

Problem Discovery: AI-Assisted Analysis

Lab 1 AI Conversation Log

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This document shows an example of what a strong AI-assisted analysis process looks like for the Lab 1 Problem Discovery Report. It follows all five steps of the AI Lab, with follow-up questions and pushback at each stage.

STEP 2: MAP THE PROBLEM LANDSCAPE

MY PROMPT

I want to understand the problem landscape around food insecurity on college campuses. Help me map:

1. Who is most affected and how
2. The root causes (not just symptoms)
3. What organizations are currently working on this
4. What approaches have been tried and what the results were
5. Where the biggest gaps in current solutions are

Be specific. Use real organizations and real data where you can. If you are not sure about a fact, say so.

AI RESPONSE (SUMMARIZED)

Who is most affected: Food insecurity among college students is more widespread than most people assume. The Hope Center for College, Community, and Civic Engagement at Temple University conducts the largest annual survey on this topic. Their 2020 #RealCollege survey found that 39% of students at two-year institutions and 29% at four-year institutions experienced food insecurity in the prior 30 days.

The populations hit hardest include first-generation college students, students of color (particularly Black and Indigenous students), LGBTQ+ students, student parents, and international students. International students face a unique bind: many visa categories restrict or prohibit off-campus employment, so they cannot easily supplement their income.

Root causes:

- **Tuition crowding out basic needs.** Average tuition at public four-year institutions rose roughly 135% in real terms between 2000 and 2024. Financial aid has not kept pace, and the gap gets filled by cutting food spending.
- **Meal plan design flaws.** Many schools require freshmen to buy meal plans costing \$2,000-4,000 per semester, but plans often have "use it or lose it" structures. Students who exhaust their swipes mid-semester have no safety net.
- **SNAP eligibility barriers.** Federal rules generally exclude full-time college students from SNAP unless they work at least 20 hours per week. This creates a paradox: the students with the least time to work are the ones who cannot qualify for food assistance.
- **Stigma and awareness.** Many students who need help do not seek it because they do not see themselves as "food insecure" or feel shame about using a food pantry.

Organizations working on this:

- **Swipe Out Hunger** — Founded at UCLA in 2010. Partners with 170+ campuses to enable meal swipe donations and emergency meal vouchers.
- **The Hope Center at Temple University** — Conducts the #RealCollege survey and publishes policy recommendations.
- **College and University Food Bank Alliance (CUFBA)** — Reports over 700 campus food pantries nationwide.
- **Campus Kitchens Project** — A program of DC Central Kitchen operating at about 80 campuses, turning surplus dining hall food into meals for students and community members.
- **Feeding America** — The national food bank network. Some local affiliates partner with universities, though college students are not their primary focus.

Biggest gaps: The primary gap is not food supply. Most campuses have some emergency food resources. The gap is the connection layer: students do not know what is available, the application processes are confusing, and stigma keeps people from asking. A secondary gap is data. Most institutions do not systematically measure food insecurity, so decisions get made without knowing the actual scope.

MY FOLLOW-UP

You mentioned the Campus Kitchens Project operates at about 80 campuses, and you cited the Hope Center's 39% statistic. I want to verify these. For each one, tell me:

- Where this information comes from
- When it was last updated
- How confident you are that it is accurate
- Whether I should verify this independently

Flag anything you are not sure about.

AI RESPONSE (SUMMARIZED)

Hope Center 39% statistic:

- **Source:** The Hope Center's #RealCollege survey, published in 2021 based on data collected in spring 2020.
- **Confidence:** High that the study exists and is widely cited. Medium confidence in the number itself. The survey uses opt-in methodology, which tends to oversample students who are experiencing the problem. The actual rate may be lower.
- **Should you verify:** Yes. Visit the Hope Center website directly. Also note that the GAO published a 2019 report with different estimates.

Campus Kitchens Project at 80 campuses:

- **Source:** General knowledge of the program.
- **Confidence:** Low to medium. I know the program exists and is affiliated with DC Central Kitchen, but I am not confident in the specific number of 80. It could be closer to 60.
- **Should you verify:** Absolutely. Check the Campus Kitchens Project website directly. I would not use my number in a report.

Good instinct to check these. I should have flagged my uncertainty about the Campus Kitchens number in my initial response.

This was useful. The AI admitted the Campus Kitchens number was shaky without me having to catch it. I looked it up independently and found the actual number is closer to 60 campuses. The Hope Center report is real, but the methodology caveat matters. I will cite both the statistic and its limitation in my report.

STEP 3: EVALUATE AI CLAIMS

MY PROMPT

What role could AI play in addressing food insecurity on college campuses? Give me 5 specific applications. For each one: describe what the AI would do, name a real organization doing this if one exists, rate the maturity (proven, experimental, or theoretical), and identify the biggest risk or limitation. Do not oversell. If an application is mostly hype right now, say that.

AI RESPONSE (SUMMARIZED)

1. Predictive analytics to identify at-risk students. AI analyzes financial aid, meal plan usage, and academic data to flag students likely experiencing food insecurity before they ask for help.

- *Real example:* Georgia State University uses predictive analytics for student retention. The same infrastructure could theoretically be adapted for food insecurity.
- *Maturity:* Proven for retention; experimental for food insecurity specifically.
- *Biggest risk:* Privacy. Students may not consent to having their dining and financial data analyzed for this purpose.

2. Chatbot for resource navigation. A conversational AI that helps students identify which food resources they qualify for based on their specific circumstances.

- *Real example:* Several universities use chatbots for general student services (Georgia State's "Pounce," for instance).
- *Maturity:* Proven technology, experimental application.
- *Biggest risk:* Giving wrong eligibility information, especially around SNAP.

3. AI-optimized meal planning on extreme budgets. An app that generates weekly meal plans factoring in local grocery sales, dietary restrictions, and a very tight budget.

- *Real example:* Apps like Mealime and Eat This Much do general meal planning. None target the extreme-budget college student use case.
- *Maturity:* Experimental.
- *Biggest risk:* It treats the symptom, not the cause.

4. Demand forecasting for campus food pantries. AI predicts usage spikes so pantries can stock appropriately.

- *Maturity:* Theoretical at the campus level.
- *Biggest risk:* Overengineered for the scale. Most campus pantries serve 50-200 students per week.

5. Automated SNAP eligibility screening. AI walks students through the complex eligibility rules and pre-fills applications.

- *Maturity:* Experimental.
- *Biggest risk:* State-level rule variation makes accuracy difficult.

MY FOLLOW-UP

Look at the 5 AI applications you just described. I want to evaluate each one honestly. For each application, answer:

1. Is this actually working somewhere today, or is it a concept?
2. What specific evidence exists that it works?
3. Who benefits and who could be harmed?
4. What would a skeptic say about this claim?

5. On a scale of 1-10, how much of this is real vs. marketing?

Be direct. I would rather know the truth than feel good about AI.

AI RESPONSE (SUMMARIZED)

1. Predictive analytics — 5/10 real

Working for retention at Georgia State, but *not* for food insecurity anywhere I can confirm. The evidence is adjacent, not direct. A skeptic would say: "You are assuming that a system designed to predict who will drop out can also predict who is hungry. Those are different problems with different signals." And the privacy concerns are real: do students want their dining card swipes analyzed for patterns that suggest they are skipping meals?

2. Resource navigation chatbot — 7/10 real

The underlying chatbot technology is proven and deployed at many universities. The adaptation to food resources has not been specifically built or evaluated. A skeptic would say: "The problem is not that students cannot Google 'campus food pantry.' The problem is stigma. A chatbot does not solve shame." Fair point, though a private, anonymous chatbot interaction might actually reduce stigma compared to walking into an office.

3. Budget meal planning — 4/10 real

Meal planning apps exist but none serve this specific use case. A skeptic would say: "You are optimizing around poverty instead of addressing it. A student with \$12 per week does not need an algorithm. They need money." Hard to argue with that.

4. Pantry demand forecasting — 2/10 real

Nobody is doing this at the campus scale, and for good reason. A volunteer-run pantry serving 100 students a week does not need machine learning. A skeptic would say: "This is a solution in search of a problem. A spreadsheet would accomplish the same thing." I agree. I oversold this one.

5. SNAP eligibility screening — 6/10 real

General benefits screeners exist. The college-specific version does not, but the need is well-documented. A skeptic would say: "If you give a student wrong information about SNAP eligibility, you could discourage them from applying at all." That is a legitimate concern.

The AI rating the pantry demand forecasting at 2/10 and admitting "I oversold this one" was exactly the kind of honesty I was looking for. It also made me realize that application #2 (the chatbot) is the most realistic because the technology already works and the gap it fills (awareness and navigation) is the actual bottleneck I identified in Step 2.

STEP 4: DISCOVERY QUESTIONS

MY PROMPT

I am preparing to interview someone who runs a campus food pantry. Help me draft 8 discovery interview questions using Mom Test principles. No hypotheticals. Ask about past behavior, not future intentions. Ask about their current workflow, not my idea. For each question, explain what I am trying to learn, what a useful answer would sound like, and what a polite-but-useless answer would sound like.

AI RESPONSE (SUMMARIZED)

Here are 8 questions following Mom Test principles:

1. "Walk me through what happens when a student comes to the pantry for the first time."

- *Trying to learn:* The actual intake experience, including friction points.
- *Useful answer:* "They have to fill out a form, show their student ID, and then they can take up to X items. Most first-timers look really uncomfortable and about half never come back."
- *Polite-but-useless:* "We welcome everyone and make it a great experience."

2. "Tell me about the last time you ran low on a specific item that students were asking for."

- *Trying to learn:* Supply-demand mismatches and how they respond.
- *Useful answer:* "We ran out of rice and pasta in mid-October. We posted on Instagram asking for donations and got some within a week, but for those 10 days we were sending students to the community food bank across town."
- *Polite-but-useless:* "We try to keep everything stocked."

3. "How do students typically find out you exist?"

4. "What is the most time-consuming part of running the pantry that you wish someone else could handle?"

5. "Can you tell me about a student who came in needing help that went beyond what the pantry could provide?"

6. "How do you decide what to stock? Walk me through the last time you placed an order or accepted a donation."

7. "What does your busiest week of the semester look like compared to your slowest?"

8. "Have you tried anything in the past year to reach more students? What happened?"

(Full explanations for questions 3-8 followed the same format as 1 and 2.)

MY FOLLOW-UP

Pretend you are the person I am interviewing. You run the campus food pantry and you deal with food insecurity every day. Answer my 8 questions the way a real person would, sometimes with useful detail, sometimes with vague politeness. For the vague answers, tell me what follow-up I should ask. Then tell me which 5 are strongest. Cut the weakest 3 and explain why.

AI RESPONSE (SUMMARIZED)

(The AI role-played all 8 answers. Key excerpts:)

Question 5 answer (vague): "Oh, we see all kinds of situations. We just try to help however we can."

Follow-up to ask: "Can you think of one specific student from this semester where you felt like the pantry was not enough? What did you do?"

Questions to cut:

- **#6 (stocking decisions)** — "This is an operational question that will get you a logistics answer, not an insight about the student experience. You will learn about vendor accounts, not about unmet needs."
- **#7 (busy vs. slow weeks)** — "You will get a factual answer, which is fine, but you can get this data without an interview. Do not waste face-to-face time on data you can find elsewhere."
- **#5 (student beyond pantry help)** — "The question is too broad. You will get a vague inspirational story instead of specific operational detail. If you want to keep it, narrow it: 'Tell me about the last time a student came in and the pantry could not actually solve their problem.'"

The stress test was eye-opening. I thought question 5 was one of my best, but the AI showed how it invites a vague, feel-good response. The suggestion to narrow it to "the last time" makes it concrete. I also agree about cutting the stocking question, which was really me trying to validate my demand-forecasting idea rather than genuinely learning about their experience. Classic Mom Test violation.

STEP 5: CHALLENGE MY ASSUMPTIONS

MY PROMPT

I have been researching food insecurity on college campuses for the last 30 minutes. Here is what I think I know: Food insecurity affects roughly 30-40% of college students, driven primarily by rising tuition, inflexible meal plans, and SNAP eligibility barriers. The biggest gap is not food supply but awareness and navigation. Most campuses have resources, but students do not know about them or find the process too complicated. A well-designed chatbot or resource navigator could meaningfully reduce this gap.

Now challenge me. What am I getting wrong? What am I missing? What would make an organization working on this roll their eyes at my analysis?

AI RESPONSE (SUMMARIZED)

Your analysis is decent for 30 minutes of work, but here is where it falls short:

1. You are treating food insecurity as an isolated problem. Students who cannot afford food usually also cannot afford rent, textbooks, transportation, and healthcare. Food insecurity is one symptom of a broader basic needs crisis. If you walk into a food pantry and pitch a food-specific chatbot, the director will tell you their students need help with housing, childcare, and emergency funds too. A narrow solution addresses a narrow slice.

2. You are ignoring the administration's perspective. Universities have institutional reasons to undercount food insecurity. Publicly acknowledging that 30-40% of students are going hungry is a PR problem, a liability concern, and an implicit admission that tuition is too high. Your analysis assumes everyone wants to solve this. Some stakeholders have incentives to minimize it.

3. The 30-40% statistic might be wrong, and you are building on it. You noted the methodology concern but then continued using the number as if it were settled. If the real rate is 15-20% (which some researchers argue), your entire framing of the problem's scale changes.

4. You have not considered who is missing from the conversation. What about students who dropped out because they could not afford to eat? They are arguably the most severely affected population, and they are invisible in campus-based surveys and pantry data.

5. The eye-roll moment: If you walked into a meeting with a campus food pantry director and said "I think a chatbot could solve this," they would be polite about it, but internally they would be thinking: "We have been doing this work for years with no budget, no staff, and no institutional support, and this student thinks an app is the answer." Lead with questions, not solutions.

Point 5 hit hard. I was already forming a solution (the chatbot) before I had talked to a single person who actually works on this problem. That is exactly what the Mom Test warns against. Point 2 was also a blind spot: I had not considered that the university itself might have incentives not to solve this visibly. And point 4 about students who dropped out being invisible in the data is something I would never have thought of on my own. I am going into the partner visits with much less certainty and much better questions.