

THE SIX TYPES OF SOCRATIC QUESTIONS

Due to the rapid addition of new information and the advancement of science and technology that occur almost daily, an engineer must constantly expand his or her horizons beyond simple gathering information and relying on the basic engineering principles.

A number of homework problems have been included that are designed to enhance critical thinking skills. Critical thinking is the process we use to reflect on, access and judge the assumptions underlying our own and others ideas and actions.

Socratic questioning is at the heart of critical thinking and a number of homework problems draw from R.W. Paul's six types of Socratic questions:

1. Questions for clarification:

- Why do you say that?
- How does this relate to our discussion?
- What do you mean by?
- What do we already know about...?

2. Questions that probe assumptions:

- What could we assume instead?
- How can you verify or disapprove that assumption?
- Could you explain why you arrived at that conclusion? (Explain how...)
- What would happen if...?
- Do you agree or disagree with this statement...?

3. Questions that probe reasons and evidence:

- What would be an example?
- What is....analogous to?
- What do you think causes to happen...? Why:?
- What evidence is there to support your answer?

4. Questions about Viewpoints and Perspectives:

- What would be an alternative?
- What is another way to look at it?
- Would you explain why it is necessary-or beneficial and who benefits?
- Why is the best?
- What are the strengths and weaknesses of...?

5. Questions that probe implications and consequences:

- How are...and ...similar?
- What is a counter argument for...?
- Compare... and... with regard to...
- What generalizations can you make?
- What are the consequences of that assumption?
- What are you implying?
- How does...affect...?
- How does...tie in with what we have learned before?
- Why is... important?
- What was the point of this question?
- Why do you think I asked this question?
- What does...mean?
- How does...apply to everyday life?

6. Questions about the question:

Socratic Questions

[Adapted from Richard Paul's *Critical Thinking Workshop*]

A. Questions that probe CONCEPTUAL understandings.

1. What do you mean by ____?
2. How does ____ relate to ____?
3. Could you put that another way?
4. Is your basic point ____ or ____?
5. Let me see if I understand you; do you mean ____ or ____?
6. How does this relate to our discussion/problem/issue?
7. Could you give me an example?
8. Would this be an example: ____?
9. Could you explain further?
10. Can you find a more precise term for ____?

B. Questions that probe ASSUMPTIONS.

1. What are you assuming?
2. What could we assume instead?
3. You seem to be assuming _____. Do I understand you correctly?
4. You seem to be assuming _____. How would you justify taking this for granted?
5. Why would someone make this assumption?

C. Questions that probe REASONS AND EVIDENCE for a position.

1. How do you know?
2. Why do you think that is true?

3. Do you have any evidence for that?
4. What are your reasons for saying that?
5. What other information do we need?
6. Could you explain your reasons to us?
7. Are these reasons adequate?
8. Why did you say that?
9. What led you to that belief?
10. How does that apply to this case?
11. What would change your mind?
12. Is there a reason to doubt that evidence?
13. What would you say to someone who said ____?
14. By what reasoning did you come to that conclusion?
15. How could we find out whether that is true?

D. Questions about PERSPECTIVES.

1. You seem to be approaching this from ____ perspective. Why have you chosen this rather than another perspective?
2. How would other groups/types of people respond? Why? What would influence them?
3. How could you answer the objection that ____ would make?
4. What might someone who believed ____ think?
5. Can/did anyone see this another way?
6. How many other perspectives can you imagine?

E. Questions that probe CONSEQUENCES of a position.

1. When you say ____, are you implying ____?
2. But if that happened, what else would happen as a result? Why?
3. What effect would that have?
4. Would that necessarily happen or only probably happen?
5. If we disagree, what consequences could result?
6. If this and this is the case, then what else must also be true?
7. Would any implication or result cause you to think differently?