Hack.edu: Examining How College Hackathons Are Perceived by Student Attendees and Non-Attendees

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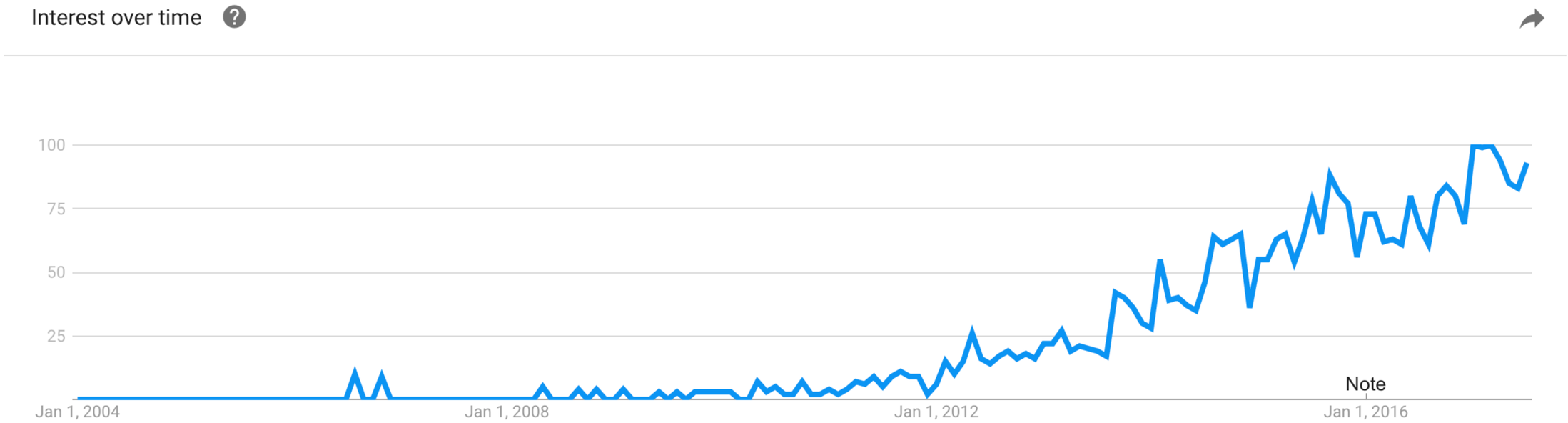
background

collegiate hackathons

1. university hosted
2. ~100 to 1000 people
3. substantial prize $
4. corporate sponsors



background :: example schedule

Friday — *initialization*

5:00pm	🛂 Registration
6:00pm	🎊 Opening ceremony
6:30pm	Dinner
7:00pm	🙏 Team formation
7:00pm	Idea Competition: LaunchPad
8:00pm	💻 Hacking starts
12:00am	Insomnia cookies!
??? am	😴 Sleep!

Saturday — *development*

6:00am	Coffee Break
8:00am	Breakfast
9:00am	Yoga
12:00pm	Lunch
1:00pm	1010Data "Building a Big Data Analytics System From Scratch" Talk
2:00pm	FactSet "Cherrypy and SQLAlchemy" Talk
2:15pm	Menlo Security "Modern Cybersecurity Threats and Effective Defenses" Talk
3:30pm	MLH Karaoke
6:00pm	MLH Cup Stacking
7:00pm	Dinner
9:00pm	EA Raffle
10:00pm	🌟 Devpost Submissions Due
12:00am	Starbucks & Snacks
1:00am	Silicon Valley Viewing
!?!? am	👻 Sleep...!

Sunday — *evaluation*

8:00am	🏁 Hacking ends
8:00am	Breakfast
9:30am	Coffee Break
9:30am	📲 Presentations & Preliminary Judging
11:00am	💯 Final Presentation
12:00pm	Lunch
12:30pm	🏆 Closing ceremony
1:00pm	😢 That's all folks!!

3 questions

1. Why are students **motivated** to attend hackathons?
2. What **learning environments** are provided there?
3. What factors **discourage** student attendance?

3 questions :: overview

1. Why are students **motivated** to attend hackathons?
   primarily social motivations (friends)
   engage w/ community of practice

2. What **learning environments** are provided?
   opportunistic, incidental, peer-based

3. What factors **discourage** student attendance?
   physical discomfort, novice fear, too competitive
   lack of substance, no time, no team, hacker culture

methods :: overview

initial case study

- in-depth case study of 6 attendees
  - 3 interviews (pre, post, follow-up)
  - direct observation at hackathon

then, for a broader perspective

- survey of college hackathon attendees and non-attendees
- 4 universities, 256 total respondents

methods :: case study

participants

1. **n=6** (3 male, 3 female)
2. varying hackathon experience
3. all undergraduate cs majors

structure

1. pre-hackathon expectations interview
2. direct observations at a hackathon
3. post-hackathon reflection interview
4. follow-up lasting impact interview

methods :: interviews

pre-hackathon :: **expectations**

- why do you want to go to this upcoming hackathon?
- what do you hope to gain from attending the hackathon?
- are you nervous about any aspect of this hackathon?

post-hackathon :: **reflections**

- what project did you end up working on?
- what was most memorable about this hackathon?

longterm follow-up :: **lasting impact**

- what criticisms (if any) do you have of hackathons after attending?
- what new skills did you learn from at the hackathon?

methods :: surveys

informed by our case study, for a broader perspective:

2 questions

4 universities

256 responses

a.) *"If you have attended hackathons before but did not enjoy the experience, what aspects of the event felt discouraging to you?"*

b.) *"If you have never attended a college hackathon, what factors discouraged you from attending?"*

findings

overview

1. mostly social motivations for attendance
2. situated and social learning
3. authenticity: hackathons vs class
4. lasting impacts of attending
5. why some choose not to attend

findings :: motivation

mostly social

1. free travel to new place
2. see friends, meet people

"You get to be a part of a fun exciting environment, be encouraged to focus intently on a creative solution, meet new people, learn new technology, possibly travel someplace new, and take advantage of company swag [free gift items]."

although

our most experienced participant expressed excitement about having access to **better or new hardware**.

findings :: learning

1. incidental
2. opportunistic
3. from peers

“hackathons specialize in small group learning, and you feed off of your teammates’ energies and enthusiasm.”

findings :: authenticity

better **emulation of industry** practices

lack of formal feedback on project

hasty nature promotes **raw exploration**

“The main source of feedback is the current functionality of your project, and your peers’ perceptions of it.”

“A hackathon provides more creative freedom with projects, shorter time period than classes, and less concern about learning material deeply. I just want to focus on getting [projects] working.”

findings :: impact

difficulty retaining skills

all but one attendee *did not recall skills gained*

raised self-efficacy

all three female participants reported higher self-confidence

“...going to this hackathon improved my self-confidence. I know a lot more than I thought I knew, and feel more normalcy with respect to peers.”

findings :: criticisms

If you **have attended** hackathons before but did not enjoy the experience, what aspects of the event felt discouraging to you?

Total: N=126	Male: N=81	Female: N=43
Discomfort (35%)	Discomfort (33%)	Discomfort (40%)
Novice fears (28%)	Novice fears (22%)	Novice fears (37%)
No team/idea (21%)	No substance (20%)	No team/idea (33%)*
No substance (15%)	Competitive (20%)*	Hacker culture (16%)*
Competitive (14%)	No team/idea (15%)*	No substance (7%)
No time (10%)	No time (11%)	No time (7%)
Hacker culture (8%)	Hacker culture (2%)*	Competitive (5%)*

**denotes statistical significance with X^2 test.*

findings :: criticisms

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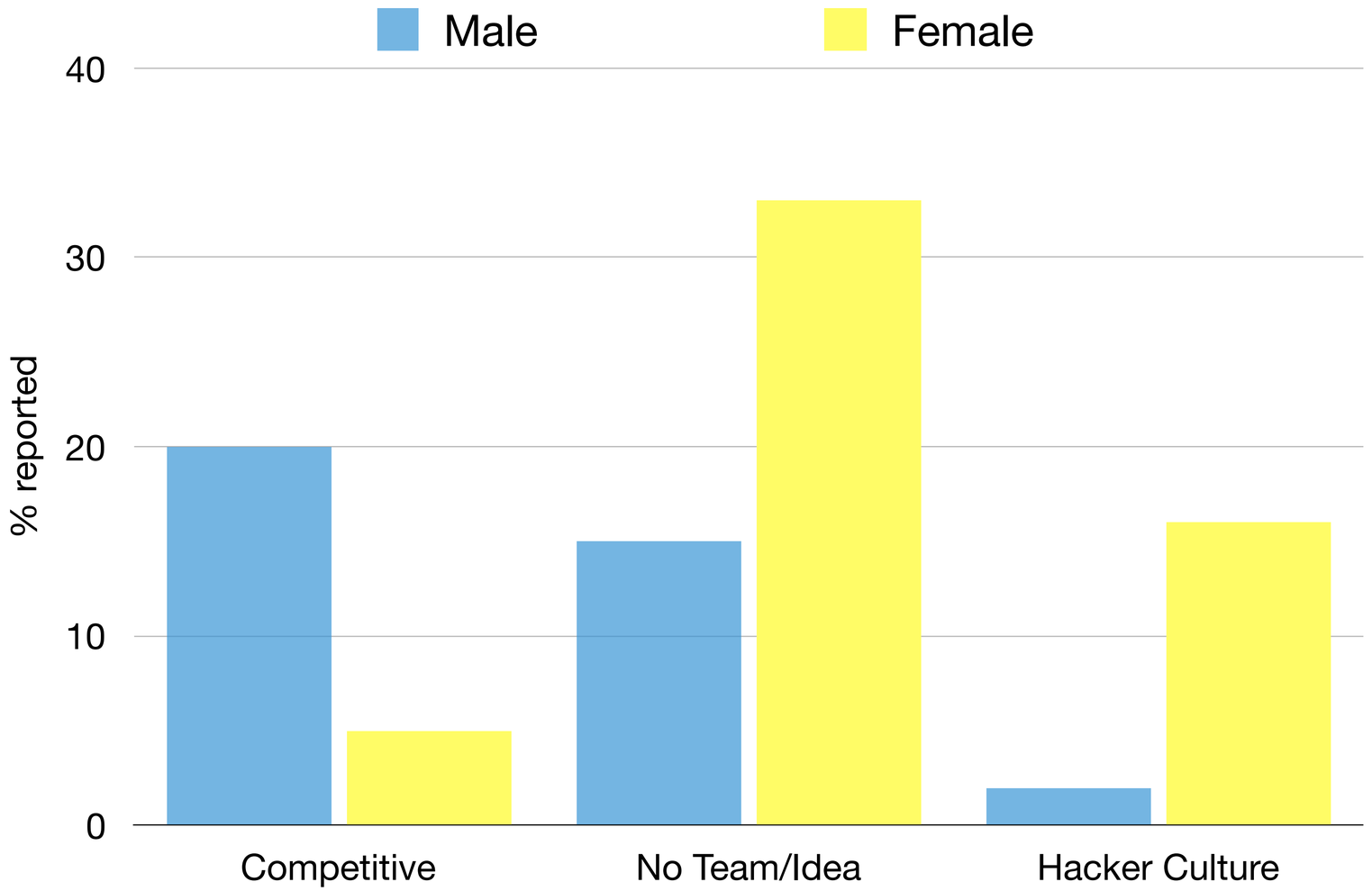

findings :: avoidance

If you have **never attended** a college hackathon, what factors discouraged you from attending?

Total: N=130	Male: N=61	Female: N=65
Novice fears (48%)	No time (51%)	Novice fears (65%)*
No time (43%)	Novice fears (33%)*	No time (35%)
No team/idea (22%)	No team/idea (18%)	No team/idea (26%)
Discomfort (11%)	Discomfort (8%)	Discomfort (14%)
Hacker culture (5%)	Competitive (3%)	Hacker culture (8%)
Competitive (5%)	Hacker culture (2%)	Competitive (6%)
No substance (2%)	No substance (2%)	No substance (2%)

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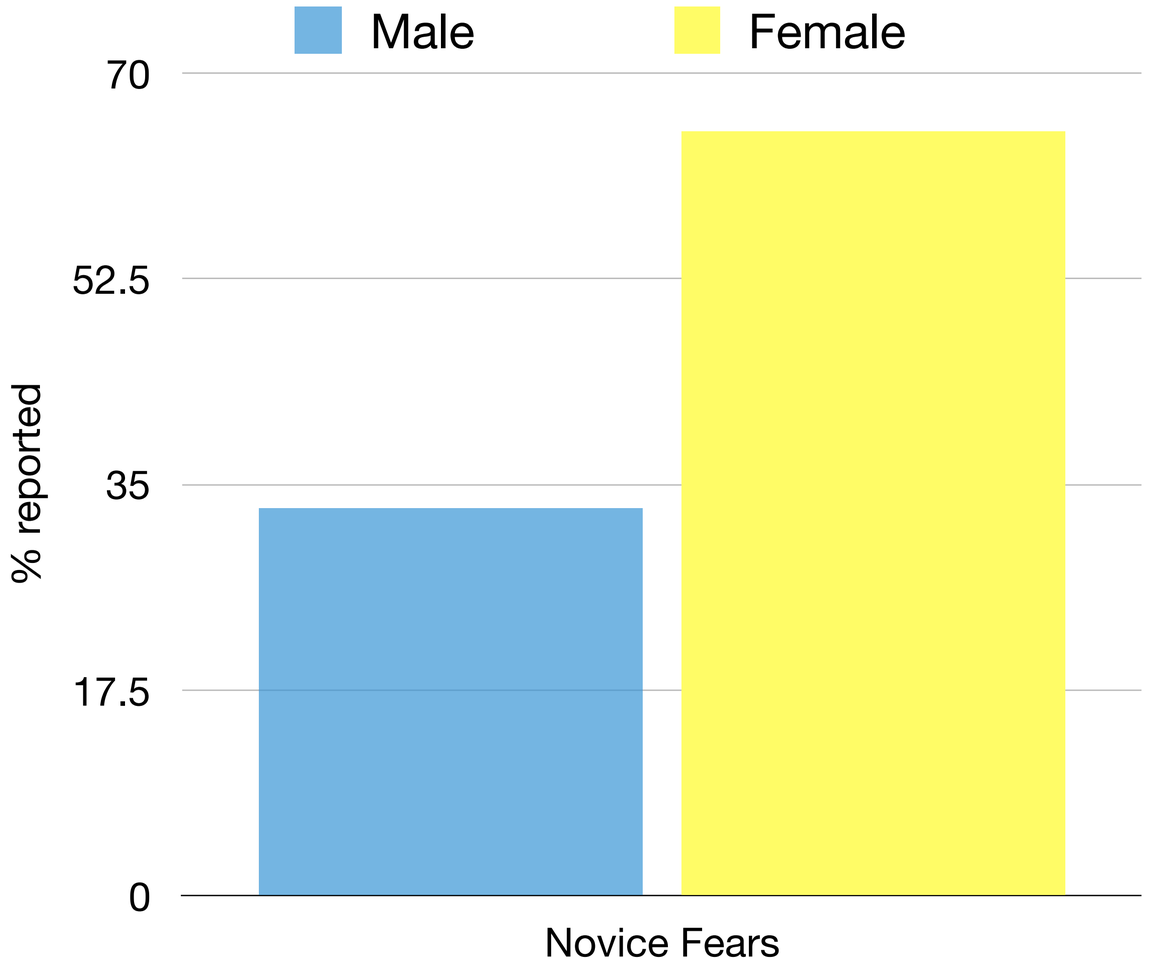

discussion

implications for teaching

pragmatic vs foundational motivations

potential mini-hack days for projects

computer education research implications

relation to other informal learning systems

longer-term effects on career success

ideas for improving hackathon inclusivity

minority/women-only hackathons, codes of conduct

increasing amount of mentors, potentially recruit TAs

limiting sponsor involvement and prize amounts

Hack.edu :: summary

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