How People Learn from Hackathons and Datathons

Description
Hackathons have grown in popularity and have branched out from their software engineering roots to sectors like health care, education, and finance. Datathons, which is a portmanteau of data and marathon, are versions of hackathons that center on analyzing data to solve a problem, address a challenge, or meet a certain goal. Many people are drawn to participate in both datathons and hackathons because they are fun and seem to offer opportunities for true learning and personal growth. But how do they actually work? In this podcast by MIT’s Abdul Latif Jameel World Education Lab (J-WEL), Enrique Shadah, Associate Director of Workplace Learning at J-WEL, speaks with Leo Celi, principal research scientist at the MIT Institute for Medical Engineering and Sciences; Mataroria Lyndon, senior lecturer in medical education of the University of Auckland, New Zealand, and to Cam Knott, intensive care physician in the state of Victoria, Australia. All three guests are doctors who have actively designed, executed, participated in hackathons and datathons.

About our guests:
Dr. Leo Celi is principal research scientist at the MIT Institute for Medical Engineering and Sciences.

Dr. Mataroria Lyndon is a senior lecturer in medical education of the University of Auckland, New Zealand.

Dr. Cam Knott is an intensive care physician in the state of Victoria, Australia, with university links as honorary clinical fellow at the University of Melbourne's Health and Bioinformatics Centre and as an academic lead at the Clinical Skills and Simulation Centre at Monash Rural Health in Bendigo.

In this podcast, you’ll learn:
- The difference between a hackathon and a datathon
- How hackathons differ from traditional types of learning
- What people gain from attending these events
- Steps you need to take to host a successful hackathon

Summary
Hackathons are events that bring together individuals from various disciplines to solve real-world problems or identify new opportunities for improving aspects of business or society. They entail the identification of a problem, team formation, and a period of intense hacking or data analysis. Hackathons have grown in popularity and have branched out from
their software engineering roots to sectors like health care, education, and finance. Datathons are subsets of hackathons that center on analyzing data to solve a problem, address a challenge, or meet a certain goal. Successful hackathons are fun for participants and high energy, where participants can meet new people and learn diverse skillsets. Participants are given a task to perform over a small period of time, but there is less pressure than in “real life” because they do not experience consequences for being unable to complete a task. The most successful hackathons include people from diverse backgrounds (e.g., age, sex, ethnicity, fields) where people are able to come together successfully to work in teams and network. For those interested in putting on their own hackathons, a great how-to guide is available online (Hackathon.guide).

Some other key takeaways from the podcast include:

- Surveys show that the biggest knowledge gains from hackathons for individuals are knowledge gains outside of their own discipline (i.e., from experts in other fields)
- We still can’t make conclusions about how effective hackathons are in terms of promoting learning and teamwork because there is a self-selection bias in those who attend the events
- Some research is needed to identify the “secret sauce” of a successful hackathon
- Still missing research on the outcome measures for hackathons and what types of learning is happening and what this means over the long term
- Hackathons don’t need to be expensive--they can be done with a small budget

What is the difference between a hackathon and a datathon?

- Hackathons usually have a prototype of a deliverable at the end of the event, such as software, hardware, or a mobile app.
- Datathons are focused on analytics and glean insights from dataset(s). They are a type of hackathon where, instead of a prototype, you have a predictive model or research project. For example, a health-related datathon might determine the effectiveness of a medical treatment for a disease.

Why are hackathons beneficial for learners?

- Hackathons tend to be more authentic than sitting in a classroom learning about design thinking or data analytics because participants are learning by doing and solving real problems.
- They are more immersive and authentic than lecture halls and can be the cornerstone or capstone projects that go into the world after the event.
- Opportunities to connect across disciplines are often rare in day-to-day practice, preventing, for example, a clinician and a data scientist to work together on a project.
Hackathons give experts and even laypeople the opportunity to network and advance an idea together.

**Who should make up the hackathon/datathon?**

- Having mentors during the event is key. Mentors should have extensive experience in analyzing datasets offered at the event.
- For a datathon, there should be a 50/50 makeup of participants: 50% should be domain experts while other 50% should have data analytics skills.
- Bring together people from different generations with different expertise--for example, software engineers, business people, data scientists, as well as younger and older participants.
- Try to include groups frequently under-represented at hackathons, including women and other minorities.
- It is also a good idea to include end users, patient (in medicine), or consumer advocacy to get their input and put a different lens on the challenge.

**How to make sure you have a successful hackathon or datathon**

- Prime participants before the event--they need enough information to understand the nature and goals of the event.
- Any datasets used have to be well curated.
- Ensure that core infrastructure is available during the event; people need items such as power cords and cables, bandwidth, etc.
- Provide unfettered access to new tools or systems that participants haven’t had a chance to use before--this is a real attraction.
- Be sure to obtain participant feedback after the event.
- Make sure participants are still plugged in after the event--some research suggests that only as little as 5% of hackathon projects go on after the event. Within the healthcare setting, about 30% of hackathon projects continue on at a one-year period.