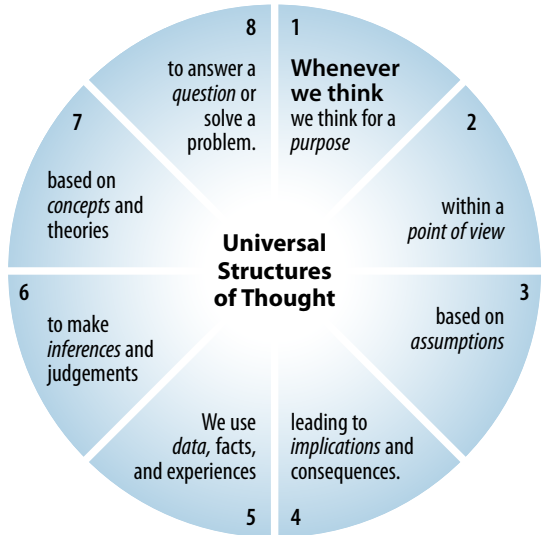As you formulate questions, consider the following guidelines and sample questions:

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?



Universal Structures of Thought

8 — to answer a *question* or solve a problem.

1 — **Whenever we think** we think for a *purpose*

2 — within a *point of view*

3 — based on *assumptions*

4 — leading to *implications* and consequences.

5 — We use *data,* facts, and experiences

6 — to make *inferences* and judgements

7 — based on *concepts* and theories

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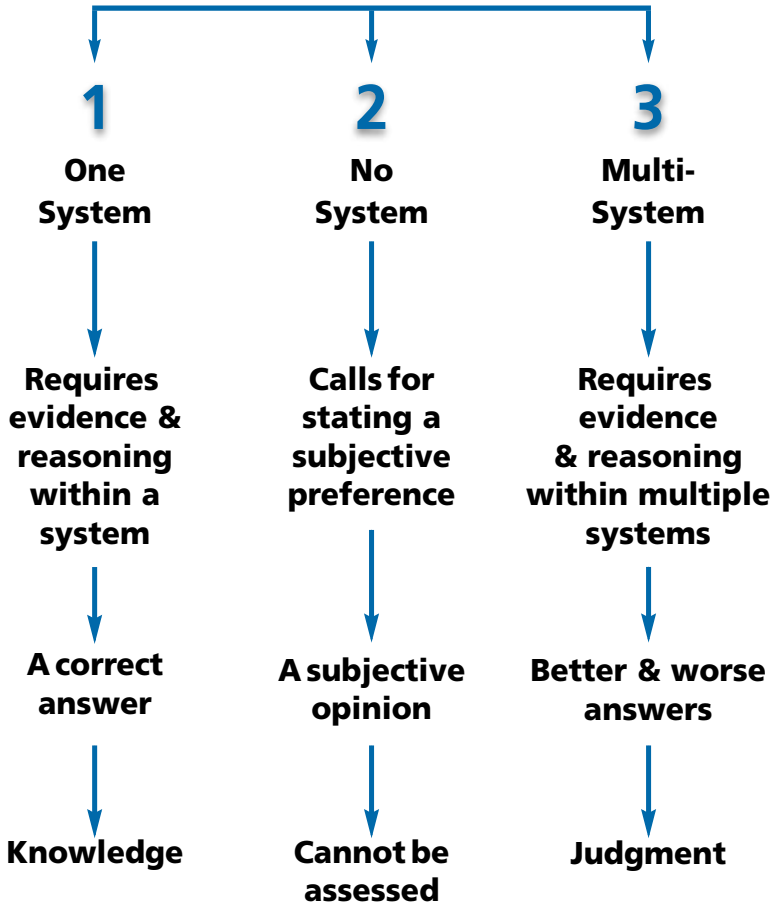
- What exactly are you taking for granted here?
- Why are you assuming that? Shouldn't we rather assume that…?
- What assumptions underlie our point of view? What alternative assumptions might we make?

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)?

# 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?

## 1
### One System
**Requires evidence & reasoning within a system**

**A correct answer**

**Knowledge**

## 2
### No System
**Calls for stating a subjective preference**

**A subjective opinion**

**Cannot be assessed**

## 3
### Multi-System
**Requires evidence & reasoning within multiple systems**

**Better & worse answers**

**Judgment**

# 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 <u>no</u> 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.
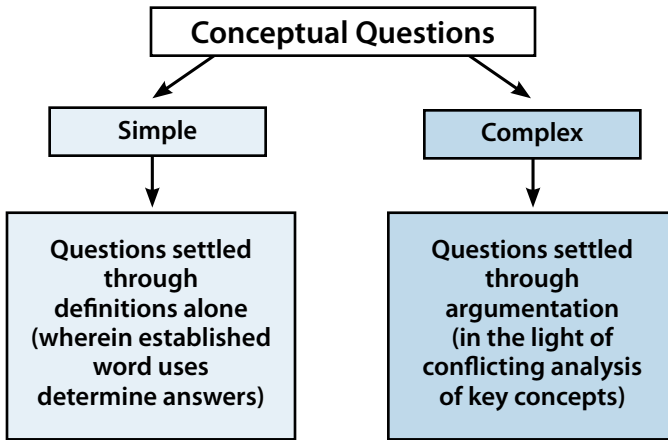
Intellectually responsible persons, in contrast, recognize questions of judgment for what they are: questions requiring the consideration of alternative points of view. Put another way, intellectually responsible persons recognize when a question calls for good reasoning (from multiple points of view), 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.



**Conceptual Questions**

**Simple**

**Complex**

**Questions settled through definitions alone (wherein established word uses determine answers)**

**Questions settled through argumentation (in the light of conflicting analysis of key concepts)**

## 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.

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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.

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
  - Contrary cases
  - Related 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 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 history 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:
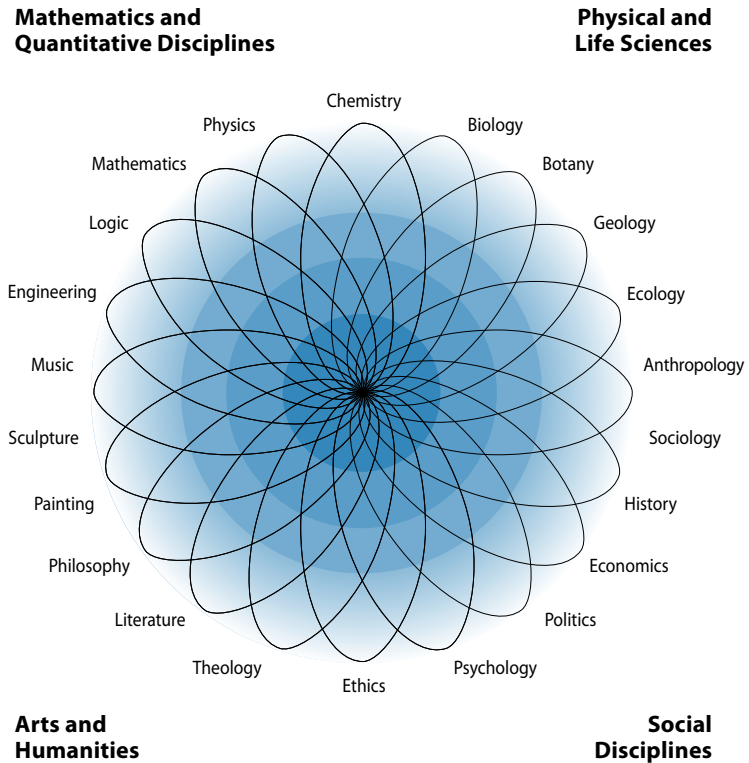


## Domains of Questions *(by discipline)*

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?
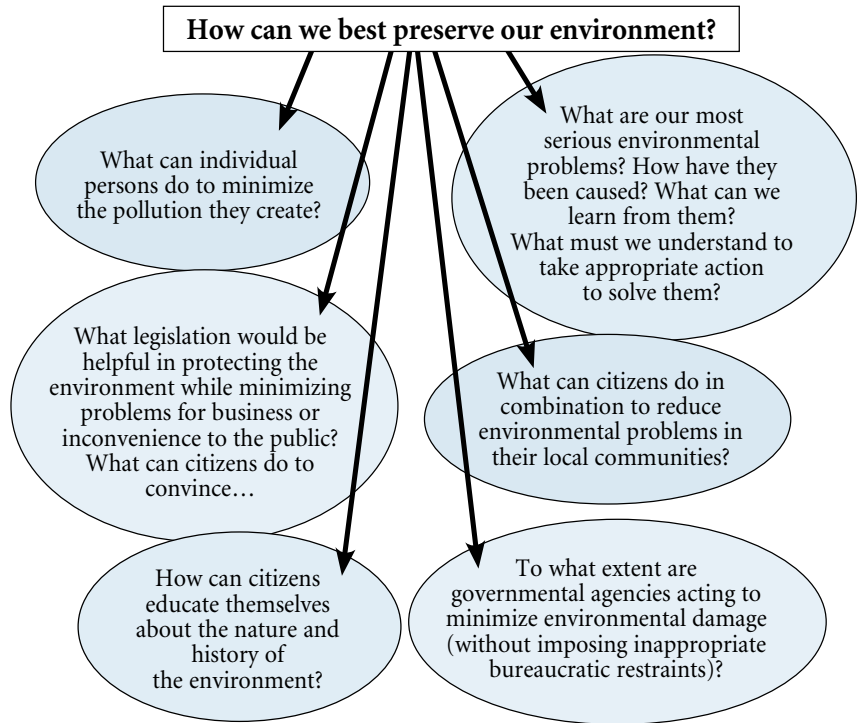   Some of the domains of questions inherent in this question:

**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 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:

> **How can we best preserve our environment?**

What can individual persons do to minimize the pollution they create?

What are our most serious environmental problems? How have they been caused? What can we learn from them? What must we understand to take appropriate action to solve them?

What legislation would be helpful in protecting the environment while minimizing problems for business or inconvenience to the public? What can citizens do to convince…

What can citizens do in combination to reduce environmental problems in their local communities?

How can citizens educate themselves about the nature and history of the environment?

To what extent are governmental agencies acting to minimize environmental damage (without imposing inappropriate bureaucratic restraints)?

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**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.**

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# 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.

# 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".

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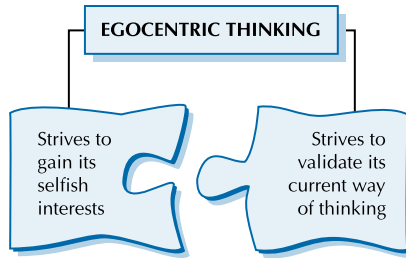
**Idea # 8:** Do I relate content whenever possible to issues and problems and practical situations in my life?

**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?
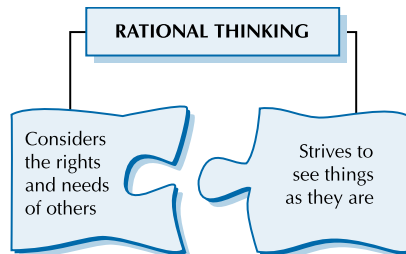
# Questioning Our Egocentrism

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:

**EGOCENTRIC THINKING**

Strives to gain its selfish interests

Strives to validate its current way of thinking

Now contrast the two basic motives of rational thinking:

**RATIONAL THINKING**

Considers the rights and needs of others

Strives to see things as they are

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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* (see page 47 for a description).

## About the Authors

**Dr. Linda Elder** is an educational psychologist who has taught both psychology and critical thinking at the college level. She is the President of the Foundation for Critical Thinking and the Executive Director of the Center for Critical Thinking. Dr. Elder has a special interest in the relation of thought and emotion, the cognitive and the affective, and has developed an original theory of the stages of critical thinking development. She has coauthored four books on critical thinking, as well as twenty thinkers' guides. She is a dynamic presenter with extensive experience in leading seminars on critical thinking.

**Dr. Richard Paul** is a major leader in the international critical thinking movement. He is Director of Research at the Center for Critical Thinking, and the Chair of the National Council for Excellence in Critical Thinking, author of over 200 articles and seven books on critical thinking. Dr. Paul has given hundreds of workshops on critical thinking and made a series of eight critical thinking video programs for PBS. His views on critical thinking have been canvassed in *New York Times, Education Week, The Chronicle of Higher Education, American Teacher, Educational Leadership, Newsweek, U.S. News and World Report,* and *Reader's Digest.*