

ASTR 270

Public Outreach in Astronomy

Class 03

Science Storytelling

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Spring 2024

Last Week

- Intro to the course, you shared your motivations for taking it
- HW1: Email your Prof
- Good vs Great Sci-Comm: **Make it personal!**
- Demo of UW Planetarium

This Week

- Fundamentals of storytelling (today)
- Understand & respect your audience (Thursday)
- HW2: Podcast Analysis DUE Friday
 - Pitch 1: *DUE NEXT WEEK*
- ***Eclipse Next Monday!!!!***
 - *Short Eclipse HW next week*
 - *IN-CLASS Planetarium Training Begins*

Stories

- The basis of most (all?) human communication is storytelling
- A story can be used to...
 - Entertain
 - Transfer knowledge
 - Engage emotions
- A good story can teach an incredible volume of complex information (e.g. people, places, events, causes/effects...)



Science Communication is Storytelling

- Science is about evidence, discovery, sharing knowledge...
- Science Communication (both to public & to other scientists) must be effective in conveying the context, evidence, methods, discovery, conclusions
- You *can* just list a bunch of facts (boring), or you can develop a narrative structure (i.e. a story!)



Scientists need to learn more about stories

- Many scientists **don't** believe outreach or sci-comm is important (boo)
- We are very poorly trained in this, and have bad examples to build from, e.g.
 - Boring lectures
 - Dry science papers
 - Disorganized posters/presentations
- Very common misconception among scientists:
If I say ALL THE THINGS, in some order, then I've communicated my science

SAY ALL THE THINGS!

VS

Every word has a purpose

Scientists need to learn more about stories

- Storytelling improves communication “neural coupling”
- SciComm training makes scientists more confident, want to do more outreach! (Swords et al. 2023)
- Developing clear story structure or narrative helps YOU understand your material, and your audience actual learn it



Storytelling is not just a skillset; it's a mindset that one can use and develop throughout a career.

- Good overview: EIShafie (2018)

Parts of story

- Beginning
- Middle
- End

- In my experience, this is about all the “story” most science talks have:
 - Introduction
 - Lots of stuff
 - Conclusions

Parts of story

- Who (characters)
- Where (setting, time, place, context)
- Conflict
- Plot (your methods section)
- Resolution (conclusions)

- Good Sci-Comm should (generally) include these

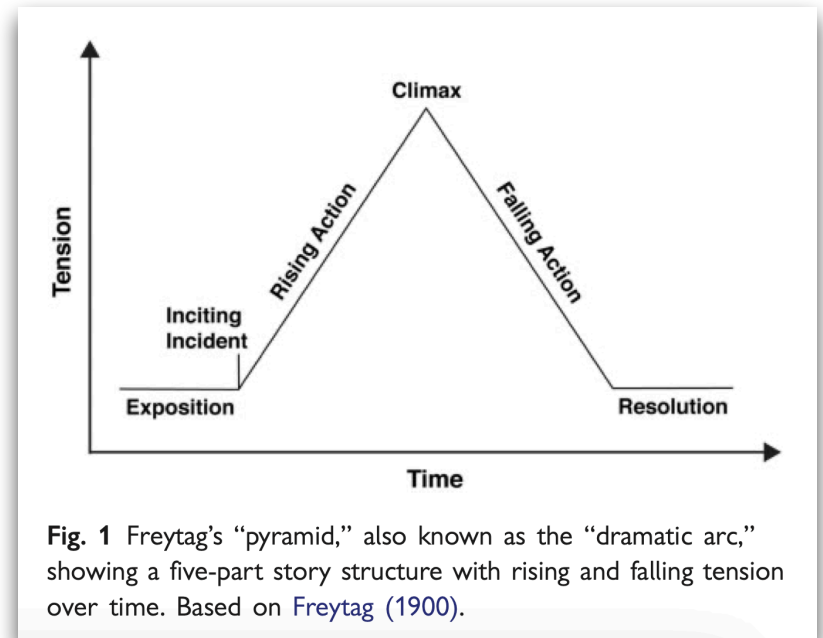
Types of Stories & Story Structure

Intention & Obstacle

- Story structure described by e.g. Aaron Sorkin
- Every character must WANT something (*big or small*)
- They have to face obstacles that prevent them from getting it
 - Repeat!
- In Sci-Comm: What is overarching point (intention), and what is obstacle making it interesting?
 - Can even apply on micro scale (e.g. what do I want you to take away from this, and where are we going with next piece?)

Basic Story Structure

- The classic description of story structure: Freytag (1900)
- Sometimes called a 5-part or 5-act story
 - Simplified versions exist (e.g. 3-part)
- Sci-Comm can fit this story model!

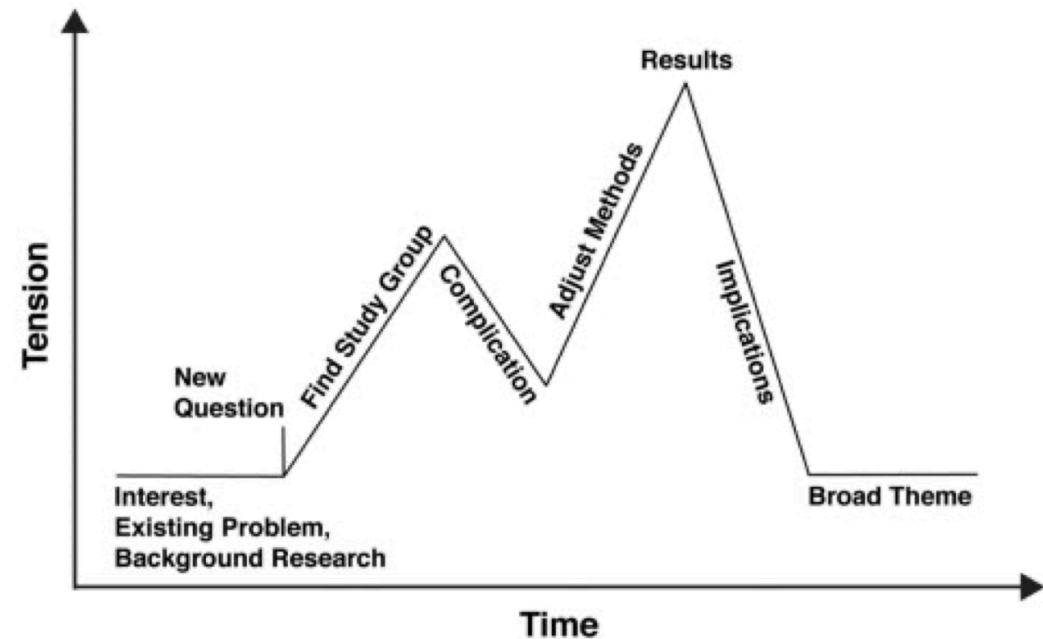


- Note: Time may be *highly non linear* in this figure

From [ElShafie \(2018\)](#)

Basic Story Structure

- Your science story SHOULD have narrative structure
- Build & release tension throughout (Intention & Obstacle)



From ElShafie (2018)

Basic Story Structure

- Stories can be discontinuous (in medias res) e.g. flashbacks, starting in the middle, telling in reverse...
- Can be great fun, but also be VERY challenging to get right
- In general (esp. Sci-Comm) if I'm thinking about HOW you're showing it, I'm *not* thinking about WHAT you're showing
 - Its like magic

Types of Stories

- Many basic or recurring TYPES of stories, crop up in most all cultures
- These theories or models are not strict rules. Many stories are hybrids

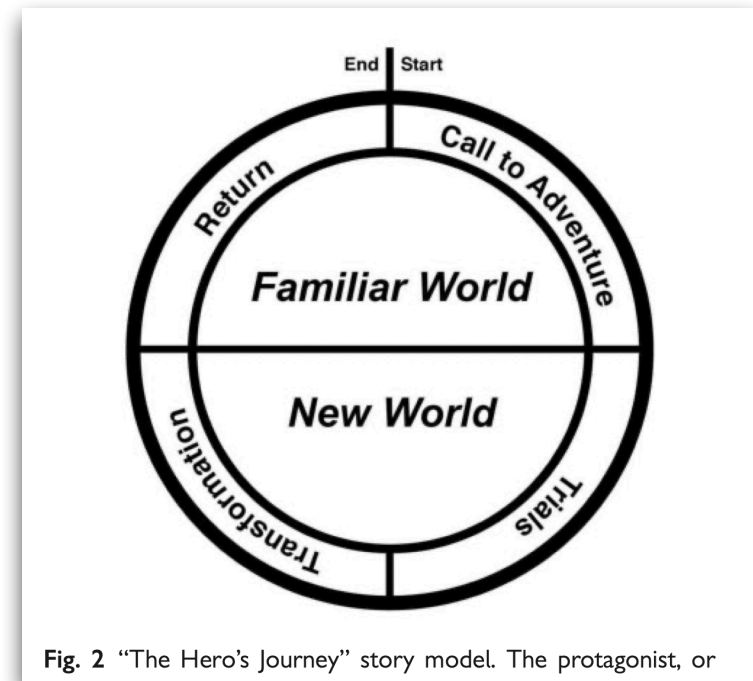


Fig. 2 "The Hero's Journey" story model. The protagonist, or

From [ElShafie \(2018\)](#)

The N Basic Story Plots

- **Popular book(s) on ~7 basic story types**

1. Overcoming the monster

2. Rags to Riches

3. The Quest

4. Voyage and Return

5. Comedy

6. Tragedy

7. Rebirth

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You could imagine Sci-Comm analogs for each, but you don't HAVE to use these kinds of structures in your presentations

Story structure: AND, BUT, THEREFORE

- Another simplified model of story structure (related to Freytag's)
- Developed by Dr Randy Olson, a marine biologist turned filmmaker & public speaker
- Problem: most (bad) science talks are just AND, AND, AND, AND.... Boring.
- Solution: change some ANDs to BUT or THEREFORE (i.e. conflict/resolution, intention/obstacle)
- Lots of great astronomy examples in [Yu 2023](#)

Story structure: AND, BUT, THEREFORE

- AND: Setup, facts we know or need
- BUT: what's the problem, why are we telling this, what does the character want, what monster is facing them?
- THEREFORE: we go on a quest, the hero grows

- Facts AND facts AND facts
BUT there's something interesting we need or want to know
THEREFORE we make a measurement

Some Story Tips for Sci-Comm

- Show, don't tell (show process, take audience on the journey with you)
- But also tell, don't just show. Give the SO WHAT on a silver platter
- Make it personal & authentic (why am I listening to *you*?)
- Provide useful context! (Bigger picture, impact, past/future)
- Less is more (don't try to do it all)
- Make it simple and clear (*more on this next time*)

Exercise: AND, BUT, THEREFORE

- Find a partner
- Get an astronomy topic prompt (or pick your own)
- Spend 10 minutes building an AND, BUT, THEREFORE story outline
- Remember:
 - AND is facts/context
 - BUT is key to setting up “conflict” or tension (don’t have to use “BUT”)
 - THEREFORE is the story you’re going to tell

