

Why people were on Facebook during your talk

(And other lessons in effective communication for scientists)

Why are you here?



First, a story

My friend Mio

- Stanford University
- Medical Doctor
- Fluent in 4 languages
- Ballerina



I mention antimatter...

***“THAT’S
REALLY
HARD.”***



Huh?

What is success?

- People understand the ideas you are trying to convey
- People do something with that information
 - Remember
 - Share
 - Discuss
 - Apply



Today you will learn...

- I. Your audience
 - *Where do I start?*
 - *Connect*
- II. How to Shine
 - *Self care*
 - *Engage*
- III. Storytelling
 - *Good v. Bad*
 - *Structure*





Part I: Where do I start?



THE
LORD OF THE RINGS
THE MOTION PICTURE TRILOGY

Presented to you by
One Ring Productions

TM

Audience: Where do I start?

So Faramir, what would you like to see happen in Middle Earth over the next few years?



Audience: Where do I start?

“For myself, I would see the White Tree in flower again in the courts of the kings, and the Silver Crown return, and Minas Tirith in peace: Minas Anor again as of old, full of light, high and fair, beautiful as a queen among other queens.”



Audience: Where do I start?

UMMM, YES I HAVE A QUESTION...

WTF?

quickmeme.com

Audience: Where do I start?

What should
Faramir have
done instead?



Audience: Where do I start?

Where do I start?



My universe



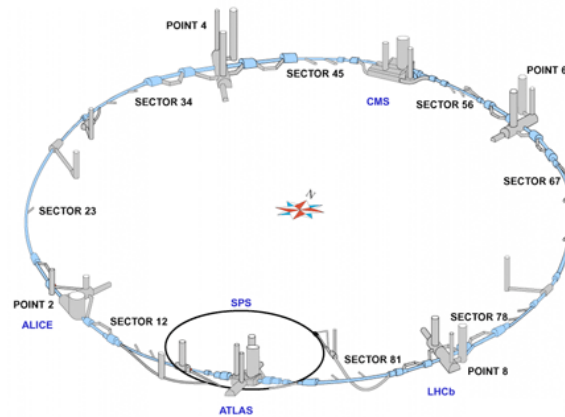
Their universe

Audience: Where do I start?

The Lord of the Rings is a metaphor...



...For High Energy Physics research



Behold! The great pyramid of audiences!

Your analysis

Your experiment

The LHC community

The HEP community

The physics community

“I majored in physics” general public

Science journalists; professional staffers

Reporters, politicians, congress persons, ambassadors

“Cats are funny and Taylor Swift is my hero” general public

It's about THEM

Who is your audience?

+

What do they want to know?

+

Why do they want to know?

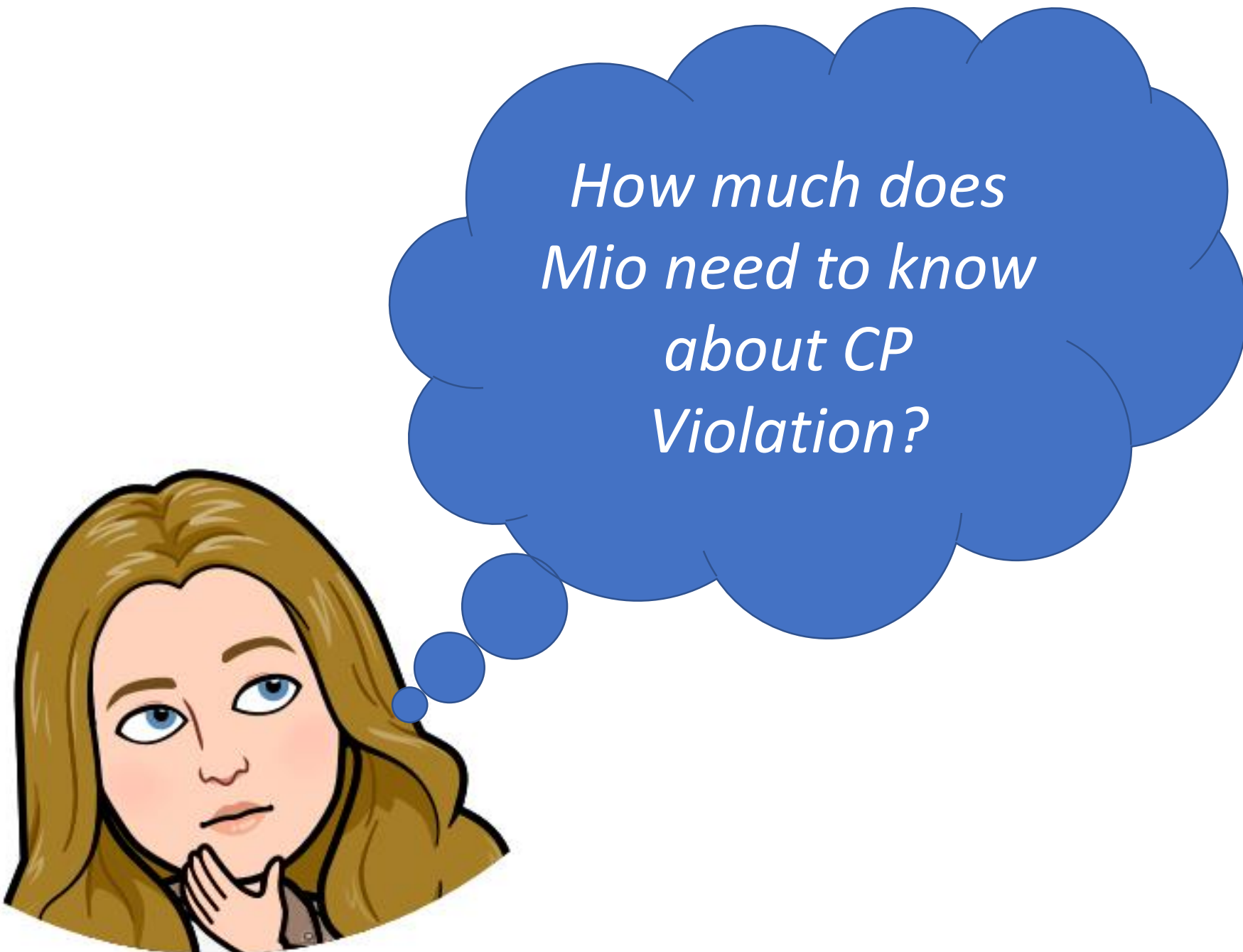
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How you explain it.





*“Antimatter?
What’s that?”*



*How much does
Mio need to know
about CP
Violation?*

Mio who knows
nothing about
antimatter

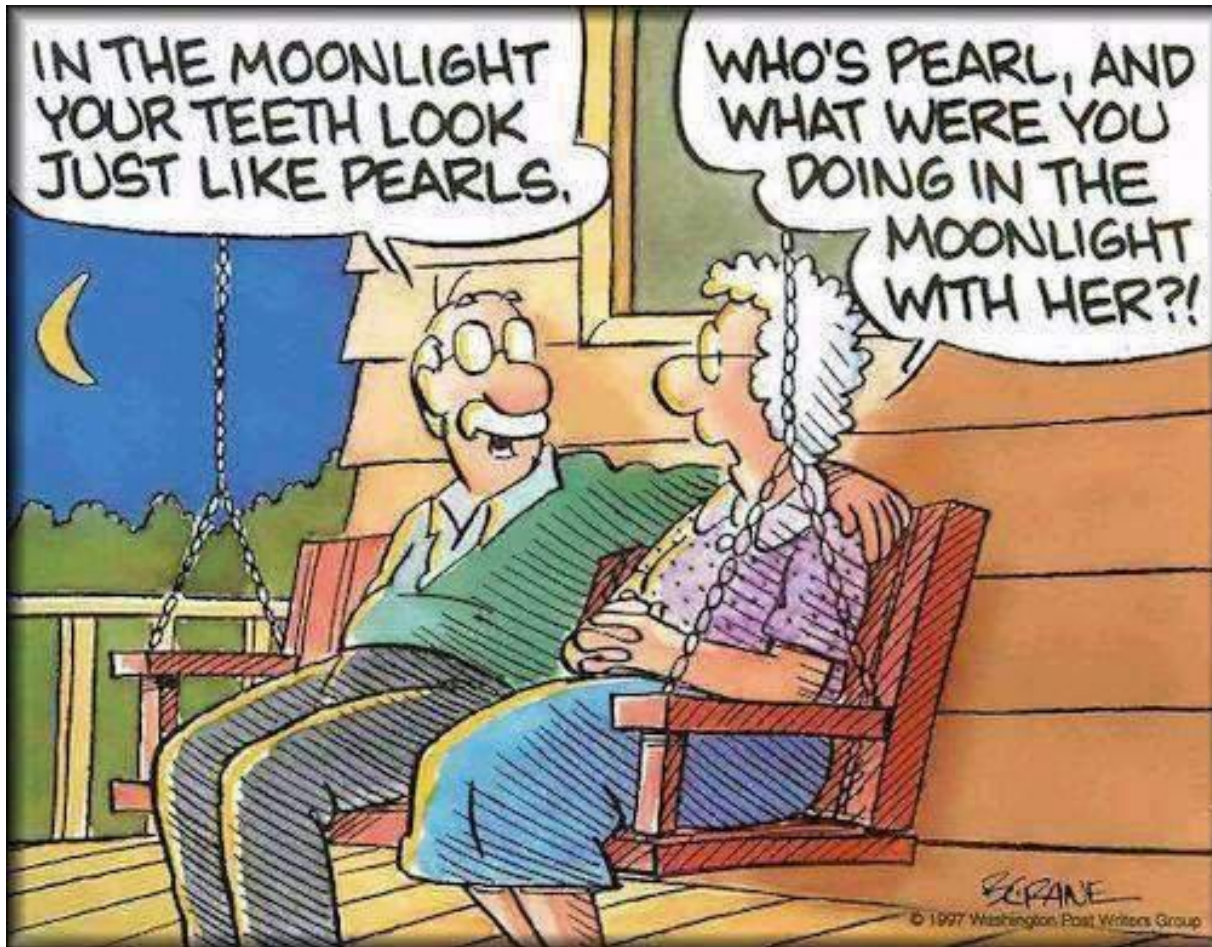


Mio after learning
something about
antimatter



Listening...or understanding?

What you say...is not always what someone hears.



They don't get it... *Whyyyyyy?*



Is there an underlying misconception that is confusing them?



Am I using words they don't understand?



Did I not provide enough background information?



Am I moving too quickly?



Am I assuming they know something which they don't?



Do they have pre-existing beliefs which are coloring how they interpret what I'm saying?

Summary: Audience

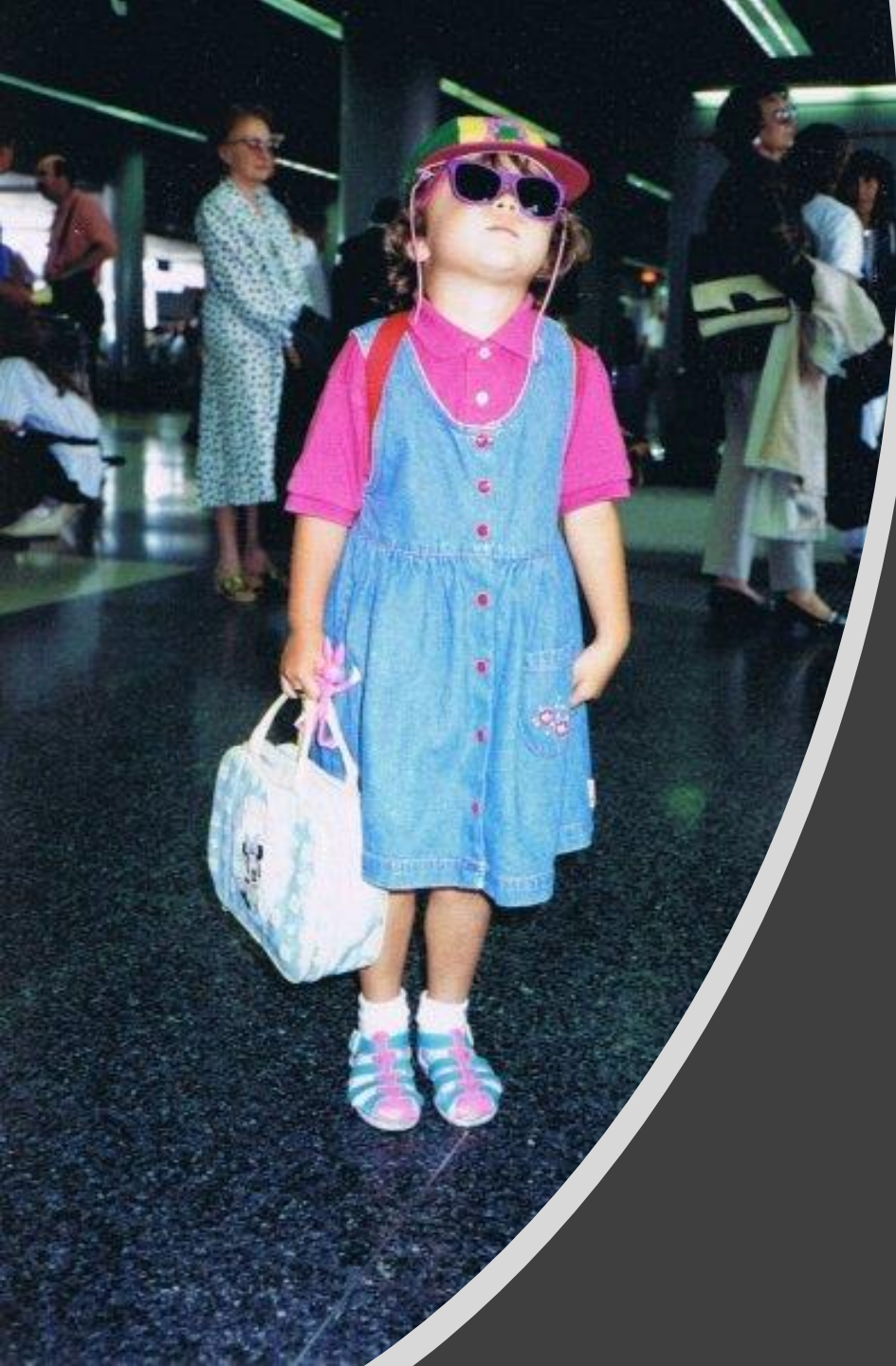
1. **Find out** what they know and then you'll know where to start.
2. **Connect** and open the channel of communication (so that it flows both ways)





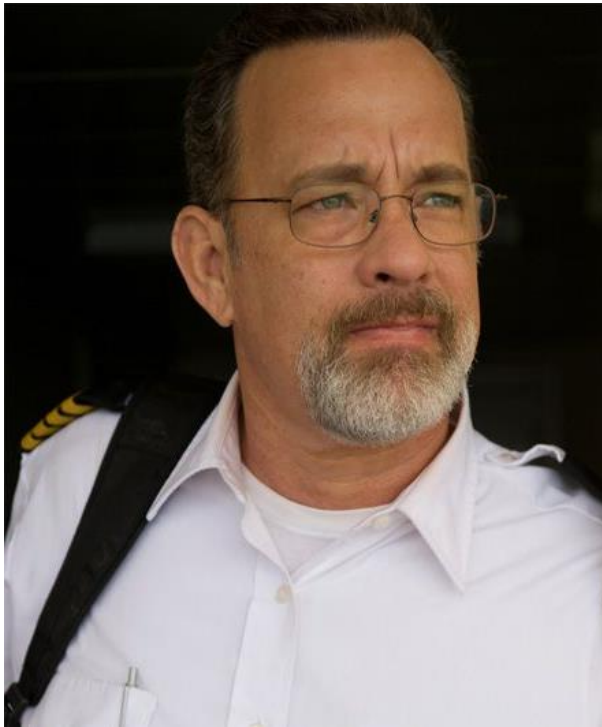
Activity!

It takes two to communicate. How skilled are you on both ends?

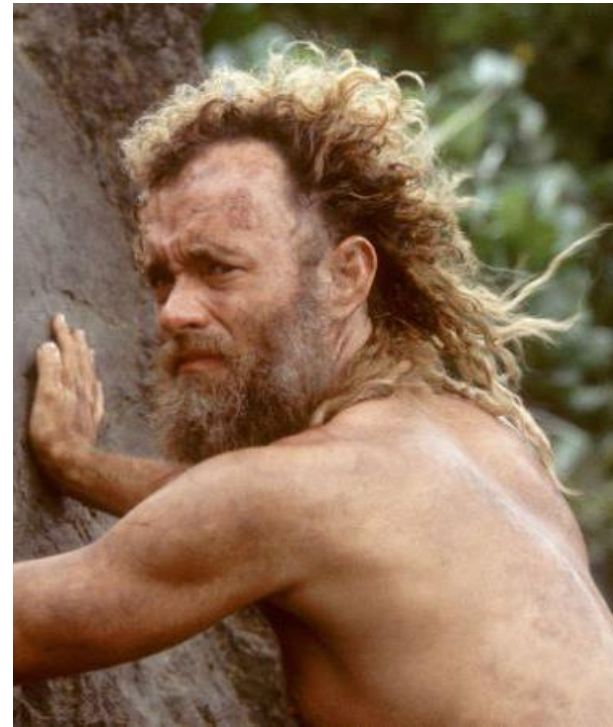


Part II: How to shine

Be someone *you* would trust



*Tom Hanks, captain
of MV Maersk Alabama,*



*Tom Hanks, when his best
friend is a volleyball*

Prepare

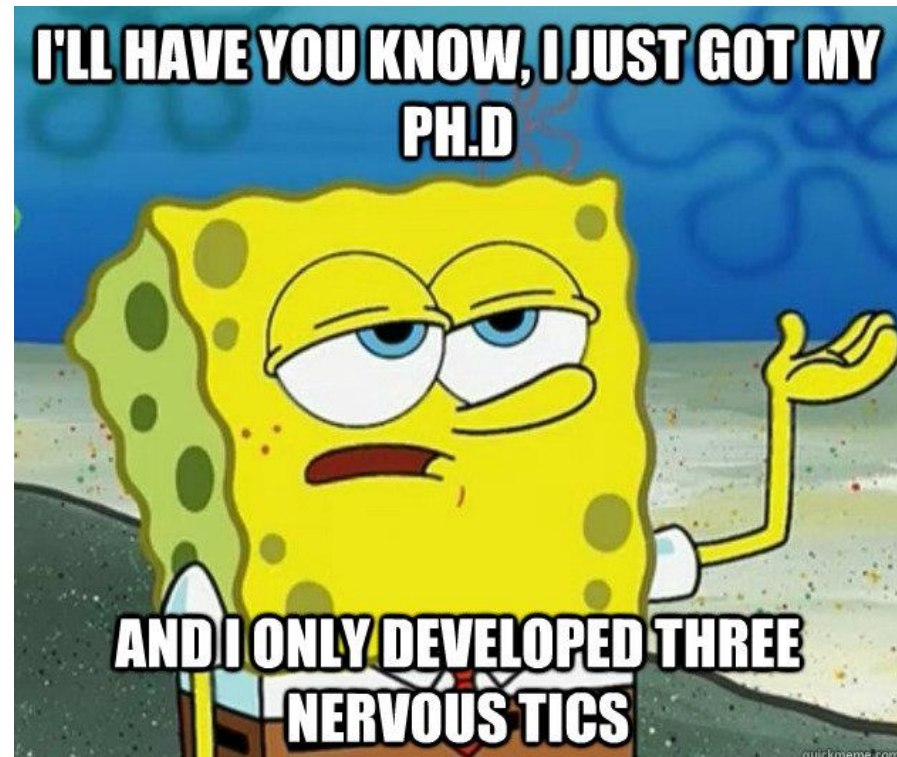


Taming anxiety



EVERYONE gets nervous

- Acknowledge and channel
- Let go of “perfect”
- Lecture...or **Conversation?**
- Challenge...or **Opportunity?**



Be nice to yourself 😊

- Stay active
- Slow down
- Listen and respond...*don't react!*



Ready...Set...Engage!

*What does it mean to **engage** someone?*

*How is **engaging** different than **lecturing**?*



Start with a question

“As teachers, we are so eager to get to the answers that we do not devote sufficient time to developing the question.”

“But it’s the question that piques people’s interest. Being told an answer doesn’t do anything for you.”



~Dan Willingham, cognitive scientist at the University of Virginia

Relevant. Concrete.

“The human mind can’t handle too much abstraction.

“Bring your ideas down to earth by explaining how they connect to your listeners’ lives...”



Down to Earth?



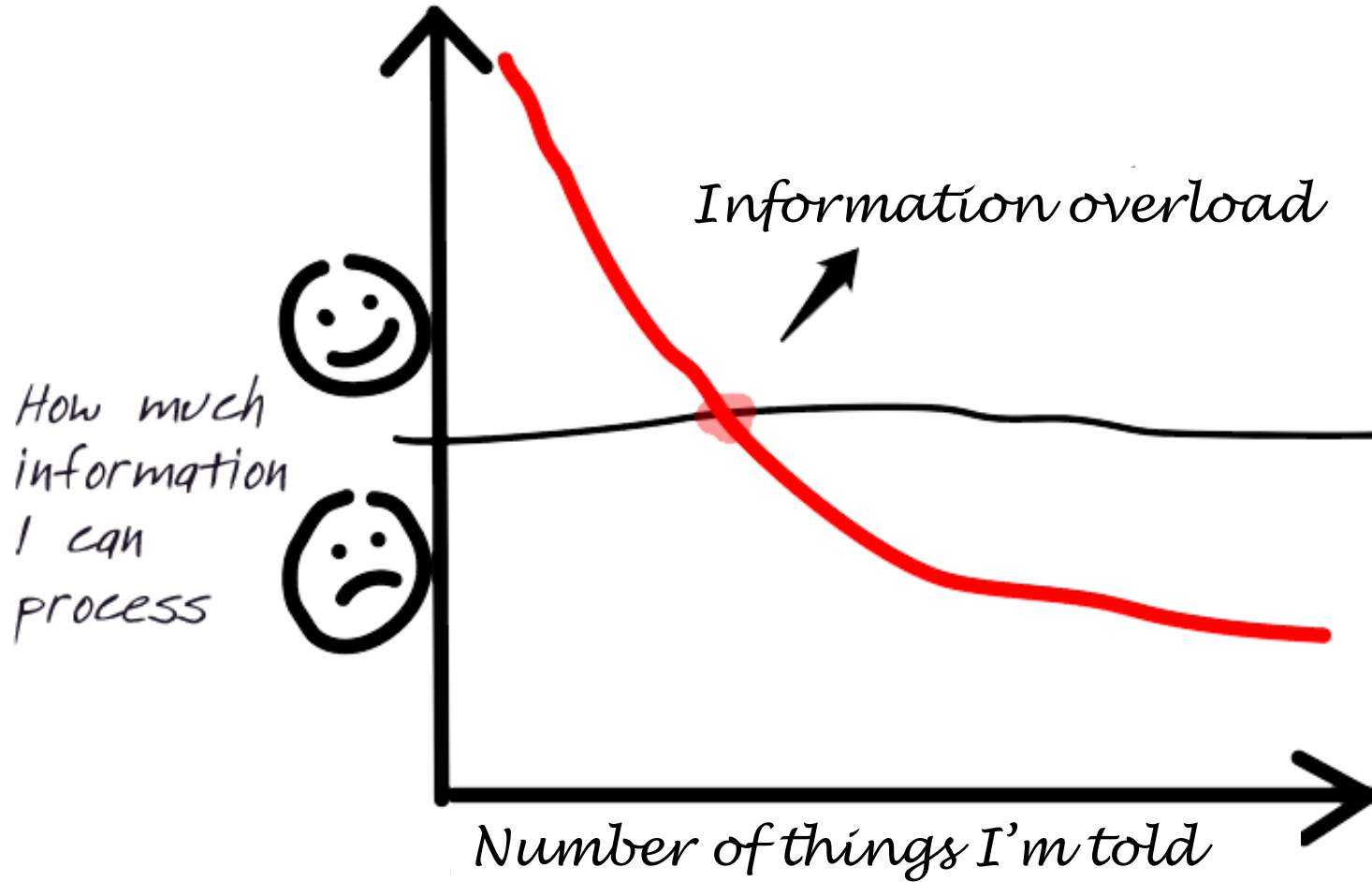
Scale of Effect Vastly Exaggerated

[gifs.com](https://www.gifs.com)

Know when to change topic



**"Mr. Osborne, may I be excused?
My brain is full."**



Signals to look for...



Summary: How to Shine

1. **Take care of yourself;** if you don't care about you...how is your audience supposed to?
2. **Engage** with your audience and pay attention to them!

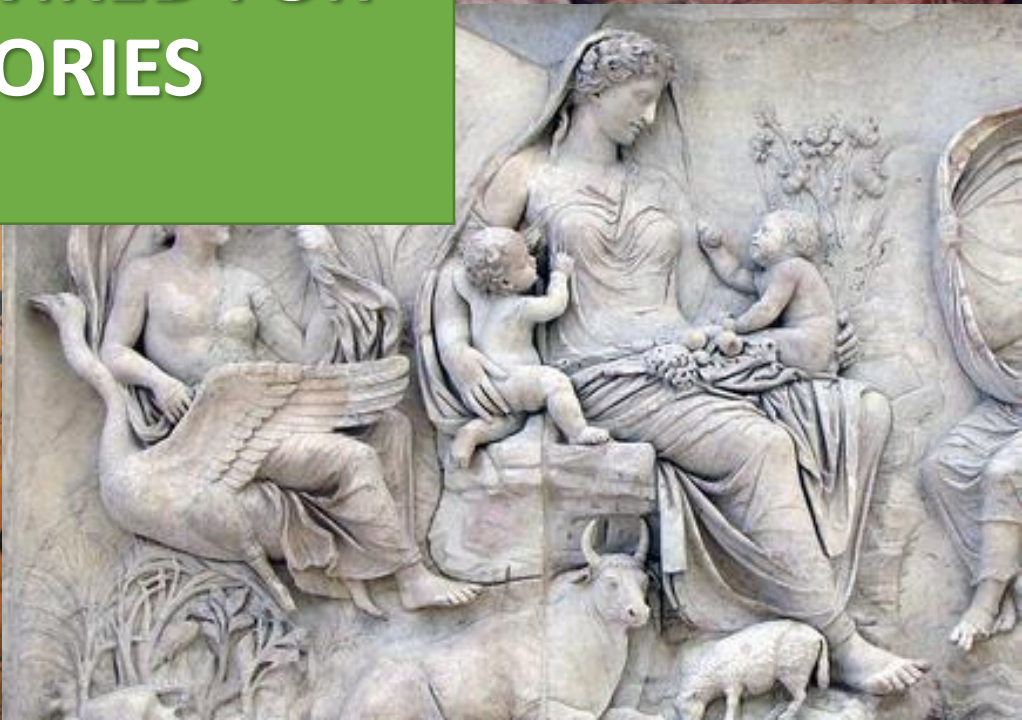




Part III: Storytelling



**HUMANS ARE
HARDWIRED FOR
STORIES**



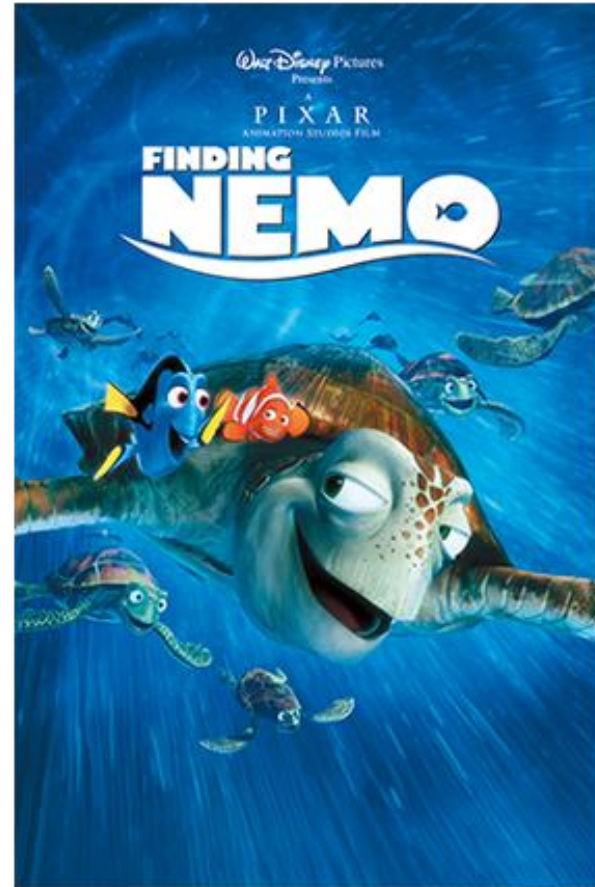
Bad story

- Lame & flat characters
- Random and irrelevant
- No direction or point
- Confusing plot



Good story

- We identify with the characters and care that they succeed
- Everything that happens plays a role in the bigger story
- There's a hook that keeps us engaged
- Plot lines are intriguing but not confusing



You are a story



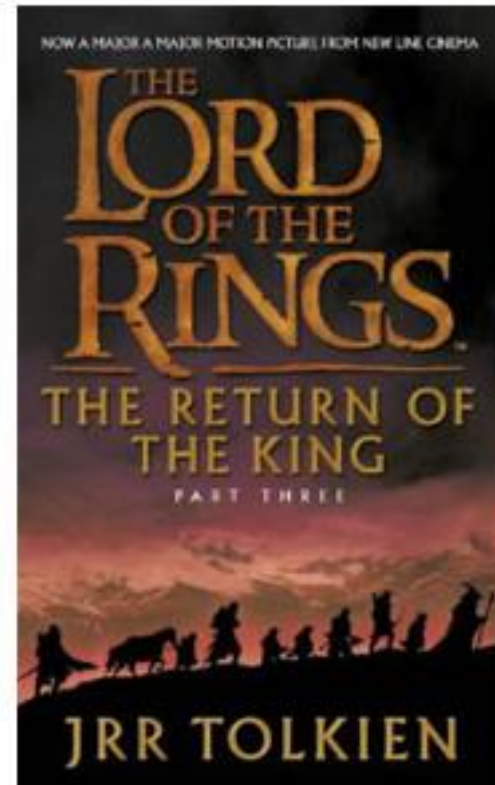
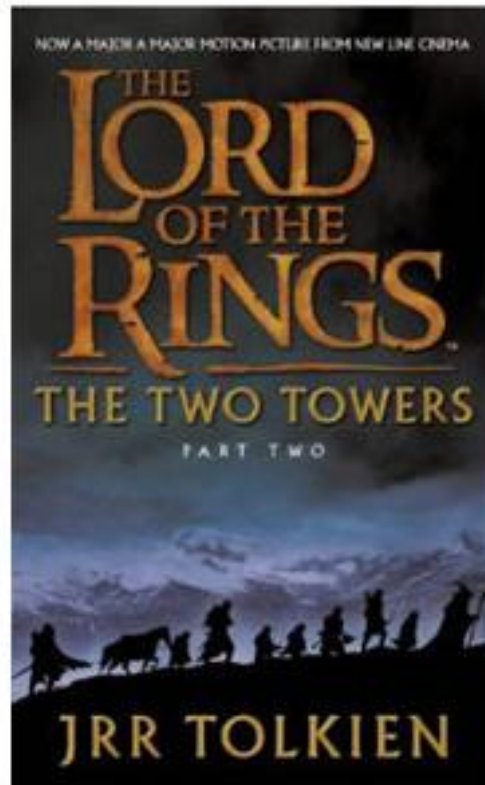
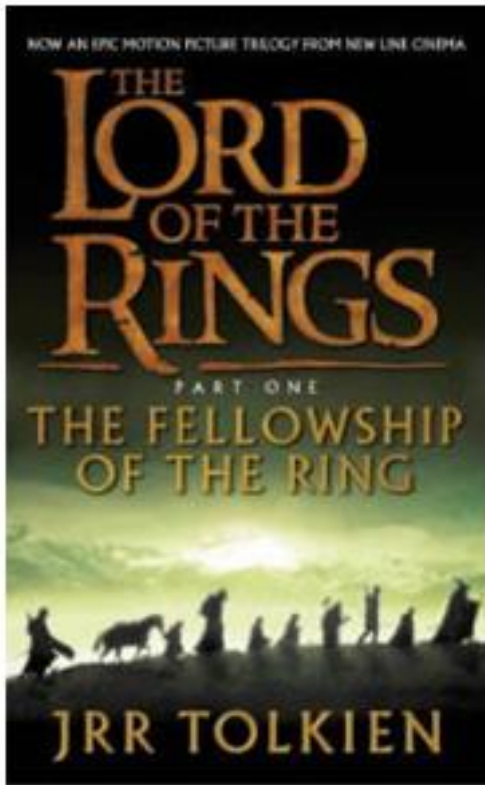
The importance of structure

“We actually process structured information, roughly 40% more effectively and efficiently than information that’s not structured.”

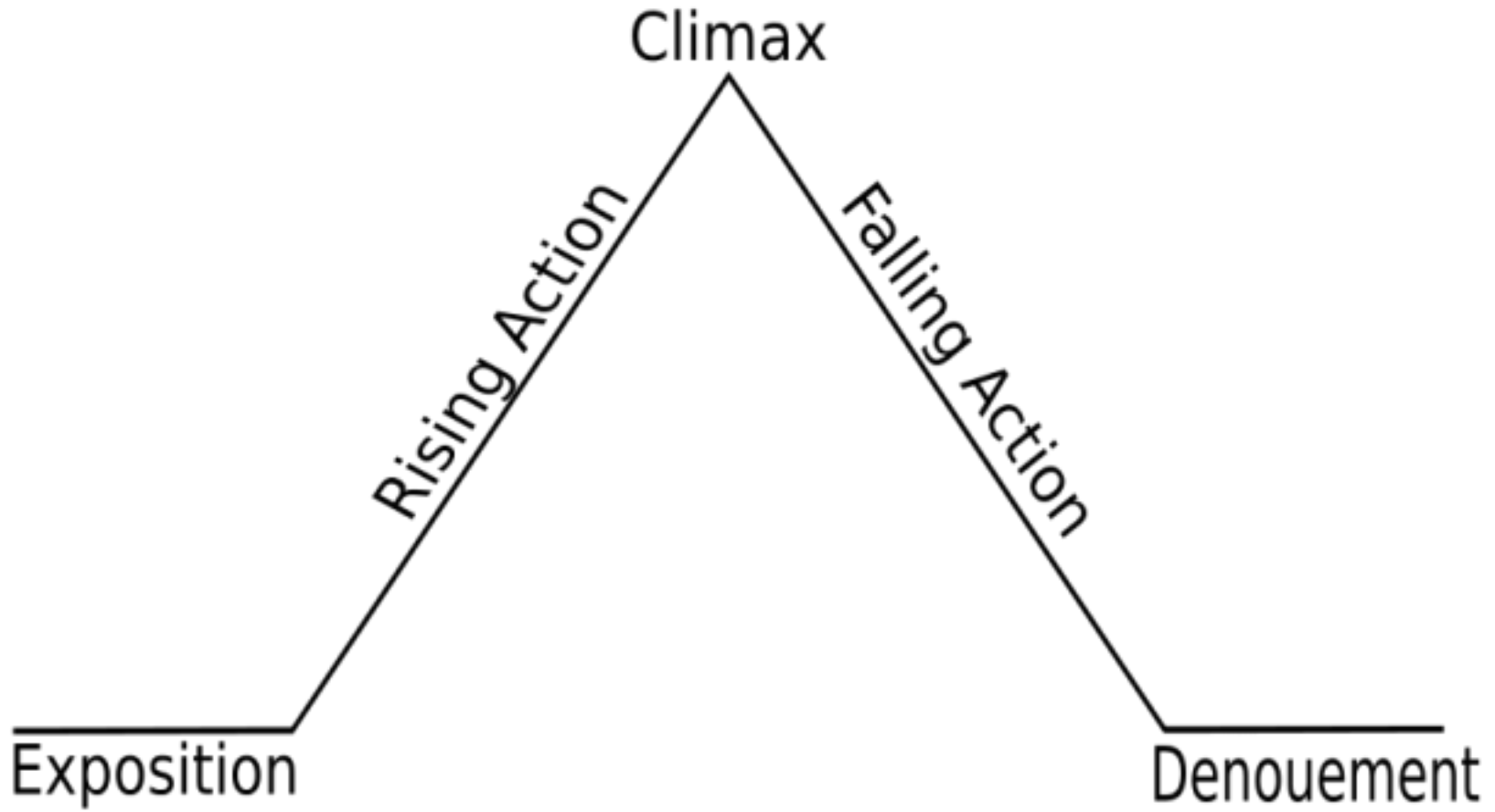
*Matt Abrahams, Stanford Graduate
School of Business*



Random info → Coherent story



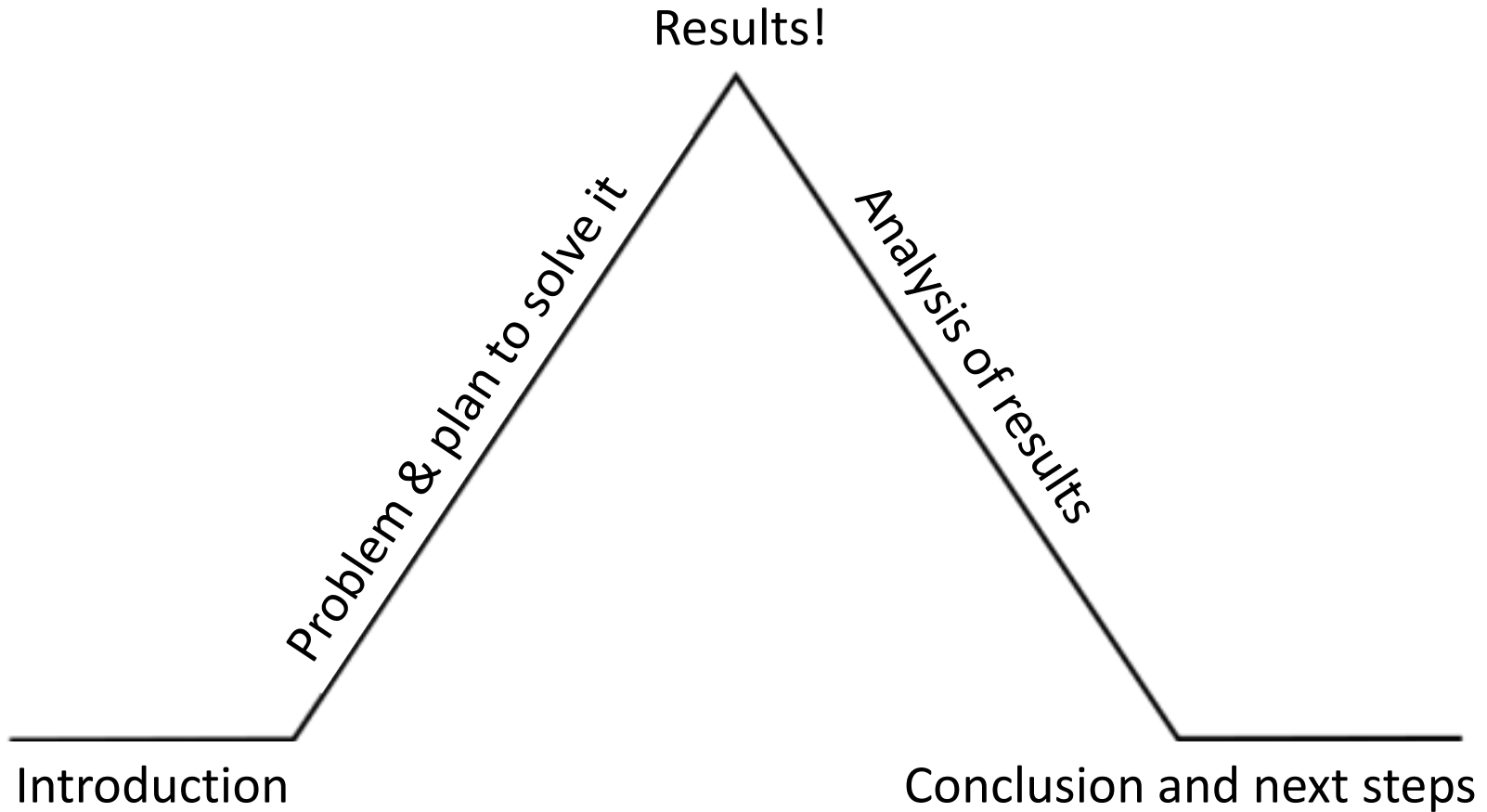
How to build a story...



How to build a story...



How to build a story...





LHC creates matter from light

08/24/20 | By Sarah Charley

Scientists on an experiment at the Large Hadron Collider see massive W particles emerging from collisions with electromagnetic fields. How can this happen?

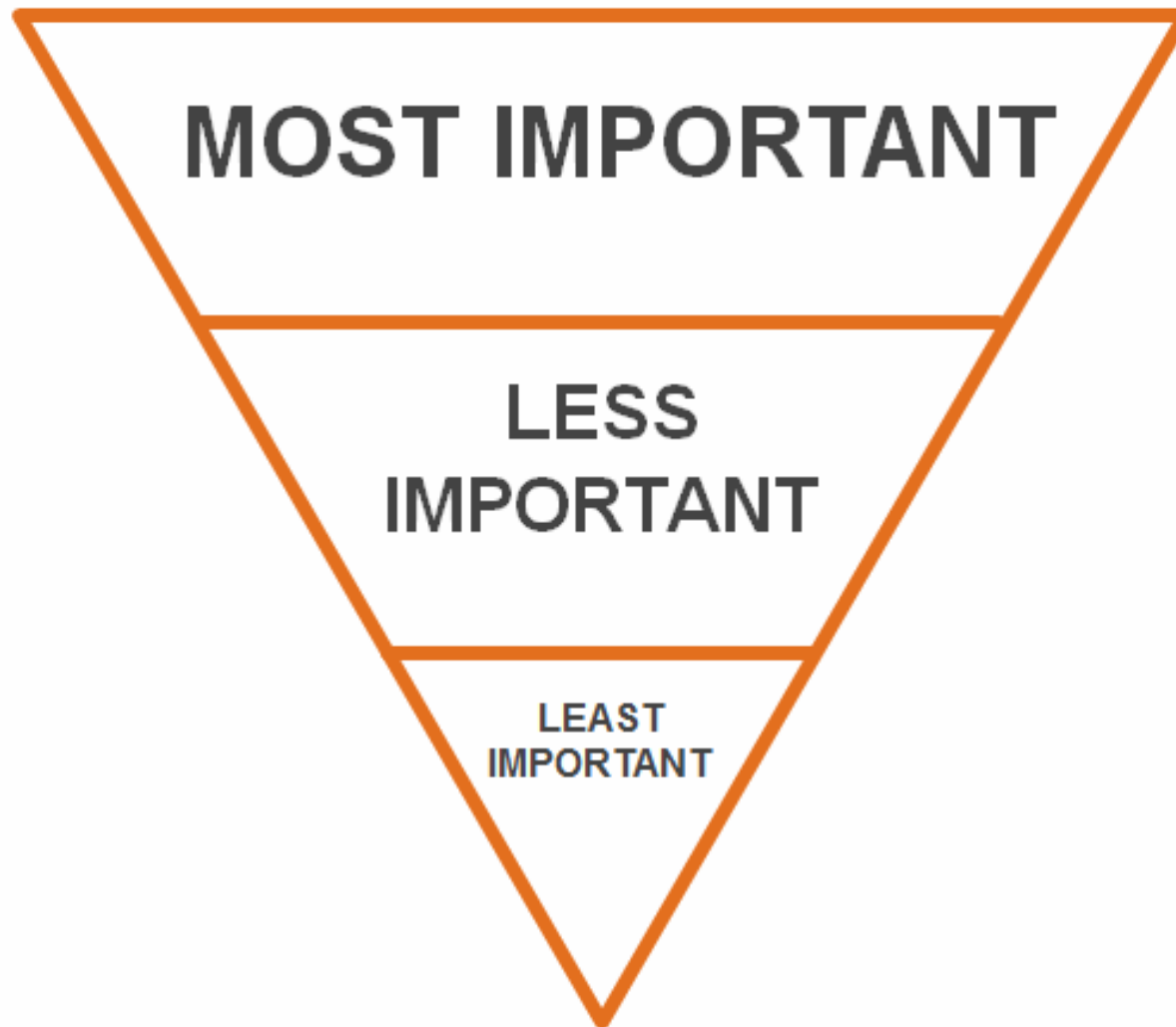


Illustration by Sandbox Studio, Chicago

Wait...

Hypocrite
Alert!

Ok...When it's BIG news





NO

BLAH BLAH BLAH!

MakeAGIF.com

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