

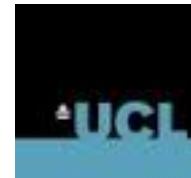
# Informing Cyberbullying Research with Social/Psychological Insights

Jeremy Blackburn  
Telefonica Research  
[jeremyb@tid.es](mailto:jeremyb@tid.es)

Andri Ioannoua, Gianluca Stringhini, Emilian De Cristofaro,  
Nicolas Kourtellis, Michael Sirivianos



CYPRUS UNIVERSITY  
OF TECHNOLOGY



# A Story of a Distributed Systems PhD

- I was a working programmer
  - Startup
  - Principal developer
  - User facing products (\$\$\$ in yearly sales)
- “Man, I’m getting bored just slinging code...”
- “I want to do *revolutionary* stuff!”
- ***PhD time***

# Research is Easy!

- I joined a distributed systems group
- We had grants having to do with peer-to-peer social networks
- I read a bunch of papers
  - Power laws
  - Degree distributions
  - Centrality metrics
- I have the formulas and algorithms, let's get to researching!

# Cheating in Online Games

- I love video games
- I don't love cheaters
- I know about a social network of video gamers that also includes a “cheater” flag
- Research plan:
  - Collect data
  - Plot distributions
  - Submit paper

# Result

- Reviewers thought the dataset was cool
- Reviewers thought the problem space was cool

BUT....

# Result

- Reviewer thought paper was too safe
- Didn't think it was cool enough

**REJECTED**

“Applying known social graph metrics and producing expected figures/plots do not make for an exciting paper”

# Research is *Not* Easy!

- The reviewers were 100% right
- I *did* measure some stuff
- I *did* make plots
- I *did not* say anything interesting about those plots
- I DID THE MATH! WTF DO I DO NOW?!

# Learning to Love Soft Science

- Measurements and plots are not enough
- Need to know *why* we see the numbers
- Need to know *why* we care about numbers
- Need to know *what* numbers to even look for!

# Soft Sciences Can Be Hard

- The metrics I was using didn't come out of thin air
- They were developed, by *sociologists*
  - What?! Sociologists do math?!
- They were not developed in a vacuum though!
- They were built up from *qualitative* and *theoretical* work

# Cyberbullying is About People

- CS tends to deal with *deterministic machines*
- Humans are *not* deterministic
  - Or at least not as deterministic as computers!
- If a process dies, we restart it
- If a human dies, we hold a funeral

# Agenda

- Who are the actors in cyberbullying?
- Dimensions of cyberbullying
- Types of experimentation
- Recommendations for the future

# Main Actors

- The *predator*
  - (the bully)
- The *victim*
- The *bystander*

# The Five Main Types of Cyberbullies

1. Sociable
2. Lonely
3. Narcissistic
4. Sadistic
5. Morally-driven

# Sociable Bullies

- They do it for *fun*
- Attempt to entertain themselves/friends
- The victim is almost a non-entity
  - No regard (in either direction) for the victim's feelings



# Lonely Bullies

- Has no (or very few) personal contacts
  - Generally “isolated”
- Compensates by abusing others
- Usually has no relationship to the victim
  - Minimal contact at best



# Narcissistic Bully

- Do it for personal gratification
- Attempting to demonstrate their *power* over victim
- Still, not really interested in the impact to the victim, just trying to show who's boss



# Sadistic Bully

- Cares a lot about the victim's feelings
- Specifically trying to cause suffering
- Being the cause of someone's suffering is pleasurable



# Morally-Driven Bully

- The victim *deserves* to be bullied
- Victim did something bad, and justice must be served
- “Vigilante”



# Victims

- Research here has focused on identifying risk factors
- “Non-traditional” family structure
- Perceived emotional problems
- Perceived peer problems
- Unsafe feelings at school
- Lower school performance & attachment

# Gender

- *Traditional* bullying is predominantly male
- For cyberbullying, research is mixed...
  - Generally find that boys are either more likely or there is no difference in gender
- But, bully-victims seem to more likely to be *female*
  - More likely to *report* as well

# Age

- Traditional bullying peaks in middle school
- Cyberbullying peaks later
- There seems to be *transition* → *cyberbullying*
- **NB:** most research has focused on adolescents

# Sexual Orientation

- Unsurprisingly, this is a “risk factor”
- Most research seems to agree
- LGBTQ individuals are ~2x as likely to be bullied

# Personal Characteristics

- Computer use
  - More computer use → more likely to be a victim/bully/bully-victim
  - *Location* of computer matters (unsupervised?)
- School performance
  - Ds and Fs → 2x more likely to be a victim
- Indications that there is a causal relationship
  - Get bullied → become a bully
  - **NB:** Research here is severely lacking considering the implications...

# Bystanders

- Non-action by bystanders influenced by three factors
  1. “Cyberspace” in general
    - People are less willing to stand up online
  2. The *private* nature of the act
    - If occurs over a semi-private comms channel
  3. Whether you have bullied someone in past
    - Past bullying behavior → likely to be bystander

# Positive Bystanders

- Some people *do* stand up for others
- Affective empathy
  - Understanding others emotions
- Cognitive empathy
  - Anticipating consequences of one's actions on others

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# The Cyberbully Label

- There are *many* definitions here...
- Generally they incorporate:
  - *Repetition*
  - *Imbalance of power*
- Not easy to measure online...
  - Perhaps we should be saying “cyberaggression”?
- There are dimensions we can use to help clarify the definition though...

# Power

- Power is a component of traditional bullying
  - beating someone up → physical power imbalance
- Difficult to map to online behavior
  - Is it ability to *remain anonymous*?
  - Is it *demonstrating superior technical knowledge*?
  - Is it *scale and speed*?

# Power as Popularity

- Perceived popularity as power has been measured
- Harassed by “unpopular” cyberbully  
→ no big deal
- Harassed by “popular” cyberbully  
→ distressing, elicited negative mood & helplessness

# Severity

- Traditional bullying is limited by real world constraints
  - Have to be within physical proximity

A screenshot of a Twitter post from the account "Tyler, The Creator" (@fucktyler). The profile picture shows a man wearing sunglasses. The tweet text is: "Hahahahahahaha How The Fuck Is Cyber Bullying Real Hahahaha Nigga Just Walk Away From The Screen Like Nigga Close Your Eyes Haha". Below the tweet are standard Twitter interaction buttons: Reply, Retweet, Favorite, and More. At the bottom, there are icons for Retweets (83,282) and Favorites (51,541), followed by a row of small profile pictures.

# Cyberbullying More Severe

- Cyberbullying is worse here because
  - It can occur at *any time or place*
  - It tends to be *public*
  - It tends to be *permanent*
- *Not looking can be worse than being bullied*
  - Being disconnected is a non-option these days

# Anonymity

- Major differentiator from traditional bullying
  - Means *less chance of getting caught*
  - Means *toxic disinhibition*
- Many cyberbullies who are denied ability, *do not bully in real world to compensate*
  - Evidence suggests that the loss of anonymity inhibits their behavior

# Example: 4chan's /pol/

- An image board
- Conversations grouped into threads
- Anonymous
- Ephemeral
- Dangerous

A

Anonymous (ID: 9jBLod1) 09/11/16(Sun)22:27:40 No.88456696



HILLAREEEEEEE

115 KB JPG

>>88456696 #

Anonymous (ID: EwOd/vsa) New World Order 09/12/16(Mon)06:49:28 No.88514099



drift in to the abyss

433 KB PNG

If you could reorganize the world, what would you do?

B

Anonymous (ID: pRZ5QvTV) 09/11/16(Sun)22:31:21 No.88456696

>>88456217 #

Get this cuck outta here. He isn't a man of conviction and virility like Cruz. He's just a sad little man who slobbers the spit of Hillary's shoes. I love Trump but I respect people who have true beliefs and a moral compass and stand up for themselves.

>>88457099 #

Anonymous (ID: mwscH3IG) 09/12/16(Mon)07:02:57 No.88514002



>>88512762 (OP) #

Gas the Kikes, race war now.

C

Anonymous (ID: v3o8XuzJ) Clinton Gone = Trump's Worst N(...) 09/12/16(Mon)03:24:29 No.88514002



You faggots realize that Clinton being ill/dying isn't a good thing for Trump, right?

53 KB PNG

If she decides to drop out of the race then what? The Dems put up Kaine, Biden, or maybe even Sanders.

Then Trump gets BTFO in a landslide loss because the Dem's formerly utterly hated and untrustworthy candidate is gone and replaced by someone much more likable.

It's as if you're all actually shortsighted and retarded and you're not all pretending.

D

Anonymous (ID: tUz3Ymz) 09/09/16(Fri)07:25:20 No.88514099



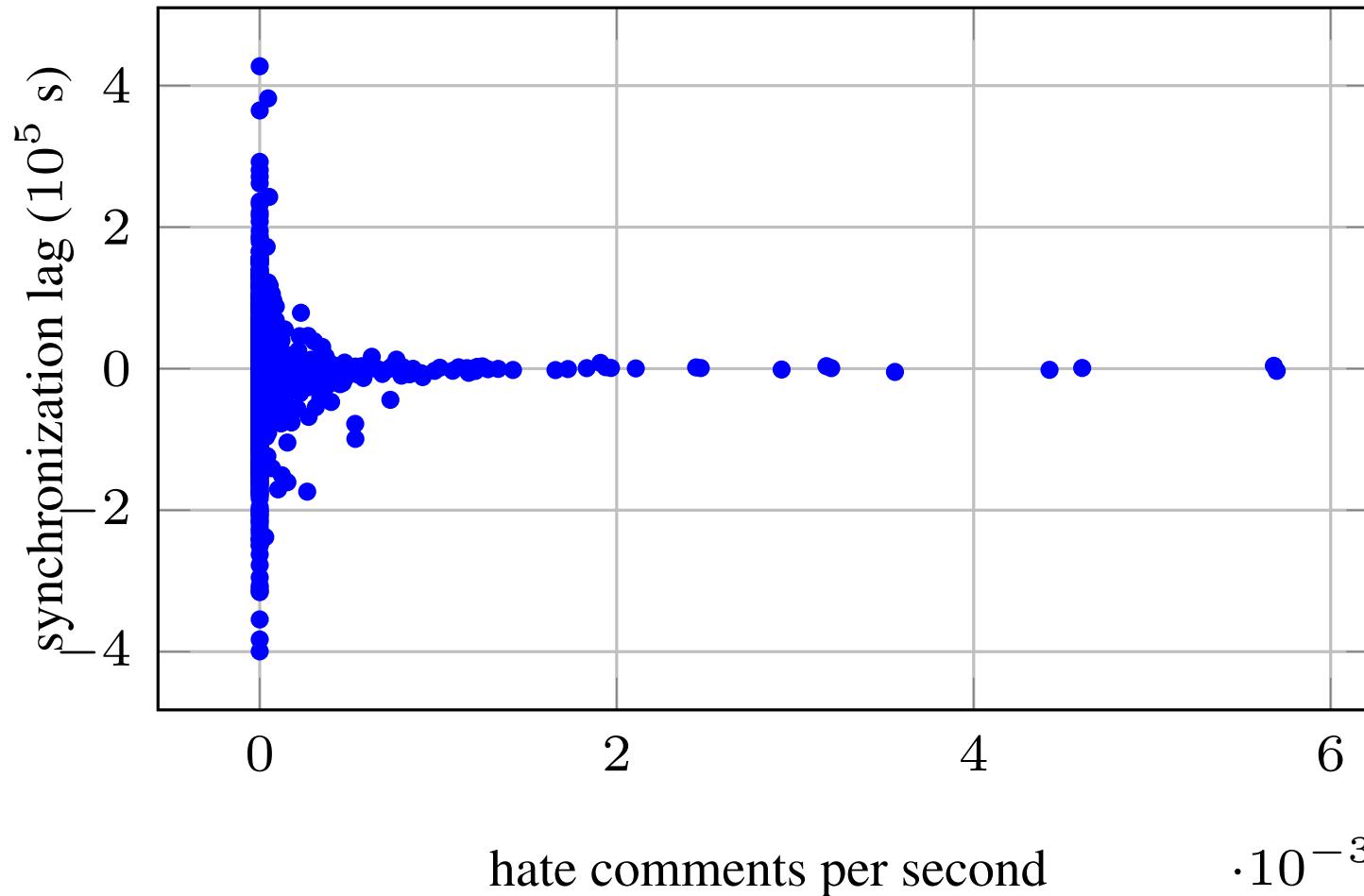
JJKSLdd.jpg  
64 KB JPG

This is a holy thread. Please pay respects to Kek and your post will be blessed.

# Raids On YouTube Videos

- Many YouTube links posted on /pol/
- We've anecdotally observed them to be raided
- Can we find quantitative evidence of the raids though?!

# Synchronization → More Hate on YT



File: [Cucks.png](#) (209 KB, 1181x535)



**The Cuckademics, A Study Anonymous** (ID: zw8wNrfR) 10/13/16(Thu)06:18:21 No.92700473 ▶

### Jeremy Blackburn

>his work on the contagious aspects of cheating and understanding and learning about cyberbullying/toxic behavior in online games represent the largest scale studies of such behavior, providing insite useful not just for the gaming community, but in understanding anti-social behavior in the real-world as well.

<http://www.tid.es/research/researchers/j-blackburn>

### Gianluca Stringhini

>Twitter Cuck e.g. "But #brexit has nothing to do with xenophobia, right?"

>Retweets Hillary

[https://twitter.com/gianluca\\_string](https://twitter.com/gianluca_string)

### Riginos Samaras

>actually seems ok and quite attractive so ill give him a pass

### Ilias Leontiadis

>bizarre that they would include this guy because his papers are all related to internet privacy and ad revenue.

>Oh wait... Two factors that may have an influence on such interactions are cultural differences between individuals in highly multicultural workplaces, and the layout and physical spaces of the workplace itself. In this work, we investigate how these two factors may facilitate or hinder inter-group interactions in the workplace.

<http://www.tid.es/research/researchers/ilias-leontiadis>

>>  **Anonymous** (ID: zw8wNrfR) 10/13/16(Thu)06:18:40 No.92700514 ▶

### Nicolas Kourtellis

>Just a henchman

### Emiliano De Cristofaro

>globalist

>Italian national Dr Emiliano De Cristofaro, a senior lecturer in computer science at University College London, criticised the comments.

>"Quite frankly, I am very upset. It inherently discriminates against a portion of the population living in this country, making us feel like second-class individuals. Nobody should be used as a negotiating chip, let alone people who are working hard, paying taxes and strongly contributing to the country," he said.

>"I also fear that statements like this will further encourage hate crime, discrimination and racism against EU citizens."

<https://inews.co.uk/essentials/news/politics/eu-citizens-living-uk-express-upset-liam-fox-describes-negotiating-card/>

### Jeremiah Onaolapo

>Just a henchman but...

>Recent or forthcoming papers: "What Happens After You Are Pwned: Understanding The Use Of Leaked Webmail Credentials In The Wild."

>In that paper: "We leaked 100 honey accounts on paste sites, underground forums, and virtual machines infected with malware, and provided detailed statistics of the activity of cybercriminals on the accounts, together with a taxonomy of the criminals. Our findings help the research community to get a better understanding of the ecosystem of stolen online accounts, and potentially help researchers to develop better detection systems against this malicious activity."

<http://www0.cs.ucl.ac.uk/staff/J.Onaolapo/papers/imc16gmail.pdf>

### Gabriel Emile Hine

>no juice

In conclusion my research indicates that the three most responsible Jews for this vicious hate crime against our culture are:

>Jeremy Blackburn

[https://twitter.com/jhblackb?ref\\_src=twsr%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor](https://twitter.com/jhblackb?ref_src=twsr%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor)

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[https://twitter.com/emilianodc\\_](https://twitter.com/emilianodc_)

>Gianluca Stringhini

[https://twitter.com/gianluca\\_string](https://twitter.com/gianluca_string)

**handrapist** 2 weeks ago**Bald in 13 months. Pony tail man has no chin either.**

Reply •

behavior in online games represent  
understanding anti-social behavior**Ayy Lmao** 2 weeks ago**Low T beta cuck**

Reply • 1

s, and the layout and physical

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>Gianluca Stringhini  
[https://twitter.com/gianluca\\_string](https://twitter.com/gianluca_string)



**handrapist** 2 weeks ago

Bald in 13 mont

Reply •



**Someone Human** @Another\_Human · 7h

@jhblackb Don't publicly ask questions you know will lead to red pills. It could jeopardize your career prospects in the research community.



**Ayy Lmao** 2 wee

Low T beta cuck

Reply • 1

>>  **Anonymous** (ID: zw8wNrfR) 10/13/16(Thu)06:18:40 N

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# Social Intelligence Theory

- Ability understand and manage other people and act wisely in human relations
- *Cyberbullying linked to increased social intelligence*
  - Low SI → likely to traditional bully
  - High SI → likely to cyberbully

# Agenda

- Who are the actors in cyberbullying?
- Dimensions of cyberbullying
- Types of experimentation
- Recommendations for the future

# Qualitative/Quantitative Inquiries

- Overwhelming amount of work here is self reported measures
  - Surveys that are sent out
  - Usually ask stuff like “have you been a victim?”
- Vignettes
  - Participants read prompts and are asked how they would respond
- Qualitative interviews
  - Focus groups, etc.

# Controlled Experiments

- Almost non-existent
  - Basically nothing in terms of bully/victims
  - This kind of makes sense... Is dangerous ground
- Bystanders have been studied though

# Bystander Experiment #1

- “Simulated” scenario
  - Participants (college students) sent a message
  - Message was attacking another “student”
- Findings
  - Cyberspace → negative bystanders (vs traditional)
  - Public cyberbullying → more negative bystanders
  - Previous cyberbullying exposure → more negative bystanders

# Bystander Experiment #2

- Used a University Facebook group to expose people to a cyberbullying incident
- Findings
  - *Very* severe incident → *positive* bystanders
  - *Many* witnesses → *negative* bystanders

# Bystander Experiment #3

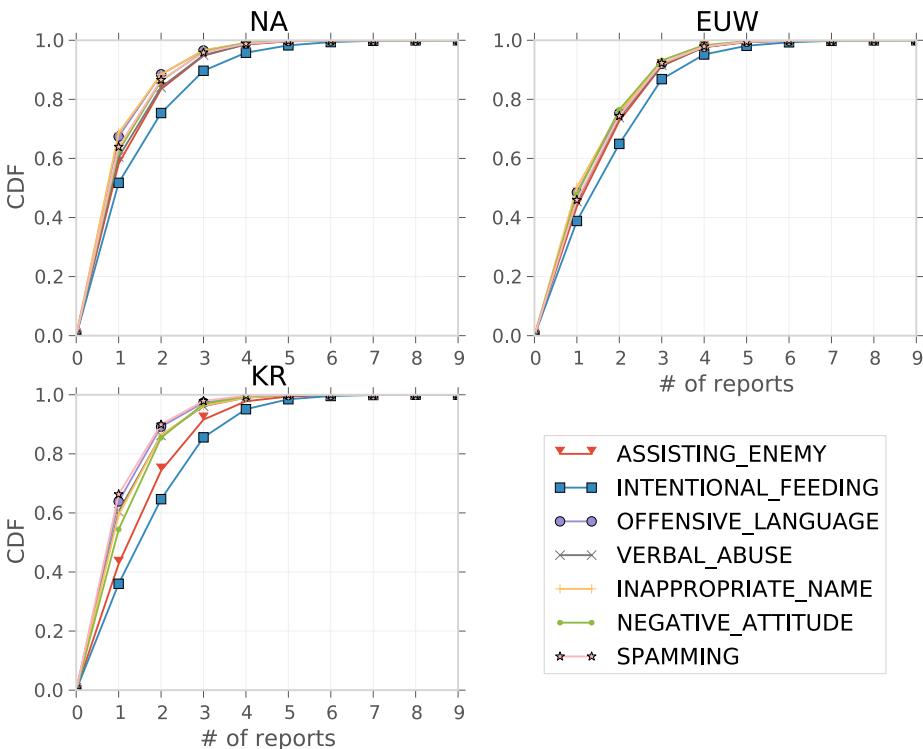
- Participants tricked into thinking they had witnessed a real incident in a chat room for research surveys
  - Someone pretended that they didn't understand a question, and a moderator pretended to bully them over it
- Findings
  - Noticing the incident → 4x chance to intervene
  - Intervention #1 → answering the victim's questions
  - Intervention #2 → telling the moderator they were failing their duty

# Empirical Bystander Experiment

- League of Legends is world's most popular video game
- They built a crowdsourcing system to deal with “toxic behavior”
  - Not 1:1 match, but there is definitely cyberbullying going on

# What Did We Find?

- Very few players report
  - Only 2 of 9 on average
- If explicit request to report, enemies 16.37X more likely to report
- Bystander effect can be overcome!



# Agenda

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# What Are Soft Sciences Good At?

- Theory (philosophy)
  - Thoughts on how people work
- Qualitative findings
  - Talking to people and seeing if theory might hold
- Surveys
  - Asking people the right questions
- Controlled experiments
  - Designing experiments

# Theory

- Usually, the soft guys start with some *model*
  - They use this model to guide their study and interpret their results
- We don't do that in CS
  - Scale compensates for theory ☺
  - Maybe we'll build a model *from* that data
- Eventually though, we need to contribute back

# What Aren't Soft Sciences Good At?

- Scale
  - 20,000 – 30,000 people surveyed is a ***big*** study
- Empirical Findings
  - Studying behavior “in the wild”
- Fast iteration
  - They have to be very careful and deliberate

# Recommendations

- Bridge the gap between qualitative/controlled experiments and empirical studies
  - Look for *empirical* evidence in support of the qualitative/controlled findings
- Consider more *dimensions*
  - Power imbalance, severity, etc. have mostly been ignored beyond theory
- Juxtapose different platforms
  - We should look at behavior across different platforms and how platform features result in different behavior

# More Recommendations

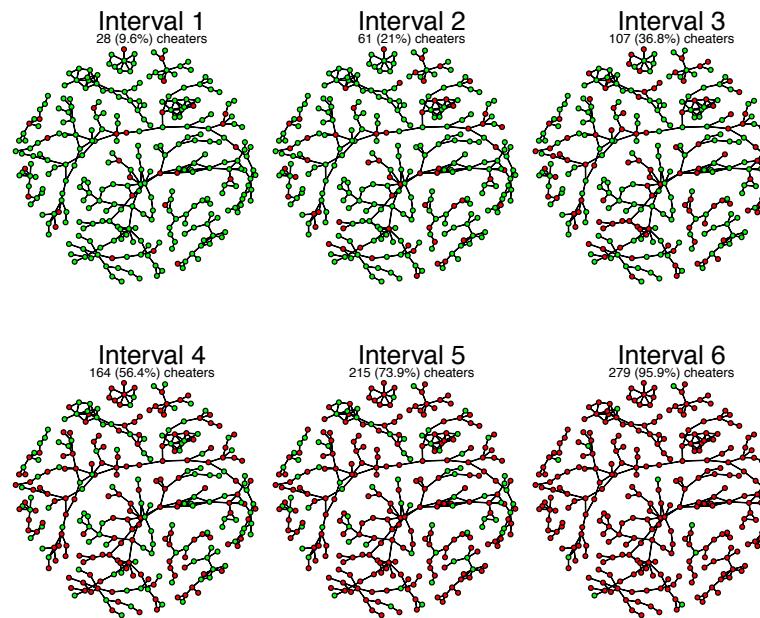
- Backtrack cyberbullying behavior
  - Indications are that if you are bullied, you become a bully
  - CS style datasets can help shed light on this
- *Begin the dialogue between CS & Humanities*
  - How many of you have ever talked to a soft sciences person in a work related capacity?
  - How many have co-authored a paper with someone that was in soft sciences?

# Cheating: Back to the Drawing Board

- A gut feeling told me my results were *not* to be expected
- Need to convince reviewers *their* intuition was wrong
- Need to find *meaning*

# Let's Get Interdisciplinary

- I collaborated w/ a sociology professor
- We found support that some of my original findings were *not* to be expected
- We also came up with idea that cheating was spreading like a disease



# Let's Get Interdisciplinary

- I began my professional life in the field of communications.

- My original research interests were in the area of communication origins.

- However,

that helped me spread my wings like a bird in flight.

## ACCEPTED

“This work is well-presented, and the results have potential ramifications for a wide variety of social networks in which good-faith participation is critical to the health of the community.”

# Thank you for your time!



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