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Making MW It Work

Massachusetts Institute of Technology
MakerWorkshop

Quantifying Success in a Student-Run Makerspace: a Case Study and Survey-Based Analysis

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MIT MakerWorkshop

- MakerWorkshop: an **experiment within the mechanical engineering department**
  - **Student-run** makerspace with faculty oversight
  - Not a machine shop: research lab / makerspace / community lounge, fluid based on student vision
  - Opened May 2015

- Successes and lessons learned from a **survey assessment**
  - **~85%** of the respondents considered MW a unique asset to the department

- **Designed by students for students**
  - Probably key factor behind the success of this maker space
  - Space built with student needs in mind
    - Focus: enable **idea to prototype engineering** and test **engineering analysis**
    - **Student community**

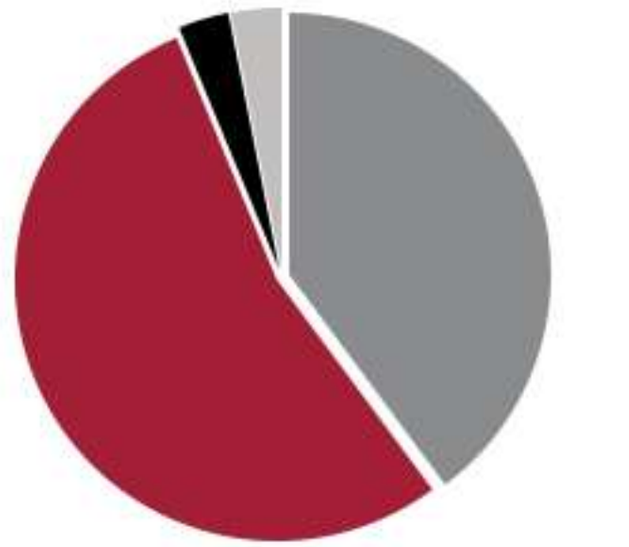
Quantifying Success

- Assess **how** and **why** MW was used for different applications, over other spaces
  - coursework,
  - research
  - personal projects
  - entrepreneurial endeavors

- MIT Teaching and Learning Laboratory

- Qualtrics survey
  - Users: 15% response rate
  - Student mentors: 60% response rate

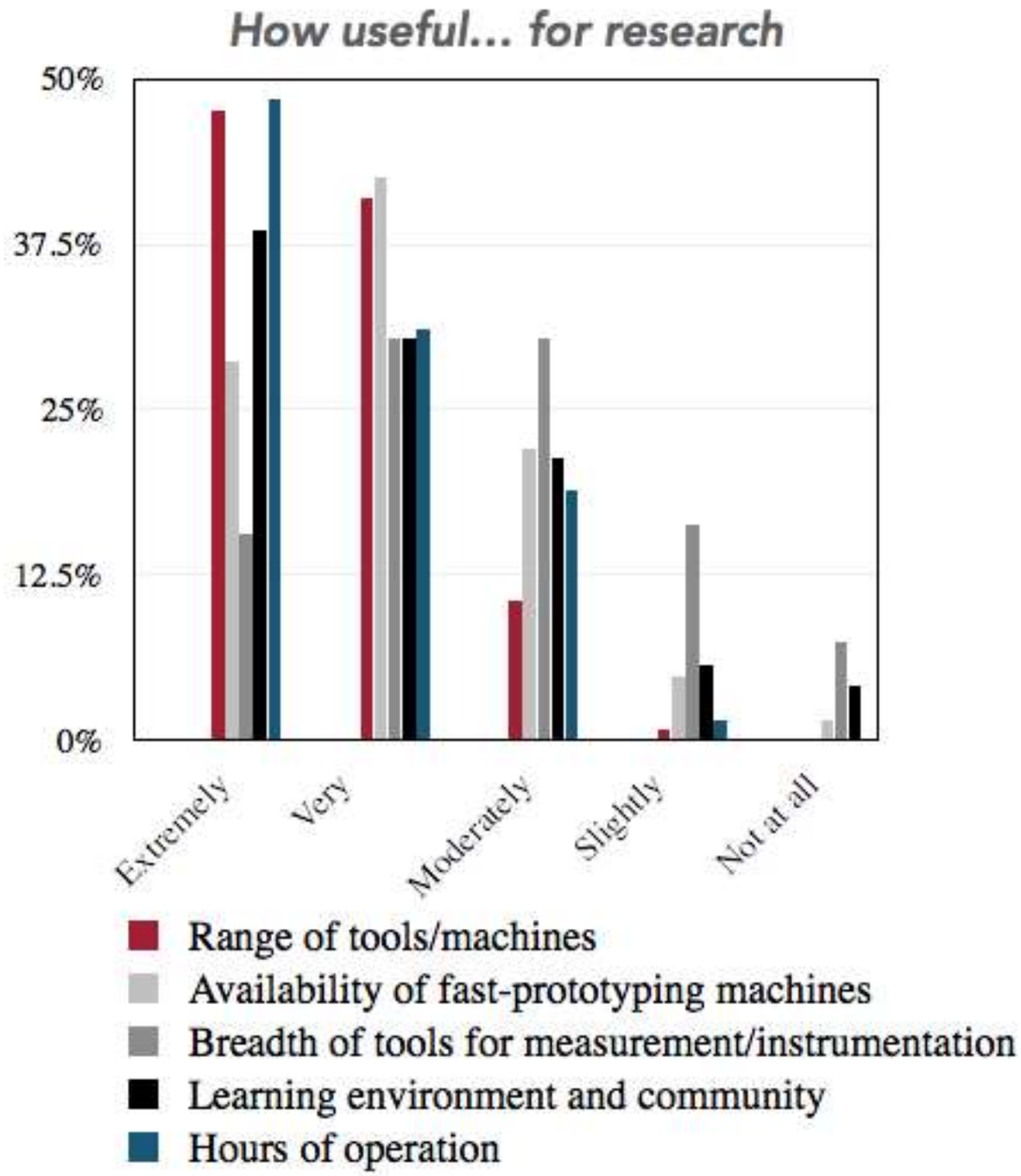
- Also surveyed about their perception of the community and place of MW within the department



MW user distribution

Designed by students:
1. the full cycle of "engineering making"

- Afternoon and evening hours
- Range of machines/tools otherwise not easily available on campus
- Uniquely suited for the full cycle of engineering within a single space
  - **design, fabrication** and **testing**
  - instrumentation & measurement tools for rapid validation of prototypes
  - "Measurement" tools more often used than the lathe or the waterjet

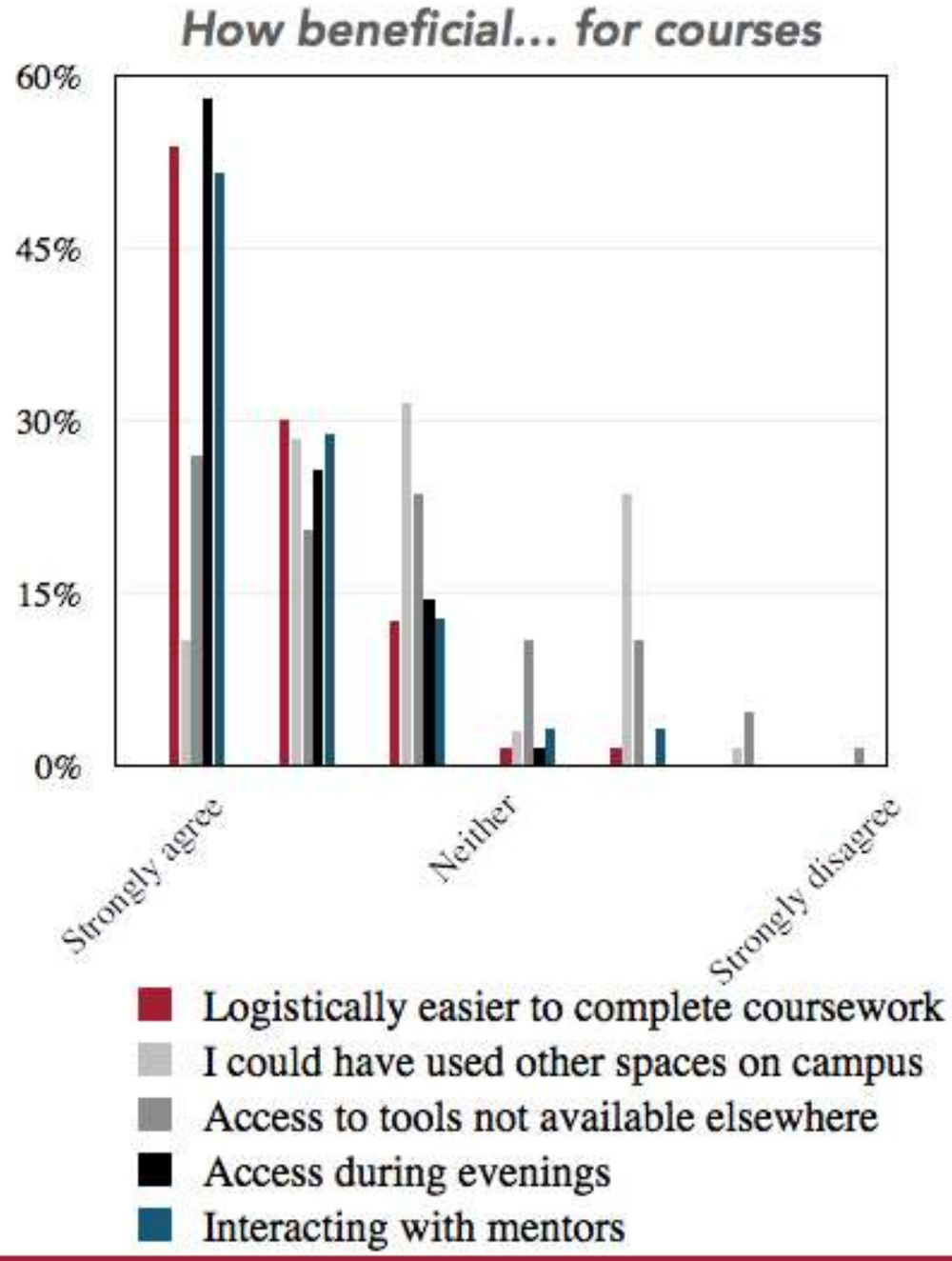


Designed by students:
2. community

- Community aspect especially beneficial to users for their courses

- Student-run: mentors found to be easily approachable and valuable resources
  - also instill discipline and respect for the space among peers

- ~70% of respondents listed "meeting new people" or "connecting with friends" as added benefits of working in the space



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Experiment outcomes after 2 years

- With faculty oversight, student were able to run the space effectively
  - managed a substantial machine capital
  - determined what they needed to enhance their research output
- A student-run makerspace is beneficial for both users and mentors and fostered an environment **conducive to learning**
- A lot of flexibility in running the space

MIT MakerWorkshop' success

- "Machine capital" explains only part of MW's popularity
  - low total # of machines: a single mill and lathe

- Range of tools/machines + breadth of tools for measurement/ instrumentation listed as major benefits
  - focus on the student needs for research
  - focus on the full cycle of mechanical engineering design
  - offering instruments for measurement & validation is highly valued by students.

- Reasons for success
  - community
  - original design around the student experience

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