

**Notes from Emory WHEA Education Salon  
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Some of my papers:

1. “Humor Applied to STEM Education,” with Ludovice, P. and Hu, D, *Systems Research and Behavioral Science*, 34 (2017), 216—226.  
<https://onlinelibrary.wiley.com/doi/full/10.1002/sres.2406>
2. “Humorous Improvisation Tailored for Technical Innovation,” with Ludovice, P., Catrambone, R., *Conference Proceedings of the ASEE Southeast Section* (2013).
3. “Improvisation methods to catalyze engineering creativity,” with Ludovice, P., Catrambone, R. in *Frontiers in Education Conference (FIE)*, 2010 IEEE, pp. F1A-1. IEEE, 2010.

[1] describes some work where we show how cognitive load theory ([https://en.wikipedia.org/wiki/Cognitive\\_load](https://en.wikipedia.org/wiki/Cognitive_load)) can be used to explain why humor is more effective in an educational setting if the subject matter is used in the joke.

[Sidebar/shameless plug: So how do you write jokes on your technical and scientific subject matter? We can teach you if you sign up for the next cohort of Science Riot <https://www.scienceriort.org/category/cities/atlanta/> You can sign up (no commitment, just indicate interest and some other details and they’ll get back to you once we’ve set up another show.)

Some general approaches to humor writing include:

- Juxtaposition of two Incongruous Ideas or Concepts (Analogies are easy ways to do this: [https://www.youtube.com/watch?v=\\_ODsLIMSBq0](https://www.youtube.com/watch?v=_ODsLIMSBq0) )
- Exaggeration or understatement
- Reverse or Switch
- Superiority Theory – best when self deprecating
- Repetition, running jokes, rule of 3 (c.f. Processing Fluency <https://www.ncbi.nlm.nih.gov/pubmed/24320137> )
- Pun or Wordplay
- Silly Humor (non sequiturs)

[2] and [3] are some papers we’ve written which show to one can use improv comedy to enhance technical innovation and ideation. We are continuing to develop this work and we have run many workshops on it (let me know if you’re interested). My colleague Pete Ludovice and I are proposing a workshop on the next iteration of this for the Applied Improv Network meeting (<http://appliedimprovisation.network/>) being held this summer at SUNY Stony Brook at the Alan Alda Center for Communicating Science (<https://www.aldacenter.org/>). Pete and I also led a workshop on the use of Humor in Science Communication at a recent ComSciCon <https://comscicon.com/comscicon-atlanta-2018> (see reviews on p. 14 of their annual report).

Another related paper I mentioned “To be funny or not to be funny: Gender differences in student perceptions of instructor humor in college science courses”

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0201258>

I think I mentioned the Evolutionary Theory of Humor by Hurley and Dennett

<https://www.amazon.com/Inside-Jokes-Using-Humor-Reverse-Engineer/dp/0262518694>

Summary video: <https://www.youtube.com/watch?v=jmfMyfu4NX0>

## IMPROV

See lots of games at <http://improvencyclopedia.org/>

Benefits (there is some research around this, but not much, so take this all as anecdotal)

Increased physical activity: Oxygen, Blood Flow, Alertness

Decreased mental activity: Become more present in the moment (mindfulness), Clearing your head of distracting thoughts, allows subconscious ideas from free association to surface

Improve Listening and Noticing (last word, first word game), increases outward attention and focus

Build trust and confidence, increases spontaneity and develops empathy

Lots of practice (google plenty of workshops like <https://www.chicagotribune.com/entertainment/ct-ent-second-city-study-0725-story.html> needs more data in my opinion.

I believe the Nobel Prize winning work of Daniel Kahneman (well covered in “Thinking Fast and Slow” [https://en.wikipedia.org/wiki/Thinking\\_Fast\\_and\\_Slow](https://en.wikipedia.org/wiki/Thinking_Fast_and_Slow)) and modern neuroscience are relevant, too. It seems possible that improvisation happens in “System 1” which is the intuitive part of the brain and science happens in “System 2” which is the analytical part and some

Pete and I also teach a course at Georgia Tech called the "Humor Genome Project"

which is a "Vertically Integrated Project" (VIP) course <http://www.vip.gatech.edu/teams/humor-genome> where students learn some data analytics, machine learning, and other research techniques (including theory of humor) to better understand humor.

The AI argument that humor may be the ultimate Turing test is also explored by many authors. Here’s some gentle introductions to get you started:

- <https://www.apnews.com/bae71c3bef8145ecaaa84bca24d77430>
- <https://www.outerplaces.com/science/item/18489-artificial-intelligence-jokes-funny>
- <https://polytechnic.purdue.edu/newsroom/getting-artificial-intelligence-recognize-humor-no-laughing-matter>
- <http://sciencewows.ie/blog/humour-laughter-ai/>
- <https://www.technologyreview.com/s/608777/why-googles-ai-can-write-beautiful-songs-but-still-cant-tell-a-joke/amp/>

More links which students from our class (called the Humor Genome Project ) found:

- <https://www.technologyreview.com/s/545316/ai-algorithm-identifies-humorous-pictures/>
- <https://phys.org/news/2015-11-world-mathematical-theory-humor.html>
- <https://www.businessinsider.com/a-sense-of-humor-could-mean-youre-healthier-happier-and-smarter-2017-10>
- <https://www.fastcompany.com/90227542/why-we-need-more-laughter-in-the-workplace>

- [https://www.chronicle.com/blogs/conversation/2015/02/12/the-professor-as-comedian/?cid=at&utm\\_medium=en&utm\\_source=at](https://www.chronicle.com/blogs/conversation/2015/02/12/the-professor-as-comedian/?cid=at&utm_medium=en&utm_source=at)

Although there are many papers that have looked at humor, it seems understudied as a research topic and not well understood, given how prevalent it is as an observable human phenomenon.

Unrelated, but more about me, here's a link to my story collider podcast where I show how I ended up mixing math and comedy:

<https://www.storycollider.org/stories/2018/1/5/math-problems-stories-about-math>

Not sure what else I talked about, but I'm happy to discuss further. There were several interesting projects people told me about which were connected to improv happening at Emory and I'd love to hear more about them!