The role of reflection in cultivating a critical thinking mindset

Scott Brame

How do we learn?

“We do not learn from experience…. We learn from reflecting on experience”

-John Dewey

Dewey, J. (**1933**). How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process.

Champion of learner centered approach: He believed that the educator's fundamental role is to train students to think better.

Critical thinking connection?

- Reflection allows students to examine their beliefs, values, experiences and assumptions about the subject matter.
- There is no metacognition without reflection.

How are they expected to reflect?

- Reflection is a process, not an assignment per se.

- I want them to reflect during the lecture. They need time.
- I want them to reflect when not in class.
- I want them to reflect before responding to directed questions.
- I want them to write in a reflective manner.

What critical thinkers do

- Critical thinkers distinguish between fact and opinion; ask questions; make detailed observations; uncover assumptions and define their terms; and make assertions based on sound logic and solid evidence.
- - David B. Ellis, Becoming a Master Student

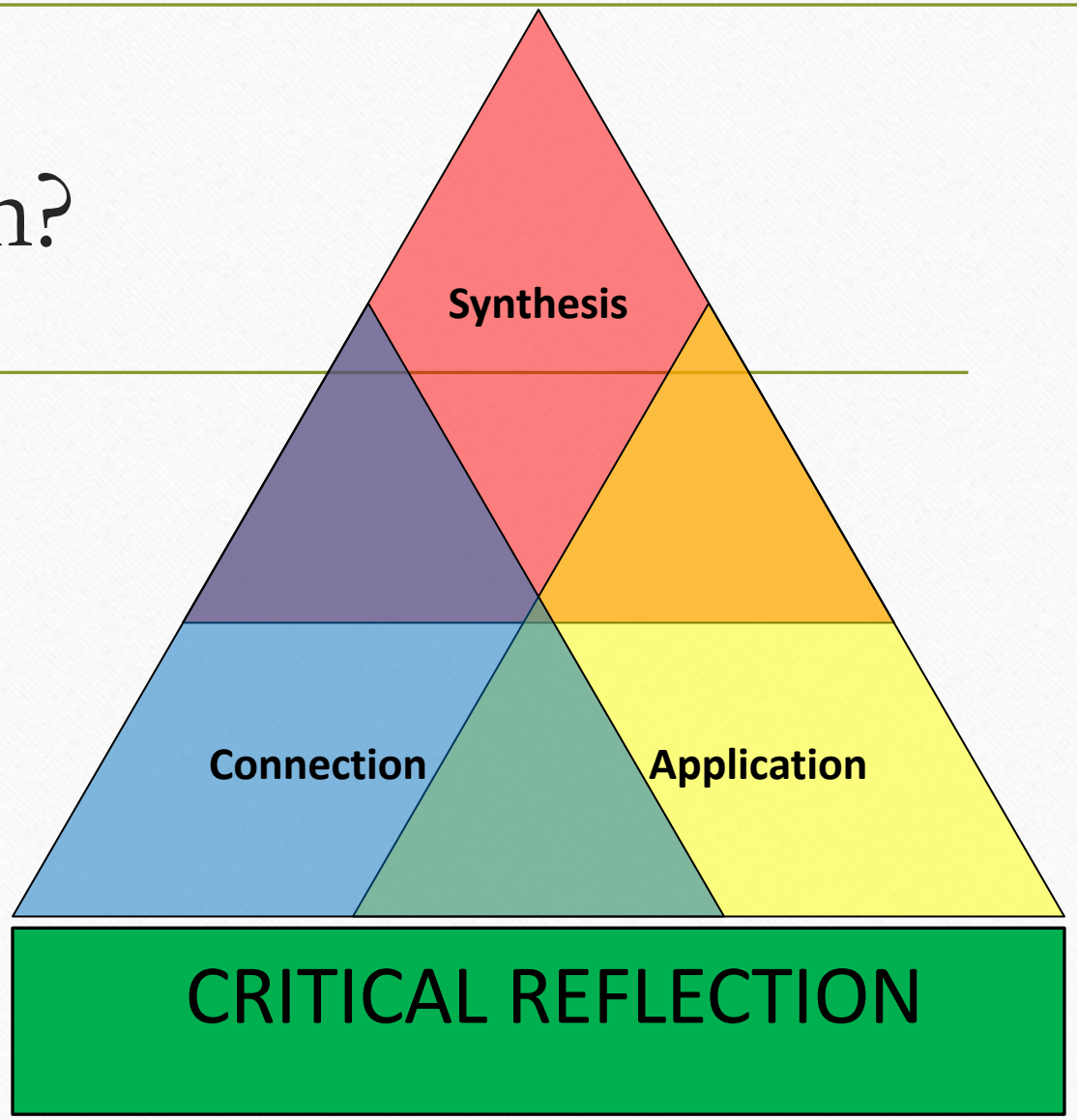
- This requires reflection. -Scott Brame

They need time

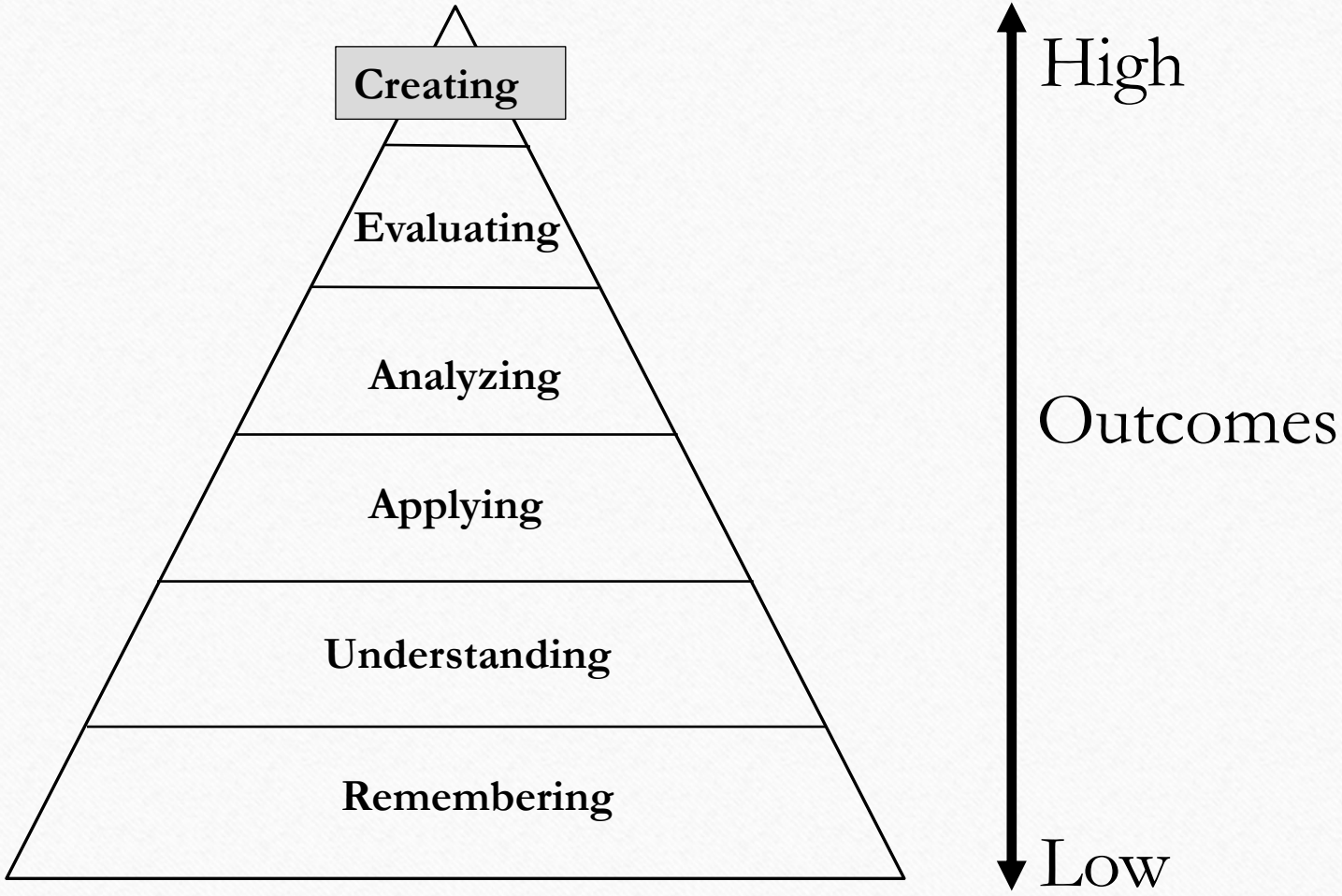
- Reflection takes time.
- *Critical* reflection takes more time including effort, dedication, and commitment.
- *Deep* critical reflection takes even more time as it is not a linear process, but a recursive process. Typically, not fun.

Critical Reflection?

- From: From Barber, Jim (2021) Facilitating and Assessing the Integration of Learning, AAC&U Conference on GenEd, Pedagogy, and Assessment, February 12, 2021



Derived from Bloom's Taxonomy

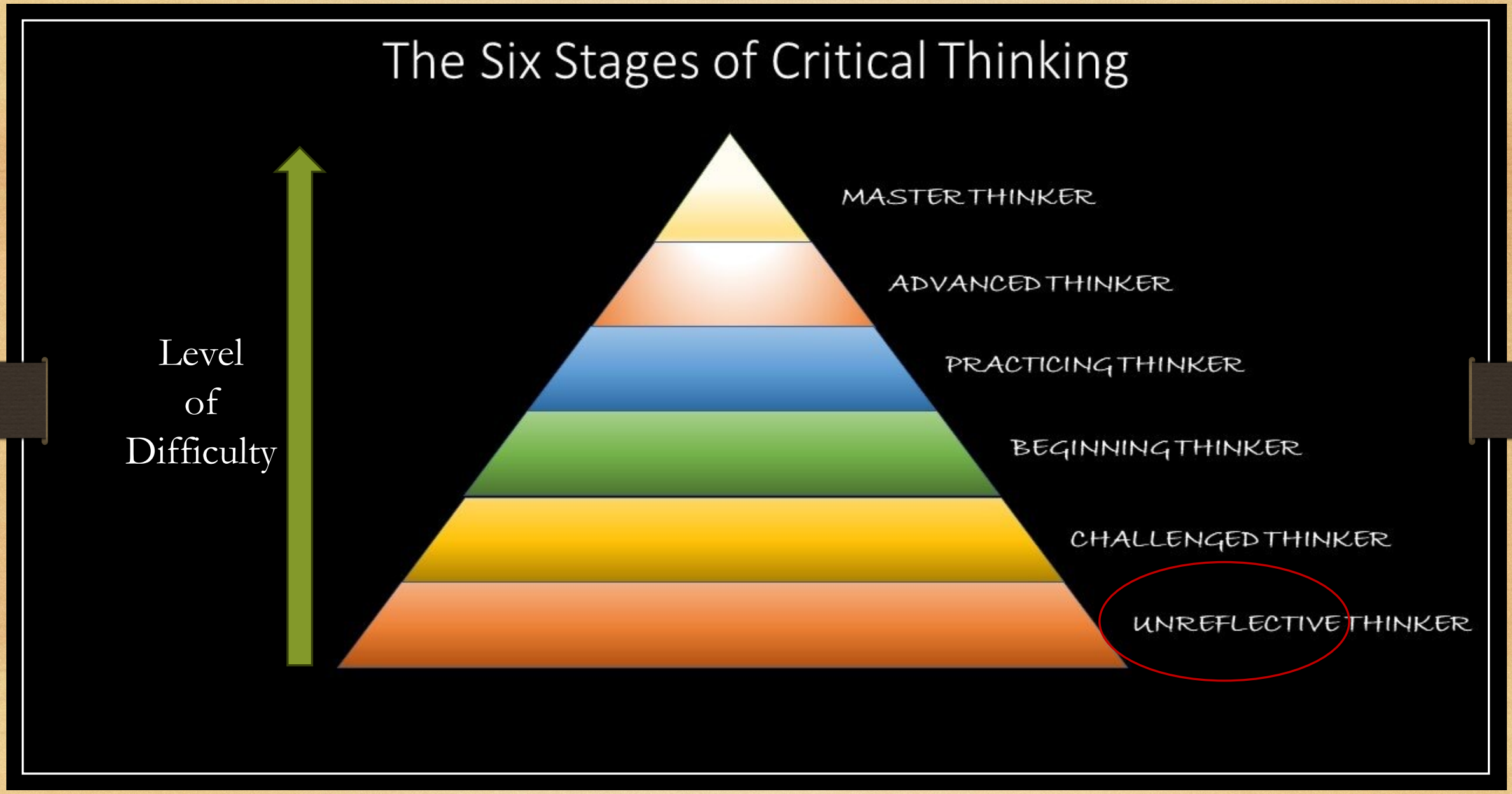


How do you know anything? How can you be sure you know anything?

- The steps:
- 1. You **remember** the details and logic.
- 2. You **understand** it enough to be able to explain it.
- 3. You **apply** that understanding to similar topics.
- 4. You objectively **analyze** the knowledge/topic.
- 5. You use this knowledge as the basis for **evaluating** the claims of others.
- 6. You **create** new "stuff" based on that knowledge.

How to cultivate critical thinking?

- Before we try to answer that question, we should differentiate between ordinary thinking and critical thinking.
- For that we will examine the six stages defined by Linda Elder and Paul Richard, recognized as preeminent in this field.
- Elder, Linda; Paul, Richard, 1996, Critical Thinking: A Stage Theory of Critical Thinking. Part I. *Journal of Developmental Education*, v20 n1 p34-35 Sum 1996



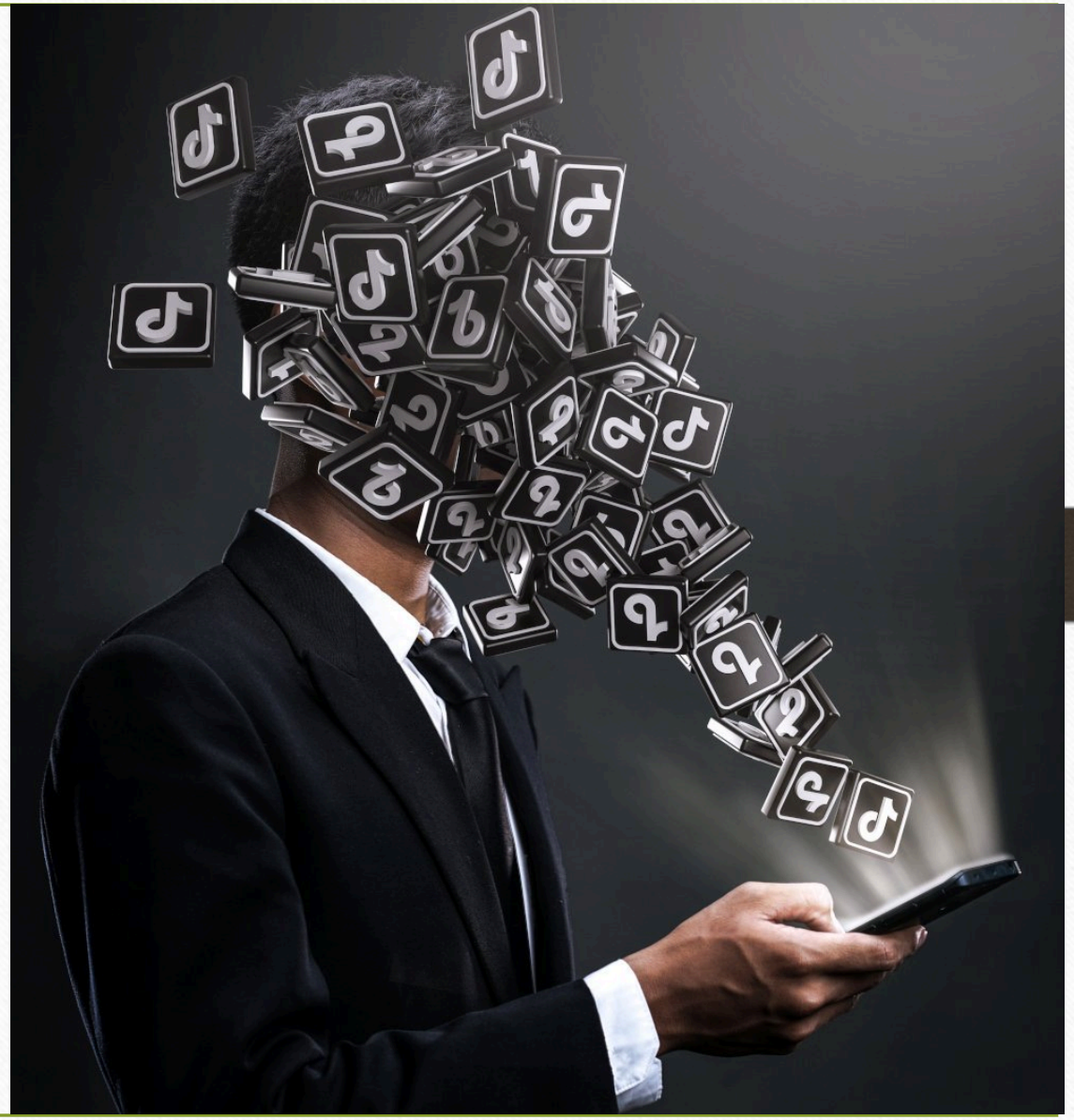
From Linda Elder and Richard Paul

Stage One: The Unreflective Thinker

- **They do not reflect** on their thinking and proceed solely on their opinions, biases, and prejudices. **They do not reflect** on the impact and effect their decisions may have on others, both human and non-human. They are emotionally immature and see no need for improvement.
- They don't apply standards to their thinking such as the need for accuracy, precision, and logic in any consistent way.
- **Most of us, at some time, are unreflective thinkers**.

Why?

- Our minds, left to their own devices, will always gravitate toward that which is easy and comfortable.
- Our brains, which consumes nearly 20% of our energy, will constantly seek to reduce that consumption.
- Our brains will seek the path of least resistance and resist any endeavor that is difficult to understand and involves complexity.



Stage Two: The Challenged Thinker

- They will have a sense that critical thinking involves addressing assumptions and that **reflection** is part of this process, **but only in a narrow sense**.
- They may believe that their thinking is better than it is, thus making it difficult to recognize the need for improvement.
- **Most of us are, at some time, challenged thinkers.**

Stage Three: The Beginning Thinker

- They are actively seeking to take control of their thinking process and apply that behavior in a broader sense. They admit that their thinking can have blind spots and that it is difficult to always recognize them.
- They are developing standards of clarity, logic, and accuracy and beginning to realize the role played by emotion and ego in their thinking.
- They are responsive to criticism and feedback and are striving to use **critical reflection** to improve the quality of their thinking.

Stage Four: The Practical Thinker

- The Practical Thinker will recognize their deficiencies and will have developed some skills to deal with them.
- They are committed to **reflective thinking** and are willing to devote time and effort to it but are still subject to self-deception.
- They seek answers and understand the need to interpret and understand information by making inferences.
- They understand that their inferences are based on their assumptions, which are a function of their worldview/experiences.

Stage Five: The Advanced Thinker

- They have developed strong habits to actively use **deep reflection** to examine their own thinking and apply it to many areas of their life.
- They will have acquired intellectual empathy and courage to accept and incorporate ideas and beliefs that are not necessarily theirs.
- But while they may fully appreciate the role of their ego in this process, they may still not be able to detect and decipher the multitude of influences that affect their own thinking, behavior, and actions.

Stage 6: The Master Thinker

- Master Thinkers are in complete control of how they make decisions and process information. They are constantly improving their thought skills.
- **Using a perpetual reflective process**, they raise the level of their thinking to a level of conscious realization. They are constantly re-examining assumptions, logic, and cognitive biases.
- **Psychologists think that most of us lack the perseverance and drive to become master thinkers.**

The role of reflection

- During reflection, students instinctively apply prior knowledge to the course content they are expected to learn. Prior knowledge is what they know.
- Prior knowledge is used to process and make sense of new observations ***before*** the new content can become knowledge.
- By encouraging and cultivating a learning environment that respects and honors their experiential knowledge, they begin to feel a deeper connection to the class, the instructor, and the course content.

And?

- When a student feels that their prior knowledge is valued in a classroom setting, they are much more amenable to making the effort to aspire to a higher stage of critical thinking and to engage in critical reflection.

- If they do not feel valued, they do not engage.

What if their prior knowledge is wrong/inadequate/incomplete?

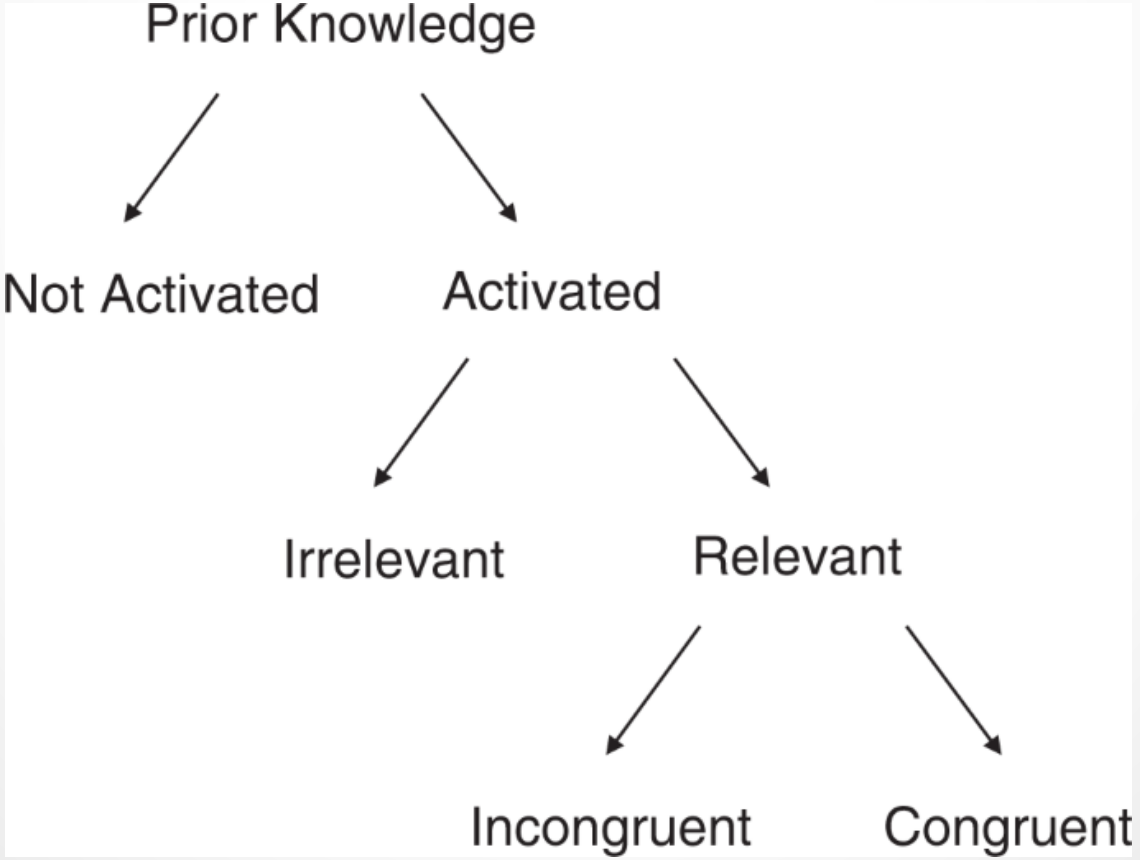
- There is nothing you can do about a student's prior knowledge.
- We need to create an environment where the students can feel that their prior knowledge is not judged as right or wrong, but as starting places to learn new content and ways of knowing.

The learning environment is important

If the current learning conditions are not *appropriate, s*tudents may not instantly (or ever) make connections to relevant prior knowledge.

Prior knowledge needs to be activated

- Your actions in the classroom are directly tied to whether and how students use their prior knowledge to incorporate new material.



Create compelling reasons to activate their prior knowledge

- Focus on their inherent curiosity.
- De-emphasize the objective. In that model there is only one correct answer.
- Question their understanding from a position of curiosity instead of a position of authority.

If we want them to solve big problems

- Create a classroom learning environment where the students can openly express their assumptions and worldviews.
- Model being open to other points of view.
- Exhibit humility and fairness.
- Make it OK not to know. When you do that, you change the dynamic, and deeper learning is possible.

How to do this

- Be the guide on the side, not the sage on the stage (SOTS),
- The problem with the SOTS position is that it drastically reduces opportunities for students to assume and develop **authority**.
- Students have been taught to be passive learners, and as such, will not typically take responsibility for increasing their role in the classroom.

How long does a typical college student pay attention during class?

- A. 10 minutes
- B. 20 minutes
- C. 30 minutes
- D. 45 minutes
- Source: Stuart and Rutherford, 1978, **Medical student concentration during lectures**, The Lancet, Sept 2, 1978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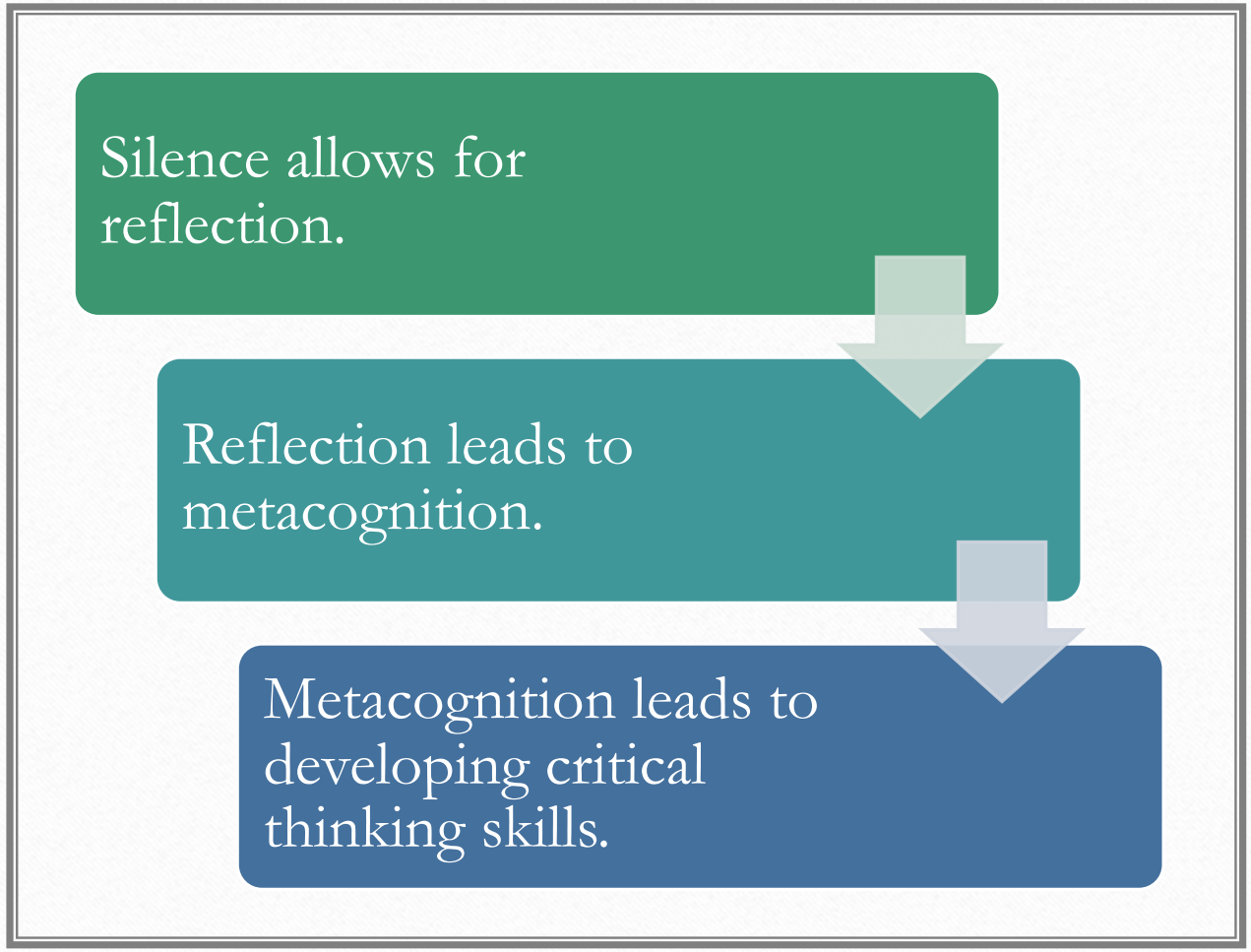
Silence

An underused tool in the classroom.

Why?

There is a perception that class time is for learning content, not about improving the student's thought process.



The value of silence

You are the model

- If you are not creating time for students to be actively engage in reflection and metacognition during class, don't expect them to do it outside of class!

- They are taking their cues from you.

How silence helps

It takes time to process new information and figure out where and how it correlates with prior knowledge.

Silence provides that bridge.

Use silence to reinforce concepts

It is especially important to do this after you have covered a fundamental, underlying concept.

This process trains the students to differentiate between ancillary content and important content. They will associate silence with importance. Don't make them guess.

Silence builds trust

- Allocating time in the classroom for periods of silent reflection has been shown increase student processing of content, to formulate responses, and with more time, the confidence to express that response in class.

- By giving your students time in class to reflect, you are conveying that **you trust them.**

Silence promotes Deep Learning

On Day One, start by explaining that regular periods of silence are the key to better comprehension, retention and critical thinking.

Then have 10 seconds of silence to train them, and yourself.

Commit to creating regular moments of silence in every class.

Your students will realize that silence is part of your learning process, and they will use it to their advantage.

Experiment. Don't be afraid to make mistakes. When in doubt, **use silence**.

What then?

- Stop talking and start listening.
- Let the students fill the void.
- Yield control of your classroom.

CT scaffolding

Lots of in-class low stakes assignments leading up to higher stakes asiignments.
Working in groups, but each member must submit a unique response:

- Making succinct claims.
- Offering evidence for their claims/justifying their beliefs.
- Evaluating the claims of others: Classmates, friends, websites, news sources.
- Identifying underlying assumptions that affect the way they think & act/worldview.
- Constructing arguments that a critical thinking person would hold.
- Demonstrate ethical decision making, identifying bias, offer solutions.

Self recognition of CT skills

Week One. Write on the board:

I know I am thinking critically when I am _____.

Final Week. Write on the board:

I know I am thinking critically when I am _____.

Example of an in-class low stakes reflection assignment

Source: Ellen Vincent

Always write to a general reader audience, one who is not in the class with you.

Reflective Essay Item	Points
State new knowledge/experience from class or readings: State what you learned (new knowledge) in one or two strong or intriguing sentences. -Include book titles, authors, or individual presenter's names and titles in the sentence (not as citations).	**33.3**
Reflection from your past: Share a story from your past that was triggered by the new knowledge. Make it vivid (describe scents, colors, people, etc.) so the reader feels as though they were there with you. Transport your reader back in time with you.	**33.3**
Resulting actions/wisdom: Sit back and think about the new knowledge and the past experience. -**What will you do differently now (or not) and why**? Use "I" in this concluding section Include a specific action (not just thoughts or intentions).	**33.3**

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