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SEVEN STEPS FOR MAKING CRITICAL THINKING EASIER

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the **thiagi** group

improving performance playfully

The Seven Questions

I often get asked to run critical thinking workshops, or to coach others to become better critical thinkers. I have failed. Maybe a few have gotten better. Slightly. Or, as a critical thinker, maybe the problem is just me. Either way, my methods for making the world a better, evidence-oriented place have not been fruitful.

Last week, however, my daughter Lia's history teacher made it easy. Super easy. Dr. Robert Naeher teaches AP American and European history at Emma Willard in Troy, NY. Bob uses a simple set of questions. These questions have



Lia with Dr. Robert Naeher

have changed my life—yes... I need to get a better life. I have taken some license as I put them into the context of L&D and other business functions. Hopefully, Bob will forgive me. First, a rule when using this set of questions. Once asked and answered, every time—and yes, I mean every time—follow-up with, “WHAT DOES THAT MEAN?” The whole model falls apart if you forget to do this.

WHAT DO I SEE? Such a deceptively easy question. Bob starts with getting the kids to describe. He trains them to open their eyes and detail everything their eyes detect. As mentioned, this is easy, but hard to execute comprehensively. So, the kids have to practice—to develop their “seeing” muscles. Bob opens with this question and let's them loose. One observation begets another, and so forth. After a bit, can you guess what he then facilitates? If you said, “What does that mean?” you got it. In other words, Bob always, always follows up with the significance of the observations. He asks “what?” and “so what?”

WHAT DO OTHERS SEE? If Bob stopped there, all would probably be right with the world. Just getting folks to pause and look is pretty powerful. But he doesn't. He recognizes that perspective is everything and that others see other things. So he asks the kids to put themselves into “that person's” shoes. Obviously, if Lia doesn't see something upon her first glance, it is difficult to see what she missed. In order to train the kids, Bob initially asks them questions grounded in other contexts. For example, if they are looking at a painting of George Washington, he asks how the British would have viewed the same data. Or, the French? Or, American Tories. The key here is to see the different possibilities

and to train oneself to ask how others might see “it” a different way. Followed by, of course, “What does that mean?” Which leads to his next question...

WHAT DIDN'T I SEE? I know. It's similar to the previous one. But, not totally. This question is all about filling in any gaps one might have missed. Bob is training the kids to “check” their previous answers and try and identify what they may not have observed the first time, but should have. In many ways, this is a rest, or a pause, before the deep thinking begins. It's the final attempt to capture the raw data that will inform a more complex interpretation. Bob intentionally slows them down to allow more info to soak into them, all the while continuing to drum in, “WHAT DOES THAT MEAN?” in a completely interactive, *meaning-building* expansion of comprehension and thought.

WHAT DID I EXPECT TO SEE? A corollary to the previous question, but unique enough to stand on its own. Am I seeing everything I expected? Do my expectations continue to get validated as I explore the dataset? Are there bits of information that are unexpected and cause me to reevaluate? For example, picture the historical photo of Hitler, Neville Chamberlain, and Édouard Daladier as they prepared to sign the Munich Agreement. Looking at it, you may notice there are no women. No people of color. “WHAT DOES IT MEAN,” is sooooooo important here. Yes. If you are already familiar with the context of 1930's Europe, one might not expect to see women or people of color, but if you are not already familiar, noting what by today's standards you might expect and not see can be quite telling. Also, often when expecting something, we find “proof,” but we can often miss the unexpected or ignore it. Asking what one expected and what wasn't expected is another way of challenging the norms of one's thinking. Which leads to an exploration of...

WHAT ISN'T THERE? And, how is this missing information both conspicuous and telling? Lots of data, stories, art, music, etc., lack what might be critical information. Information that would yield a stronger and more accurate interpretation. Sometimes this lack of knowledge stems from simply missing data points not present. Or, it can come from one's biases, such as in the example in the next page about *THE*

HEAD OF A MOOR. Still other causes may stem from cognitive illusions that cause us not to see something critical. In other words, the information may be there, but we may not perceive it à la the famous Invisible Gorilla¹. Knowing and practicing how to identify what



Neville Chamberlain, Édouard Daladier, Adolf Hitler, Benito Mussolini, and Galeazzo Ciano as they prepared to sign the Munich Agreement, 1938.

¹ If you haven't seen the Invisible Gorilla Videos by Daniel Simons and Christopher Chabris, check them out on youtube: <https://youtu.be/vJG698U2Mvo>. Also check out their book, *The Invisible Gorilla*.

is missing is a critical skill for filling in gaps using extra sources. For example, looking at a painting decontextualized from time, or absent knowing the painter's intent might lead one to completely incorrect conclusions. Take the *HEAD OF A MOOR*, by Peter Paul Rubens, pictured here. Absent context, one may see the pain in the man's eyes. His left eye, the one closest to the viewer, looks swollen, like he has been beaten. It's hard to tell from the image, but the hues in the top right of the painting are very red. Blood red. His downcast glaze is one of surrender. The different shades of of color on his face could be bruises, further reinforcing my interpretation of torture. This is a beaten man. An enslaved Moor. Right? No. The man is Balthasar, one of the three wise men. Once you know something about Rubens and the painting itself, you start to see it. The red hues in the work. The light above Balthasar's head radiating down below his gaze toward the baby Jesus. Not blood. The downward gaze is respect and a form of bowing downward. Not pain and suffering. This was a close-up, a very realistic close-up, of a deeply religious story of a happy and extremely meaningful moment. Knowing when, where, whom, and more fills in the gaps. Asking for what you don't see and isn't present is essential. Which brings us to a deeper exploration of...



The Head of a Moor by Peter Paul Rubens.
Source: The Hyde collection

WHO SET THE SCENE THAT I SEE? Bob may or may not be a constructivist, but here he uses constructivist principles. It matters who tells the story. It matters how that person tells the story and how that person curates what we then see. "Who's doing the telling and why?" Now, Bob goes right back to his tried and true and gets the kids to start interpreting the meaning behind the author's choices and actions. What does it mean for the painter to paint Washington plainly, rather than with all the ornamentation of a European monarch of the time? What do the kids think are the reasons the painter chose to tee up Washington this way? Why does Rubens paint Balthasar under these red hues which could then be interpreted as blood? Why is one eye sort of closed? Why, why, why? And, of course, "WHAT DOES IT ALL MEAN?" How something is framed can dictate how we interpret it. So, it is essential to try and understand the "meta" surrounding a topic or an issue. Marketing thinks differently than L&D and therefore frames, or describes, what they know uniquely from each other. The French interpreted Daladier and his signage of the Munich Agreement differently than the British accepted Chamberlain. Partly because Winston Churchill framed Chamberlain as an "appeaser." This frame stuck.

NOW, WHAT ARE THE FACTS AGAIN? Now Bob gets tricky. The kids have all these grand ideas and interpretations. This is great, but where's the evidence? Do the "facts" they saw earlier back up their conclusions? Or, are they really just making assumptions? In other words, are what they think are facts really subjective ideas stemming from their own personal perspectives? Can they find the evidence to support their ideas? **EVIDENCE!!!** Can they prove their argument? Without evidence, the kids are fiction tellers.

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Ultimately, Bob wants the kids to be better readers of detail. He wants them to be able to respond to the minutia by reading and engaging critically with the given information. He wants them to be able to search for additional data to back up their theories and hypotheses.

When I heard Bob explain all this, the light bulb went off! Seven simple questions. No statistics required (at least in principle). No social science graduate degree necessary (Doesn't hurt, though). Seven simple questions.

Let's take a concept that still is pervasive in many educational realms. *People have learning styles that teachers must adapt to in order to ensure the best learning outcomes.*

| Question | Answer |
|----------------------------------|--|
| What Do I See? | We SEE many people do indicate and seem to have preferences for how they learn. We can observe those preferences pretty easily in classrooms. What does this mean? Potentially many things, but one conclusion is that people do indeed have individual learning penchants. Sure. No argument there. |
| What Do Others See? | Many students experience these preferences which in turn gives learning styles a bit of face validity. Many students express and advocate for their needs. Parents, kids, and adults anecdotally share their experiences based on those professed needs. Often teachers see increases in engagement as a result of meeting those needs. Indeed, people do experience the effects of learning styles. At least they think they do. What does this mean? It is easy to see why learning styles have become pervasive. People viscerally feel them. But we have to be careful to draw from that experience a conclusion that the existence of preferences yields better learning outcomes. Having a preference for how one learns does not necessarily mean one truly learns better. |
| What Didn't I See? | Well, if you are like most, you probably haven't seen or looked at any research on learning styles. How do I know this activity is missing? Because there is a ton of scholarly, replicated work on the topic and we may even be able to stop here if one had seen it. 😊 What does this mean? There is a difference between perceiving something exists and that something actually existing. |
| What Did I Expect To See? | Well, if I am interested in learning styles, I probable expect to see learning outcomes improve if I adjust my teaching methodology. I might also expect to see more learner engagement. What I might not expect to see is a null effect. Learning styles makes too much sense for there not to be an improved outcome, right? What does this mean? There have been a lot of books and articles about learning styles. There are also a lot of learning styles products out there. There are even some published studies that do show learning styles working, but those are usually one-offs, or methodologically dubious. The FACT that there is an absence of replicated, peer-reviewed supporting research that demonstrates the concept works is something I may not have expected to see. |
| What Isn't There? | Well, this can be tricky. I have to know to look, which goes back to the second question listed above. There is little to no replicated research for independent, peer reviewed sources that indicate learning styles does improve learning outcomes. In fact, there are countless sources and literature reviews to the counter. What does this mean? Now, we may be getting a bit redundant. A lack of supporting peer-reviewed research indicates either a lack of interest or an inability to see efficacy. A plethora of debunking research indicates a high likelihood learning styles is not an effective applied methodology for improving learning. Why might this be so? |

| Question | Answer |
|---------------------------------------|--|
| | As my friend, Will Thalheimer repeatedly says, whenever asked about learning styles research... perhaps the research isn't measuring important outcomes. Perhaps researchers are <i>NOT</i> yet able to measure learning preferences well enough. Perhaps there is other research which shows that other types of individual differences can make an impact in learning. A good Thalheimer example of this is that often, prior knowledge will make some content and approaches work, while others do not. |
| Who Set The Scene That I See? | Many of those purporting that Learning Styles is an effective tool sell inventories and other resources. Or, they profit from the sale of others' products. They have personal agendas. The research studies these proponents use is mostly decades old. What does this mean? Personal agendas remove objectivity, or least put the theory into question. If there is no independent research and all that is supportive is attached to personal motives, the concept becomes specious at best. Also, older research may be obsolete and no longer valid. |
| Now, What Are the Facts Again? | Where is the evidence? The evidence supporting Learning Styles just isn't there. Unfortunately. However, there are more than a half dozen research reviews by some of the top researchers in the world, and year after year they find the same thing—that learning based on learning styles just doesn't work and is often counterproductive. I spent a big part of my youth selling learning styles and loved the idea. How wonderful the world would be if we could just adjust to one's preference and all could learn more effectively. But, there just hasn't been any evidence other than anecdotal. Anecdotal is subjective, not evidence-based. What does this mean? DEBUNKED? Well, at least to the degree that the evidence indicate no efficacy. |

I want to be clear. Researchers are not necessarily showing that learning styles don't exist, but that designing learning based on learning styles has been shown, over and over, NOT to work and to often be very counterproductive.

I picked Learning Styles as an example because it isn't so controversial anymore to object to the concept. We have readily accepted its debunking. But, the same seven questions work with more controversial topics. Try them on Emotional Intelligence. Or, Multiple Intelligences. Try them on 70-20-10. You may not reach a firm conclusion. This is ok! These questions help you flesh out your understanding and your thinking of a topic. In fact, you may find you are no longer sure of anything. Thanks, Bob! I am not a perfect critical thinker. But, these questions help make me better at it, and hopefully they will help participants in my workshops improve the way they attack data, concepts, ideas, etc. more effectively.

ACKNOWLEDGEMENTS

I mention lots and lots of research studies about Learning Styles. A bibliography and source list is at www.thiagi.com/research, or use the QR Code below. If interested, check it out.

Obviously, this article doesn't happen without Bob Naeher. He certainly inspired it and anything you find useful about the seven questions should be attributed to him. I am also grateful to how much he has inspired my daughter, Lia, over her three years at Emma Willard. I am thrilled she gets one more with him guiding and mentoring her.

Thanks to my friend and podcast partner, Will Thalheimer, for validating the concepts and application of the seven questions applied to Learning Styles. Will is one of those top researchers I mentioned who has published a plethora of information on the issues and challenges with the concept. He also was instrumental in providing really useful feedback and helping me better conceptualize my thinking.

My business partner, mentor, and third grandfather to Lia, Thiagi, attacked the initial drafts and held me accountable for improving it when I could easily have just gotten bored and given up. Many aren't aware of this, but Thiagi, along with his mastery of instructional design, facilitation, and game-based learning, is also an expert in the field of critical thinking.

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