



CARLI Counts Cohort 4 Report

Illinois Institute of Technology - Sean Murphy

CARLI Counts Participant

Sean Murphy, Head of Access Services, Illinois Institute of Technology Paul V. Galvin Library

Project Name/Title

A comparative survey of faculty, staff, and student perceptions and practices regarding generative AI tools to inform library academic and research support practices

Single Sentence Abstract

I designed a survey to be sent to all Illinois Tech faculty, students, and staff to collect anonymous data on their perceptions and practices regarding generative AI tools; I plan to compare and contrast faculty/staff responses with student responses and develop recommendations for instructional focus that can be deployed by myself and my librarian colleagues.



Motivation(s) for Project

The purpose of this study is to collect data regarding the use of popular Large Language Models (LLMs) by Illinois Tech students and faculty in order to improve library instructional content. Based on the findings, recommendations for targeted instructional content will be shared with IIT librarians currently performing instruction. In addition, these findings will be shared within the broader professional Academic Library community.

The methodology of the study will include a survey, offered via Qualtrics and campus email, from which anonymous data will be collected. The survey questions will support three sub-areas of inquiry: questions targeting student, staff, and faculty perceptions regarding LLMs; questions targeting the use of LLMs by IIT affiliates; and basic demographic questions.

Large Language Models, or LLMs, have risen to prominence in the past several years as more accessible tools like OpenAI's ChatGPT, Google's Bard, and others have become available to the general public (Lund et al, 2023; Kumar et al. 2023). These algorithm-based online services allow users to ask questions using natural language, delivering answers calculated from large bodies of data from a variety of sources. They have received wide usage in many disciplines, and are of particular interest to universities and colleges due both to their potential applications and to the potential for abuse (plagiarism, academic dishonesty, etc) (Joshi et al, 2023).

In addition to concerns about intentional misuses of LLMs, the fidelity of the algorithms' outputs themselves is often questioned. LLM outputs have been evaluated to be susceptible to logical fallacies (Payandeh et al, 2023); they have also been documented as providing users with fake sources and even entire fake citations, a phenomenon known as "hallucinating" (Ye et al, 2023). In order to effectively utilize LLMs to support one's work, one must be an informed user, including an understanding of both what LLMs can do well and what their limitations may be. Users must also know how to evaluate the outputs of LLMs for credibility and veracity.

The profession of Library Science defines the concept of "Information Literacy", committing to advocacy for individuals' ability to critically evaluate information and apply it effectively (ACRL, 2015). For this reason, libraries worldwide are focusing on the impact of LLMs on the way users seek and use knowledge. The rapid adoption and development of these models requires a measured instructional response, which itself requires the collection of data on usage patterns and perceptions regarding library patrons' interactions with LLMs. This is currently an active area of debate within the library profession (James & Hampton Filgo, 2023; Lo, 2023; Frické, 2023).



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Such data will inform novel library instructional content, not only to inform library patrons of the potential dangers - legal or otherwise - of using LLMs, but to guide users in leveraging LLMs for real constructive purposes. The desired outcome of this study will be to equip library professionals at Illinois Tech and beyond with preliminary data that can be used to develop this instructional content. Furthermore, this study seeks to illuminate potential differences in the way students and staff/faculty approach LLMs, allowing for targeted instructional content to different groups of library users.

The past three years have seen that generative artificial intelligence (AI) technology go incredibly mainstream, with the introduction of Large Language Model (LLM) chatbots like Google's Bard and OpenAI's ChatGPT. In addition, IIT has locally placed focus on this developing technology by convening a campus AI task force. Librarians at the Galvin Library regularly meet and discuss new AI developments, and some online content has been created, including LibGuides. This project will help to provide focus for instructional efforts regarding AI, and demonstrate that the library can be a leader in ensuring the campus community is informed of the technology's advantages and drawbacks.



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Partners and Stakeholders

Paul V. Galvin Library, Sean Murphy: Principal Investigator

Paul V. Galvin Library, Library Instructional Team: (beneficiary of project outcome)

Office of Research Integrity and Compliance: Institutional Review Board (IRB) Submission Approval

Inquiry Question

Identifying high-impact intervention points for leveraging librarian expertise in assisting campus partners navigate the shifting AI and LLM landscape

Study Participants/Population

The survey will be sent to all active IIT faculty, students, and staff. The study participants will be a subset of the total IIT community population, dependent on the response rate.



Method(s) of Data Collection and Analysis

A survey was developed and designed using Qualtrics; a PDF version of the survey is attached as an appendix. The survey includes three main modules of questions. Module 1 collects basic (but non-identifiable) demographic data about respondents. Module 2 seeks to investigate respondents' perceptions regarding AI and LLMs. Module 3 seeks to investigate their actual practices interacting with LLMs. Survey logic was implemented such that Module 3 was broken into two sub-parts: participants who indicated that they have actively used LLM tools in the past were asked additional clarifying questions about their patterns and means of use.

The data will be analyzed both in aggregate - reporting responses of the entire survey population - and in cohorts, reporting responses based on their status at IIT (faculty, staff, and students). In addition, there will be cross-cohort comparisons. For this reason, all respondents are asked identical questions to further facilitate these comparisons.

In addition to basic descriptive statistics, I intend to use probabilistic statistical analysis to determine whether cohort responses differ significantly from one another. The exact method of analysis will be determined following data collection, dependent on the actual sample size.

Findings

At this point in my project, I have submitted to my institution's IRB and have received approval for exemption. For the next step, I will initiate the data collection phase of my project, sending out the Qualtrics survey via email to all active IIT affiliates. After a four-week data collection period I will begin data analysis. I hope to complete data collection, data analysis, and the development of instructional recommendations by June 2024.

Use of Findings

The findings will be shared with my library colleagues at IIT to develop instructional content targeted to areas determined to be of greatest need among the IIT population. While no data has yet been collected, examples of targets for instruction may include a glaring misunderstanding of how LLMs work, or an overestimation of their ability to provide truthful responses to user questions. It may also include informing the campus community about ways that AI can be helpful, which the data may show as not being widely known.



At this time, I do not intend to publish raw response data, but results of data analyses (including descriptive statistics) as well as instructional interventions developed from such analyses may be published in a paper, conference proceeding, poster, or presentation.

Next Steps and Other Results

The next step for my project is to determine the best way to distribute the survey to the campus community, including how to identify active IIT affiliates specifically. Because alumni and former academic staff retain some level of access to their emails, I would seek to exclude non-active campus affiliates from the survey population.

Following deployment of the survey tool, I will allow responses to be submitted for four weeks, then deactivate the survey within Qualtrics. I will then examine and analyze the data. I will likely work with colleagues at my library to develop instructional recommendations from the results, then I will present my findings to my colleagues.

I have yet to determine whether I will publish the results more broadly before any instructional tools developed from them have been deployed, or after; I may publish the project in two phases, the first being the actual results of the survey and the second following deployment of instructional content allowing for reflection and analysis of the outcomes.

Additional Reflections

- Background research
- IRB Process
- Learning Qualtrics
- Prospect of making an impact
- Prospect of demonstrating library value to address timely topics

A primary motivation for this project was simply to learn more about these new AI tools and share what I learn with the library community. This required fairly extensive background research before the project design phase even began; I felt that I needed to understand what these tools are and how they work before I could ask meaningful questions about their use among the campus community. One helpful resource was the *Elements of AI* online course offered by the University of Helsinki (<https://www.elementsofai.com>), which provides a brief but understandable overview of the different kinds of AI in use and generally how they work on a



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technical level. I also conducted a literature review to understand the state of discourse both on AI tools in general and specifically how they are used on university campuses and taught in university libraries.

Following this background research, I applied what I learned from CARLI Counts about various assessment instruments to develop my survey tool. I had never interacted with a university Institutional Review Board before, and I found the process generally enriching. It seemed daunting to prepare every aspect of my project in detail before even starting, but I understand now how important it is for research to be conducted in a manner that prioritizes participant privacy and safety, and the work completed by my IRB submission provided a source of motivation for maintaining momentum on the project.

I had initially intended to send my survey to participants using Google Forms, but was advised by the IRB to use Qualtrics instead. I had never used Qualtrics, but after learning how to design a survey in that platform, I'm grateful for the advice - it's a much more powerful and useful survey tool than Google Forms, and as I understand it, more secure as well. I'm eager to apply what I learned about using Qualtrics to future survey projects.

As of this writing, I'm ready to send my survey to the campus community and begin the data collection and analysis phases of the project. I'm excited to see what the response rate will be and the state of the data; finding interesting comparisons among the data will be rewarding. Even more rewarding, for me, will be the prospect of meaningfully contributing to my library's understanding of its patrons, and ultimately supporting the student community by providing more focused, informed instruction regarding AI tools.



Timeline

March 2023 - Begin CARLI Counts Cohort 4; start developing inquiry question

April to August 2023 - Background research; refinement of study design; information gathering regarding implementation requirements

September 2023 - Finalizing survey instrument questions

November 2023 to January 2024 - Develop IRB submission documents

February 2024 - Submit final proposal to IIT IRB

March 2024 - Deployment of survey; collection of data

April 2024 - Data analysis; development of instructional recommendations

May 2024 - Present findings to local colleagues

Summer 2024 - Refine project documentation and discussion for broader presentation and publication



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Appendices

Galvin Library - AI and Large Learning Models Survey (Attached)

Introduction

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Thank you for your participation in this survey!

The Galvin Library would like to gather more information about how members of the Illinois Tech community use online Artificial Intelligence (AI) and Large Language Models (LLMs) to improve its instructional and research services. You may already be familiar with such tools, like Google's Bard and OpenAI's ChatGPT.

Part of the mission of an academic library is promoting "information literacy", defined by the Association of College and Research Libraries as the set of skills needed to find, retrieve, analyze, and use information. LLMs provide unique challenges, and opportunities, in the area of information literacy, and librarians are interested in learning the best ways to support the campus community as it navigates this evolving landscape.

Please take a few minutes to complete and submit this survey. All responses will be anonymous, so we appreciate your honesty in answering the questions. The aggregated and anonymous results will be used to develop instructional content at the Galvin Library, and may also be published for the benefit of the broader Academic Library community.

Informed Consent

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Informed Consent

This survey is being sent to all Students, Faculty and Staff of the Illinois Institute of Technology. Your participation is voluntary; you do not have to respond to this survey if you do not want to. The information you provide will be valuable to the IIT Galvin Library in creating new ways to educate and inform the IIT community, and the results of this research study will be published so that libraries in other universities and colleges can benefit from it as well. You will not be compensated for your participation in this survey.

You will be asked a series of questions about what you know about Large Learning Models (LLMs) and how you are using them. Your response will be anonymous and your personal information will not be collected or recorded. You will be asked some very basic questions about your role at IIT to help librarians target educational content to Faculty, Students, and Staff. Most of the questions will be multiple choice; some questions will allow you to add additional text, so please be mindful of including personally identifiable information in your responses to these questions.

One goal of this study is to identify differences and similarities in the way Students, Staff, and Faculty perceive and use LLMs, so the survey responses will be analyzed to compare and contrast across these IIT groups.

If you have any questions about this survey, please contact Sean Murphy, Head of Systems and Open Infrastructure, IIT Paul V. Galvin Library, at smurphy13@iit.edu or by phone at 312.567.3602.

I have read and understand this consent form. By continuing with this survey, I agree to voluntarily provide my

anonymous responses to the following questions, and for my responses to be included in published research.

- I Agree
- I Do Not Agree

Module 1: Preliminary Information

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This section includes some basic information about you, your role on campus, and your experiences with information and library services. Again, **all responses are anonymous.**

Please indicate your status at IIT.

- Student
- Staff
- Faculty
- Other...

Have you ever visited the Galvin Library on the IIT Main (Mies) Campus?

- Yes
- No
- Not Sure

Has a librarian presented at a class session that you were either attending or teaching?

- Yes
- No
- Not Sure

Have you ever asked a librarian for help with finding information?

- Yes
- No
- Other...

If you're seeking information, where do you tend to look for it? Select all that apply.

- Search Engine (Google, Bing)
- Newspaper or News Website
- Social Media (Facebook, X/Twitter, Instagram, etc.)
- Wikipedia
- Library or Library Website
- Article Databases
- Blogs
- AI Tools (ChatGPT, etc.)
- Online Forums (Quora, Reddit, etc.)
- Other...

Module 2: Perceptions

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This section seeks to gather information about what you know and how you feel about AI and LLMs. Please answer the questions completely and honestly. **All responses are anonymous.**

Please indicate how familiar you are with the following terms.

	I don't know this term at all	It sounds vaguely familiar	I have a working knowledge of this	I could define this pretty well	I'm basically an expert on this
AI (Artificial Intelligence)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Machine Learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LLMs (Large Language Models)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chatbots	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OpenAI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ChatGPT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LLAMA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Google Bard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AutoGPT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bing Chat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Predictive Algorithms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural Language Processing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AI Hallucinations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How did you first learn of the existence of ChatGPT or similar tools?

- Colleagues/Classmates
- News publication or magazine
- Social media
- Radio
- Podcast
- IIT Campus Communication
- Professional Organization
- Friends/Family
- Not Sure/ Don't Remember
- Other...

Please indicate how strongly you agree with each statement based on your experience with AI tools, or based on your current knowledge of AI tools.

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I have a good understanding of how tools like ChatGPT work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Artificial Intelligence seeks to mimic how a human brain works.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
AI tools are effective because they can think like a person thinks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools like ChatGPT can provide creative answers to questions that no one else had thought of before.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm concerned about the impact of tools like ChatGPT.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm curious about how I can use tools like ChatGPT in my professional life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm curious about how I can use tools like ChatGPT in my academic career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm curious about how I can use tools like ChatGPT in my personal life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools like ChatGPT generally provide accurate information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People I know have used tools like ChatGPT.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools like ChatGPT provide information that is current.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Tools like ChatGPT can be used to identify grammatical errors in writing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools like ChatGPT can be used to identify inaccurate information in writing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools like ChatGPT can be used to identify whether writing was itself AI-generated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools like ChatGPT give consistent answers when the same question is asked multiple times.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools like ChatGPT are good at summarizing information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools like ChatGPT are good at providing code examples for programming problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Content produced by tools like ChatGPT can be copyrighted.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Re-using AI-generated content is plagiarism.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Strongly Agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Companies that offer tools like ChatGPT generally have users' best interests in mind.

I can generally tell when something I've read was generated by an AI tool like ChatGPT.

Module 3 – Practices

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This section seeks to gather information about how you are currently using AI and LLM tools. This information will be used to enhance the library's instructional services to the IIT community. **All responses are anonymous.**

Have you ever used an LLM tool, for any purpose, at any time?

Module 3b - Using AI and LLMs

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Because you indicated that you had used LLMs in your answer to the last module, we would like to know more about the ways that you use LLMs. Please answer the following questions completely and honestly.

LLM tools can be used for a variety of purposes. Please indicate the areas that you have used LLM tools in the past.

- Personal Life
- Developing Course Materials
- Instruction
- Professional Writing
- Research
- Coursework
- Other...

How frequently do you use LLM tools for any purpose?

- Never
- I have tried them once in the past year
- About once per month
- About once per week
- Several times per week
- Daily
- Throughout each day

Broadly speaking, which of the following activities have you used LLMs to support? Check all that apply.

- Summarizing written content
- Explaining word definitions or simple concepts
- Brainstorming
- Generating simple code blocks
- Simple fun
- Creating to-do lists
- Event planning
- Project planning
- Activities related to instruction
- Activities related to classwork
- Activities related to research
- Activities related to publishing
- Writing content for social media or blogs

Other...

Have you ever recommended LLMs to other people, such as colleagues, family, or friends?

Yes

No

Other...

Module 4: Final Questions

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Thank you, again, for participating in this survey! Your response will be extremely valuable as we continue to develop our library services.

If you have any additional thoughts that you would like to share, please take this opportunity to provide us with a few brief sentences. Again, please do not share any personally identifiable information.

Do you have any other thoughts you would like to share about LLMs and other AI tools? Note that while this survey is anonymous and your identity will not be shared, you may want to be cautious with your answer to avoid including personally identifiable information.

Do you have any specific recommendations for the Galvin Library regarding instruction or workshops on topics related to LLMs or AI tools?