Cohort 4 – Report

Section Header	Description
CARLI Counts Participant	Celenia Graves + Experimental Learning and Engagement Librarian + University of Illinois Urbana-Champaign
Project Name/Title	An academic library makerspace analysis in assessing patron perspective of space to address service
Single Sentence Abstract	The University of Illinois Urbana-Champaign's Grainger Engineering Library and Information Center's IDEA Lab is investigating its patron community through a survey incorporating qualitative and quantitative methods to gauge perspective, identify barriers, and examine opportunities for improvement.
Motivation(s) for Project	The literature indicates a variety of psychological and physical barriers in academic immersive spaces like makerspaces, ranging from intimidation of the space and technology to lack of gender diversity in staff or patron community. The IDEA Lab wanted to explore those barriers and perspectives for the IDEA Lab, how we developed actionable steps towards change, and what other insight we gained through our studies. This survey begins a series of research studies that the IDEA Lab will conduct to provide an example of how an R1 academic library makerspace discovered and addressed findings and implemented actions to support their patron community.
Partners and Stakeholders	**Partners:** Elisandro Cabada, faculty, PI **Stakeholders:** Students, Faculty, Staff, University Library Department, IDEA Lab, and the UIUC campus makerspaces.
Inquiry Question	How does a library makerspace impact students' sense of inclusion and perception of access to the makerspace?
Study Participants/Population	The participants for this study will mainly be UIUC Students of all grade levels, but it will be open to patrons who access and complete the survey. My colleague and I will provide the survey at different access points, such as through flyers in the IDEA Lab makerspace, the IDEA Lab room reservation booking page, the IDEA Lab newsletter mailing list, flyers and

	digital monitor signs in the Grainger Engineering Library, Grainger Engineering Library's social media accounts, and through campus communications (listservs).
Method(s) of Data Collection and Analysis	The survey instrument for this research study is Qualtrics, and the format incorporates both qualitative and quantitative methods. See Appendices for the working survey undergoing review as of the end of January 2024. We will utilize grounded theory, in which the data informs analysis, starting with data collection and potentially open coding. We are identifying the patron community makeup of the space and the opportunities available to implement actionable change.
Findings	Throughout CARLI Counts, I've learned core concepts in developing a research agenda and the structure of the research process at the University of Illinois Urbana-Champaign. Sharing resources and getting more insight into the Illinois library network was beneficial. Through the research project thus far, I've learned how to review academic literature with a research project in mind. The survey is still being reviewed and will be submitted to the IRB process after this report submission deadline later in February.
Use of Findings	The IDEA Lab will implement gradual physical changes and update digital access points pending survey results on barriers and opportunities for changes. For long-term actions, the IDEA Lab will be working to communicate updates and future survey/study participation through our newsletter. Additionally, the IDEA Lab is part of a growing makerspace consortium at UIUC. We intend for these findings to be shared at the next MakerNet, a UIUC cross-campus makerspace meet-up, to provide other campus makerspaces with a survey structure and share insight into what we've discovered and how we're addressing survey responses.
Next Steps and Other Results	I will continue developing this research through other residency research workshops and project development with my residency unit head, Elisandro (Alex) Cabada. The IDEA Lab seeks to present at iSAM 2024 with the data gathered in Spring 2024, action

	steps taken in Summer 2024, and initial reactions from our patron community in Fall 2024. A colleague and I explored the preliminary findings of student traffic for the IDEA Lab, which I developed throughout the beginning of my time in CARLI Counts, and presented them at iSAM2023.
Additional Reflections	**Additional Context** As of writing this report, the biggest challenge has been timing for submitting to the IRB process and identifying the main goals for the survey. The survey was designed specifically to address the IDEA Lab environment and resources so that there are different areas we could expand on for future study in a focus group or through interviews. **Issues/Challenges/Resources/Budgets** As for resources/budget, I am fortunate to have access to various research assistance through the Library Assessment unit and a Professor & Coordinator for Research and Teaching Professional Development, as well as grant funding through Library Assessment and other campus research grant opportunities.
Timeline	Below are the major phases of the project thus far and future plans. **2023** March – July: Completed • Rough mapping of the research project and questions • Identify and explore research methods and assessment goals August – September: Completed • Take IRB Core training • Explore data storytelling and narratives • Identify best practices for the research method • Literature review of academic makerspaces October – December: Completed • Team Posters • Review the list of literature review and explore assessment instruments and questions • Present adjacent research project at the International Symposium of Academic Makerspaces **2024**

	January – February: In-Progress • Send a draft of survey questions to reviewers (Completed) • Finalize survey questions (In-progress) • Submit research proposal to IRB (Next Step) **Future Plans** • Analyze data • Transfer findings and data visualization into an academic poster • Develop poster into a research paper • Write a draft of research paper
Bibliography/Works Cited	Below is some literature that helped develop the scope and topic parameters within this part of the research project and provided context for makerspace assessment and space analysis. This list was beneficial reading for the drafting process for this project. Cabada, E., Kurt, E., & Ward, D. (2020). Constructing a campus-wide infrastructure for virtual reality. *College & Undergraduate Libraries*, 27(2–4), 281–304. https://doi.org/10.1080/10691316.2021.1881680 Mathuews, K. B., & Harper, D. J. (2020). *Academic library makerspaces A practical guide to planning, collaborating, and Supporting Campus Innovation*. Bloomsbury Publishing USA. Melo, M., March, L., Hirsh, K., & Arnsberg, E. (2023). Description framework of makerspaces: Examining the relationship between spatial arrangement and diverse user populations. *Journal of the Association for Information Science and Technology*, 74(5), 506–516. https://doi.org/10.1002/asi.24741 Nagle, S. B. (2020). Maker services in Academic Libraries: A review of case studies. *New Review of Academic Librarianship*, 27(2), 184–200. https://doi.org/10.1080/13614533.2020.1749093 Welch, A. N., & Wyatt-Baxter, K. (2018). Beyond metrics. *Library Hi Tech*, 36(2), 306–318. https://doi.org/10.1108/lht-08-2017-0181
Appendices	Appendix A Survey Draft Appendix B Qualtrics Survey: Patron View

Cohort 4 – Report

Note: Submit report as a single PDF to Michelle Haake (mjhuls@uillinois.edu) and cc Lisa Hinchliffe (ljanicke@illinois.edu) by February 1, 2024.

Appendix A
Survey Draft

My colleague and I identified the research goals for each question and aligned them to the University of Illinois Urbana-Champaign's University Library Strategic Framework 2019-23. This draft presents the earliest version and does not include feedback gathered.

Survey Draft/Description

Research Survey Questions (Format):

Title: IDEA Lab: We Want Your Feedback!

Introduction: [UPDATED 01/24]
Let us know your thoughts in our survey and get entered into a raffle. This survey is anonymous and all data will be used for research purposes and IDEA Lab development. Thank you for helping us improve our services!

Settings: There is no authentication, as the survey is anonymous, and we want to allow community members to take it as well.

1. What is your status? (Required)
   - Strategic Plan Connection:
     - SD3. Societal and global impact
       1. Establish collaborative partnerships, both within and outside the campus, to engage the global diversity of the student body and address local and global grand challenges.
   - Research Goals: Gather basic demographic information on which user groups are or are not utilizing the lab and its services.
   - Response Options: Radio
     - Undergraduate Student
     - Graduate Student
     - Faculty
     - Staff
     - Community Member
     - Other
       - Open-Ended Text Field

2. What is your primary Department / Unit / Major? (i.e., Mechanical Engineering) (Free Text)
   - Strategic Plan Connection:
     - SD1. Pro-active and trusted partners in scholarship, discovery, and innovation

> 4. Develop and apply emergent, sustainable services to enhance scholarly innovation, <u>interdisciplinary</u> engagement, and partnerships that <u>support collaboration and entrepreneurship</u>.

- Research Goals: Gather basic demographic information on which departments are or are not utilizing the lab and its services.
- Response Options:
    - Open-Ended Text Field

3. Have you visited the IDEA Lab in the Grainger Engineering Library? (Select one)
    - Connected to Strategic Plan: N/A
    - Research Goals: Determine the percentage of users who have or have not visited the IDEA Lab and analyze their demographic information to identify any patterns.
    - Response Options:
        - Yes
        - No*

Mapped Question*: If response to question 3 is "no," using Qualtrics branching logic, ask follow up question: Why not?
- Connected to Strategic Plan:
    - SD2. Transformative learning experiences
      2. <u>Advance co-curricular programming and practices</u> that connect learning to information-rich resources.
      4. <u>Build spaces and integrate technologies</u> as part of the Library's teaching and learning support services to enhance accessibility, academic success, and wellness.
    - SD4. Strategic investments for a sustainable library environment
      3. <u>Build active, sustainable partnerships</u> in order to expand access to, and diversity of, collections and services.
- Research Goals: Understand student perspective and gain insight into any barriers.
- Response Option:
    - Open-Ended Text Field

4. How did you first discover the IDEA Lab existed?
    - Connected to Strategic Plan:
        - SD1. Pro-active and trusted partners in scholarship, discovery, and innovation
          4. <u>Develop</u> and apply emergent, sustainable services to enhance scholarly innovation, <u>interdisciplinary</u> engagement, and partnerships that support collaboration and entrepreneurship.
    - Research Goals: Understand how patrons discovered the lab existed, what strategies are working for make us more discoverable?
    - Response Options: Radio
        - Digital sign
        - Social media

- Discovered in person
- Email
- Word of mouth
- Class
- Other
  - Open-Ended Text Field

5. What do you like about the IDEA Lab? Select all that apply.
    - Connected to Strategic Plan:
        - SD2. Transformative learning experiences
        2. <u>Advance co-curricular programming and practices</u> that connect learning to information-rich resources.
        4. <u>Build spaces and integrate technologies</u> as part of the Library's teaching and learning support services to enhance accessibility, academic success, and wellness.
        5. <u>Enhance liaison, consultation, and reference services</u> that leverage the expertise of the library and disciplinary subject experts to support learning and research pursuits.
    - Research Goals: Provide an opportunity for respondents to let us know something about the lab, what are we doing right?
    - Response Options: Checklist
        - Access to equipment (computers, loanable tech, wireless Solstice pods)
        - Atmosphere (lighting, music, sound)
        - Access to high-end computing
        - Collaboration rooms
        - Layout (Furniture, room layout)
        - Staff interaction

6. Is there anything you like about the IDEA Lab that was not listed in the previous question or anything else you would like us to know?
    - Connected to Strategic Plan:
        - SD2. Transformative learning experiences
        2. <u>Advance co-curricular programming and practices</u> that connect learning to information-rich resources.
        4. <u>Build spaces and integrate technologies</u> as part of the Library's teaching and learning support services to enhance accessibility, academic success, and wellness.
        5. <u>Enhance liaison, consultation, and reference services</u> that leverage the expertise of the library and disciplinary subject experts to support learning and research pursuits.
    - Research Goals: Provide an opportunity for respondents to let us know something about the lab they like that we did not list/did not anticipate and provide patrons with an opportunity to give us more context.
    - Response Option:
        - Open-Ended Text Field

7. What do you believe needs improvement in the IDEA Lab? (Free Text)
   - Connected to Strategic Plan:
     - SD4. Strategic investments for a sustainable library environment
       3. <u>Build active, sustainable partnerships</u> in order to expand access to, and diversity of, collections and services.
       4. Secure funding for strategic collections in unique and specialized areas, to <u>build a globally-recognized and accessible Library</u>.
       6. Apply assessment and evidence-based practices to <u>make strategic investments</u> to advance the mission of the university.
   - Research Goals: Identify what patrons feel needs improvement so we can iterate on those areas in the future.
   - Response Option:
     - Open-Ended Text Field

8. What do you use the IDEA Lab for? Select all that apply.
   - Connected to Strategic Plan:
     - SD1. Pro-active and trusted partners in scholarship, discovery, and innovation
       4. <u>Develop and apply emergent, sustainable services</u> to enhance scholarly innovation, interdisciplinary engagement, and partnerships that support collaboration and entrepreneurship.
     - SD2. Transformative learning experiences
       4. <u>Build spaces and integrate technologies</u> as part of the Library's teaching and learning support services to enhance accessibility, academic success, and wellness.
     - SD4. Strategic investments for a sustainable library environment
       4. Secure funding for strategic collections in unique and specialized areas, to <u>build a globally-recognized and accessible Library</u>.
   - Research Goals: Identify what service areas are most and least utilized in order to determine how patrons are primarily using the lab and its services
   - Response Options: (Checklist)
     - Used study/collaboration space
     - Used a high-end lab computer
     - Borrowed our loanable technology
     - Attended a lab workshop
     - Attended a formal class held in the lab
     - Attended a VR Club or Illini ESports session
     - Submitted a 3D Print design consultation
     - Submitted a 3D print request
     - Other
       - Open-Ended Text Field

Survey Submission Note: We thank you for taking the time to complete this survey. Your response has been recorded, and you have been entered into the raffle.

Cohort 4 – Report

Appendix B
Qualtrics Survey: Patron View

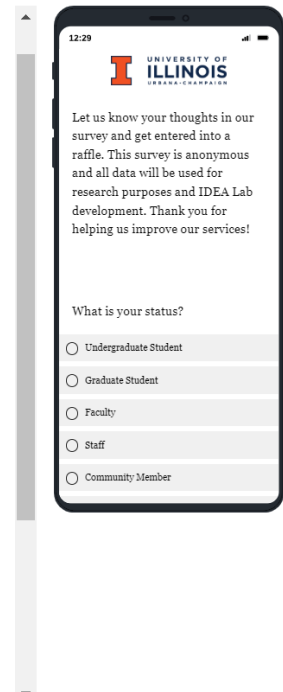As of this report's submission, this is the current survey layout pre-edits.

Let us know your thoughts in our survey and get entered into a raffle. This survey is anonymous and all data will be used for research purposes and IDEA Lab development. Thank you for helping us improve our services!

What is your status?

- ○ Undergraduate Student
- ○ Graduate Student
- ○ Faculty
- ○ Staff
- ○ Community Member
- ○ Other

What is your primary Department / Unit / Major? (i.e., Mechanical Engineering or N/A if no affiliation)

Cohort 4 – Report

What is your status?

- ○ Undergraduate Student
- ○ Graduate Student
- ○ Faculty
- ○ Staff
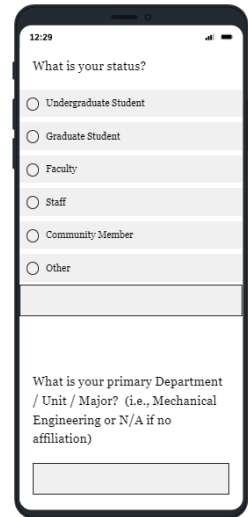- ○ Community Member
- ○ Other

What is your primary Department / Unit / Major? (i.e., Mechanical Engineering or N/A if no affiliation)

Have you visited the IDEA Lab in the Grainger Engineering Library?
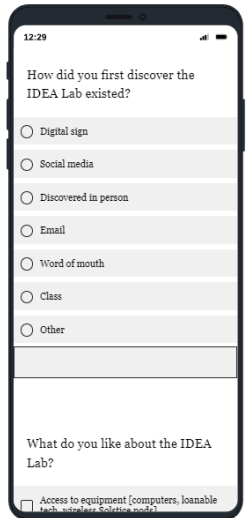
- ○ Yes
- ○ No

→

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How did you first discover the IDEA Lab existed?

- ○ Digital sign
- ○ Social media
- ○ Discovered in person
- ○ Email
- ○ Word of mouth
- ○ Class
- ○ Other

What do you like about the IDEA Lab?

- ☐ Access to equipment [computers, loanable tech, wireless Solstice pods]
- ☐ Atmosphere [lighting, music, sound]
- ☐ Access to high-end computing
- ☐ Collaboration rooms
- ☐ Layout [Furniture, room layout]
- ☐ Staff interaction

Is there anything you like about the IDEA Lab that was not listed in the previous question or anything else you want us to know?
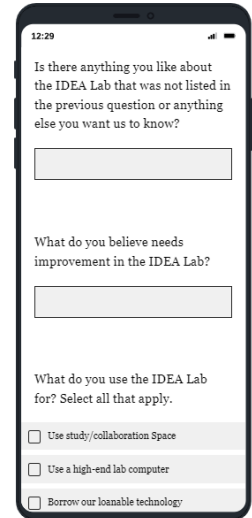
What do you believe needs improvement in the IDEA Lab?

What do you use the IDEA Lab for? Select all that apply.

- ☐ Use study/collaboration Space
- ☐ Use a high-end lab computer
- ☐ Borrow our loanable technology
- ☐ Attend a lab workshop
- ☐ Attend a formal class held in the lab
- ☐ Attend a VR Club or Illini ESports session
- ☐ Other

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We thank you for taking the time to complete this survey. Your response has been recorded, and you have been entered into the raffle.