The Role of Critical Thinking in Project Management

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What’s Happening Here?
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Critical Thinking Defined

What is it?
• A process of using logic and reasoning to fully understand a topic from multiple perspectives
• Typically an exchange of questions and answers (Although it can be done individually)

What does it do?
• Allows for more fact-based discussion, aiding the participants in exposing and removing bias/opinions
• Aids in challenging assumptions and fosters creative solutions.
Critical Thinking is NOT

• A contest to outwit your teammates or prove who is the smartest
• An argumentative or bullying approach to “prove” that you are right
• Should not be used as an attempt to expose weaknesses or embarrass others
• A psychic reading or a party trick
  ▪ Not about what you know, it’s how you approach a problem
  ▪ Not having answers, having the right questions
Critical Thinking for PMs

- Facilitate more in-depth discussions
- Resolve issues more quickly
- Develop better solutions
- Reduce project stress
- Produce better results.
Basic Reasoning

- **Inductive Reasoning**
  - Inherently Uncertain Deals in probabilities
  - Example: Ticket-taker at a movie theater and the 6 foot tall, 12 year-old child

- **Deductive Reasoning** – Top Down logic
  - “Did you order the code red?” – A Few Good Men
  - Validity and Soundness – An argument can be valid, but may not be sound
    - All dogs have 4 legs; this animal has 4 legs, this animal is a dog

Typical critical thinking exercises go through a combination of inductive and deductive reasoning to get to the facts
Common Critical Thinking Tools

• **Cause and Effect Diagram**: A diagram-based technique to help identify the common causes and effects of a problem.

• **FMEA (Failure Modes and Effects Analysis)**: helps to identify potential failure modes based on experience with similar products and processes.

• **Five “Why’s”**:  
  1. **Why did my car not start?**  
     A. *Because my battery was dead (Contributing Cause)*  
  2. **Why was my battery dead?**  
     A. *Because my dome light was left on all night (Contributing Cause)*  
  3. **Why was my dome light on all night?**  
     A. *Because my car door was left open (Contributing Cause)*  
  4. **Why was my car door left open?**  
     A. *Because the kids were playing in the car (Contributing Cause)*  
  5. **Why were my kids playing in the car?**  
     A. *Because I did not lock the doors to the car (Root Cause)*
Socratic Questioning

- Explore complex ideas/analyze concepts
- Open up issues and problems
- Uncover assumptions
- *Distinguish what we know from what we don't know*
6 types of Socratic Questions

- Conceptual Clarification Questions
- Probing Reason, Evidence, Rationale
- Probing Implications and Consequences
- Questioning Perspectives and Viewpoints
- Probing Assumptions
- Questions about the Question
Conceptual Clarification Questions

Basic *tell me more* questions that get them to go deeper into the concept.

- Help me understand…?
- What exactly does this mean?
- Can you give me an example?
- Are you saying ... or ...?
- Can you rephrase that, please?
Probing Reason, Evidence, Rationale

Dig into the reasoning and evidence rather than assuming it is a given.

• How do you know this? What evidence supports what you’re saying?
• Can you give me an example of that?
• Why is that happening?
• Show me ... ?
• How might it be refuted?
• Why is ... happening? (5 Whys)
Probing Assumptions

Discover the assumptions and presuppositions founding their argument.

• You seem to be assuming ... ?
• What else could we assume?
• Please explain why/how ... ?
• Do you agree or disagree with ... ?
• How can you verify or disprove that assumption?
• What would happen if ... ?
Questioning Perspectives and Viewpoints

Understand the position, and discover other, equally valid, viewpoints.

- Another way of looking at this is ..., does this seem reasonable?
- What is the difference between... and...?
- Why is it better than ...?
- How could you look another way at this?
Probe Implications and Consequences

The argument given may have logical implications that can be forecast. Do these make sense? Are they desirable?

- Then what would happen?
- What are the consequences of that action/assumption?
- What are the implications of ... ?
- How does ... affect ... ?

UNINTENDED CONSEQUENCES
A reflexive approach can ensure that the conversation is hitting the right points.

• Am I making sense? Why not?
• What am I missing?
• Why do you think I asked this question? What does that question mean to you?
When to use Critical Thinking Skills

"I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail."

*Abraham Maslow, American Psychologist*

- Solutioning sessions
- Defining Project Scope/Metrics
- Defining/Optimizing Business processes
- Project Charter development
- Integrating technical solutions and workarounds
How to Teach Critical Thinking Skills

“Most people, if left to their own devices, develop bad habits of thought that lead them to believe what is false or misleading.”


- Recognize that critical thinking is not natural to most people
- Focus on beginning with the end in mind
  - What do I want to know?
  - What factors do I need to understand more deeply?
  - What do I need to accomplish?
- Teach through play – 20 Questions
- Practice with your team
Final Thoughts…

Developing and practicing critical thinking is an effective way to help you understand the full scope of a topic or issue, remove bias and opinions and drive out solutions faster and more effectively.
Questions
References

Inductive/Deductive Reasoning:
http://en.wikipedia.org/wiki/Inductive_reasoning
http://www.buzzle.com/articles/deductive-reasoning-examples.html

Common Tools
http://en.wikipedia.org/wiki/Failure_mode_and_effects_analysis
http://www.mindtools.com/pages/article/newTMC_03.htm
http://en.wikipedia.org/wiki/5_Whys

Socratic questioning:
http://syque.com/copyright.htm
http://en.wikipedia.org/wiki/Socratic_questioning
http://skeptoid.com/episodes/4384