Surveying the academic laboratory population: Project updates from the iRAMP collaboration

Leah McEwen, Ralph Stuart

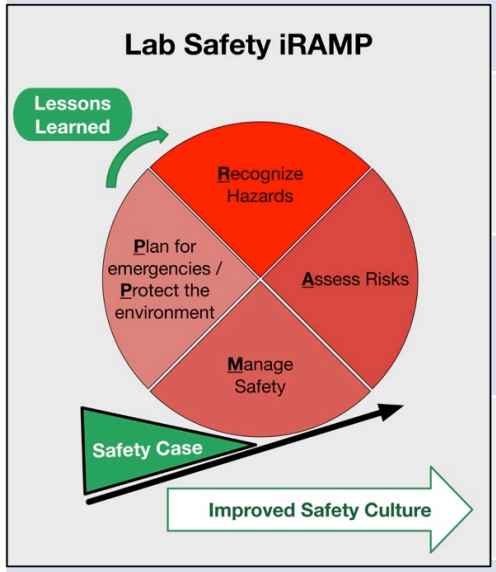
11:30am - 11:45am Wed, Aug 24
Room 112A - Pennsylvania Convention Center

Keene STATE COLLEGE

Wisdom to make a difference.

August, 2016

Connecting to the Educational Mission

The RAMP model of Chemical Safety	Association of College and Research Libraries Information Literacy Skills
Safety culture	**Scope** the Inquiry
	**Collect** Data **Evaluate** the **Apply** Data t Make Decisi
Plan, Protect *Share Lessons Learned*	**Document** the Process and Outcome

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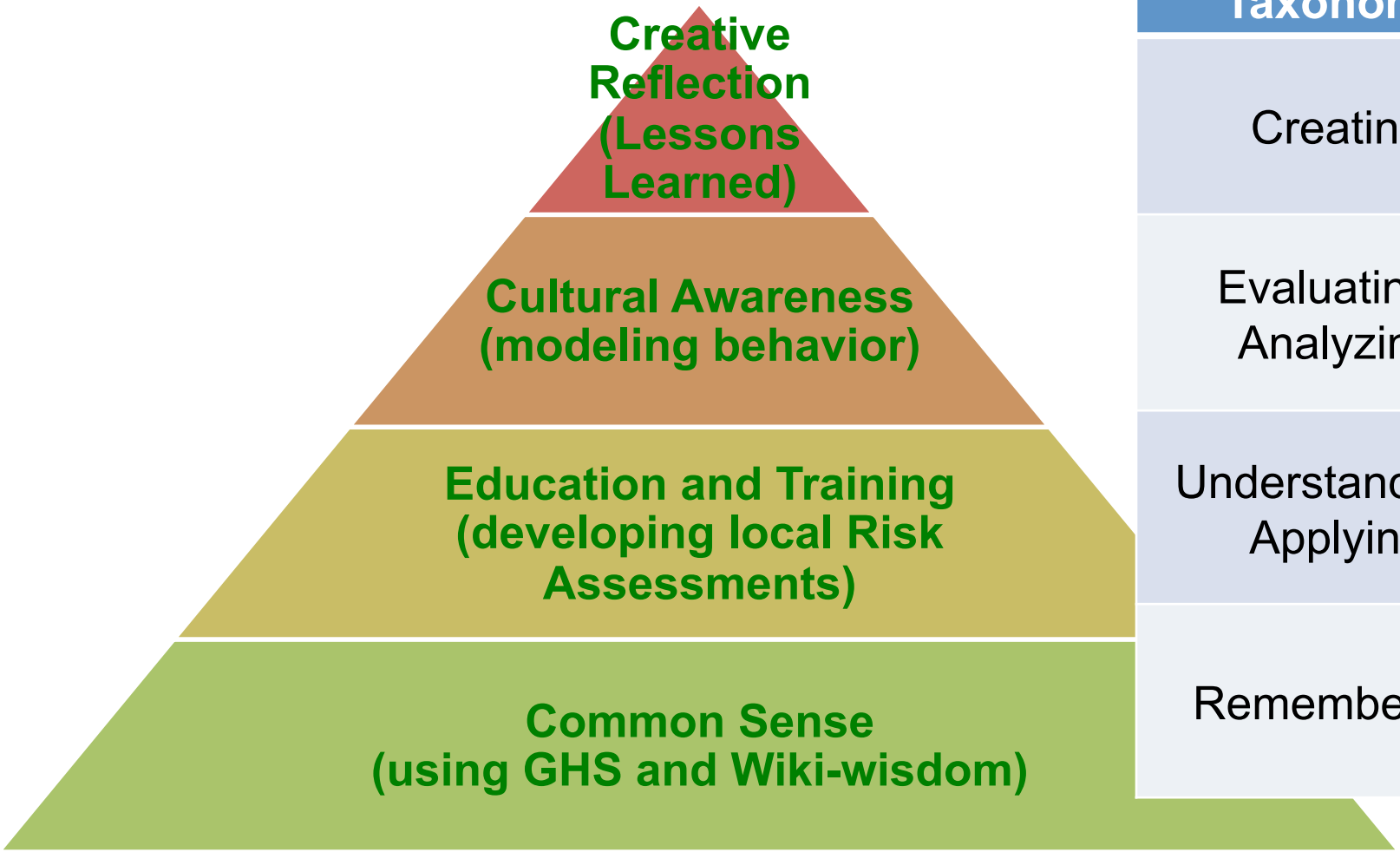
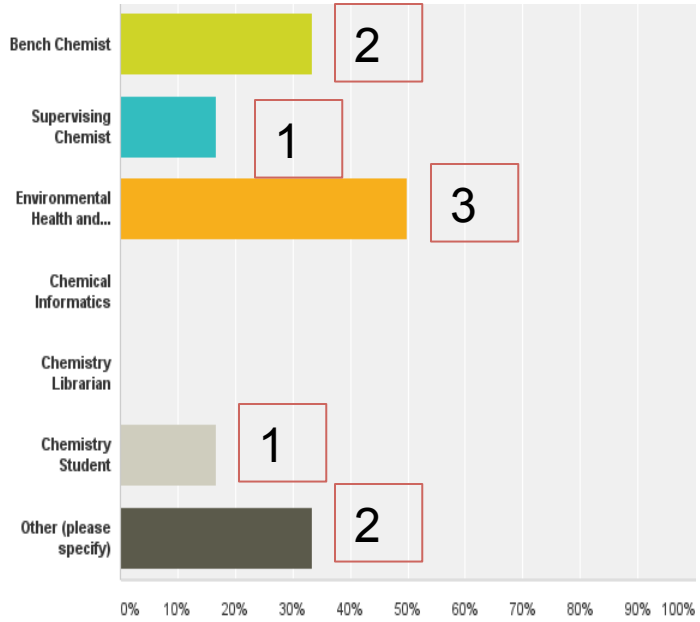
Lab Safety Education supports Critical Thinking

Prudent Practices involve 4 elements:



Bloom's Taxonomy
Creating
Evaluating / Analyzing
Understanding / Applying
Remembering

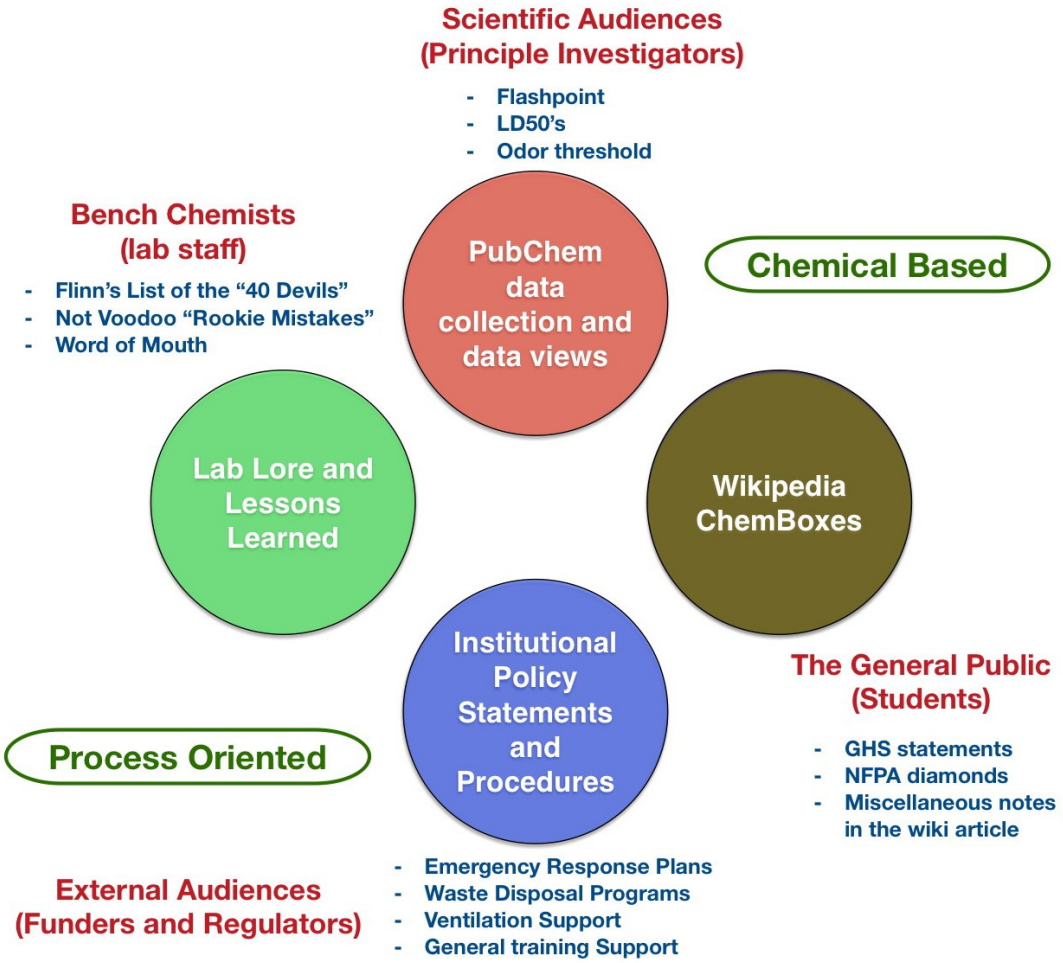
Usability Study 1: Comparing SDSs, Wikipedia and PubChem



Which of these sources would you go to first?

Preferred Source	Sigma Aldrich SDS	Wikipedia Chembox	Prudent Practices LCSS	PubChem LCSS	Full PubChem Record	Other Source	Total
What is the most important hazard associated with this chemical?	**50.00%** 3	**0.00%** 0	**0.00%** 0	**50.00%** 3	**0.00%** 0	**0.00%** 0	6
What other hazards associated with this chemical should be considered?	**50.00%** 3	**0.00%** 0	**0.00%** 0	**33.33%** 2	**16.67%** 1	**0.00%** 0	6
What hazard control recommendations should apply to this use of Chemical X?	**33.33%** 2	**0.00%** 0	**0.00%** 0	**50.00%** 3	**0.00%** 0	**16.67%** 1	6
Would you need to review safety information for other chemicals to make a complete risk assessment for a chemical process after reviewing this source?	**20.00%** 1	**0.00%** 0	**20.00%** 1	**20.00%** 1	**0.00%** 0	**40.00%** 2	5

Usability Study 2: Investigating Public Chemical Safety Information

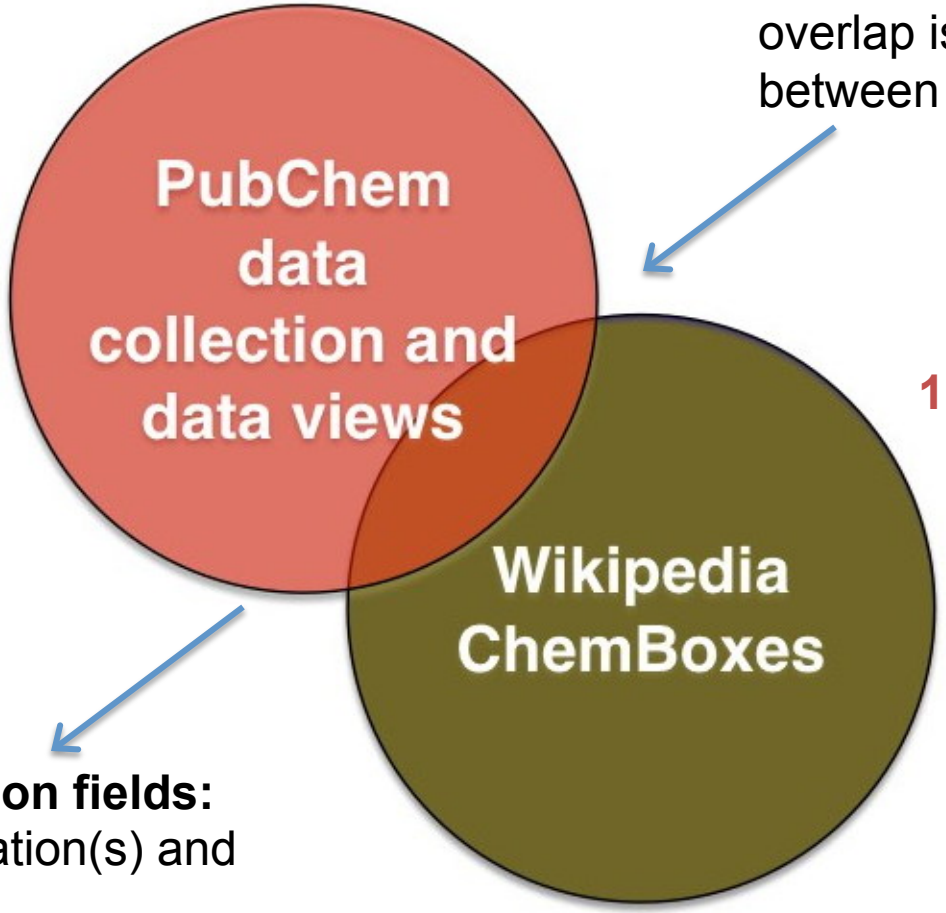


Looking for Structure in the Electronic Data

- How large is the PubChem chem safety information universe?
- How high quality is it (including consistency & provenance information)?

Millions of chemicals; 3500 with GHS info

How much overlap is there between the two?



10,000 Chemboxes

- How large is the Wikipedia chem safety information universe?
- How high quality is it?

Key safety information fields:

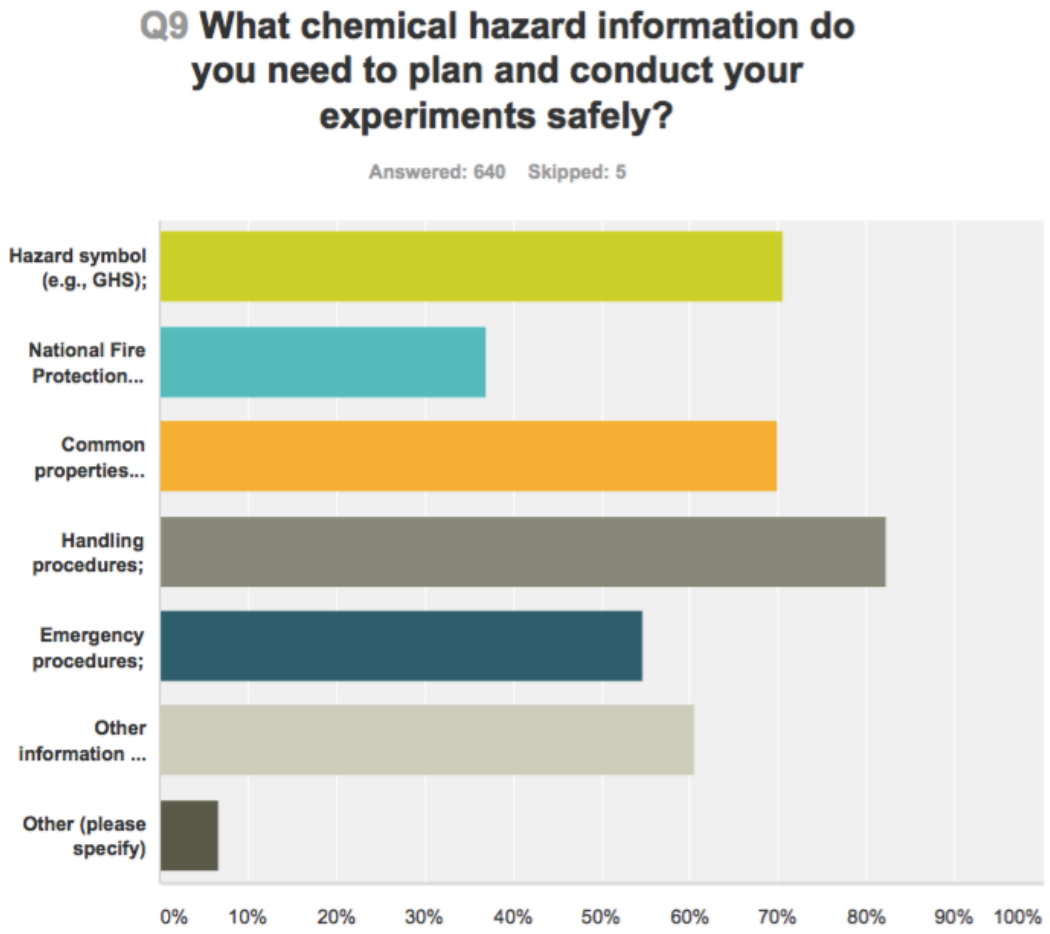
- GHS class designation(s) and signal word
- NFPA diamond information

The Results

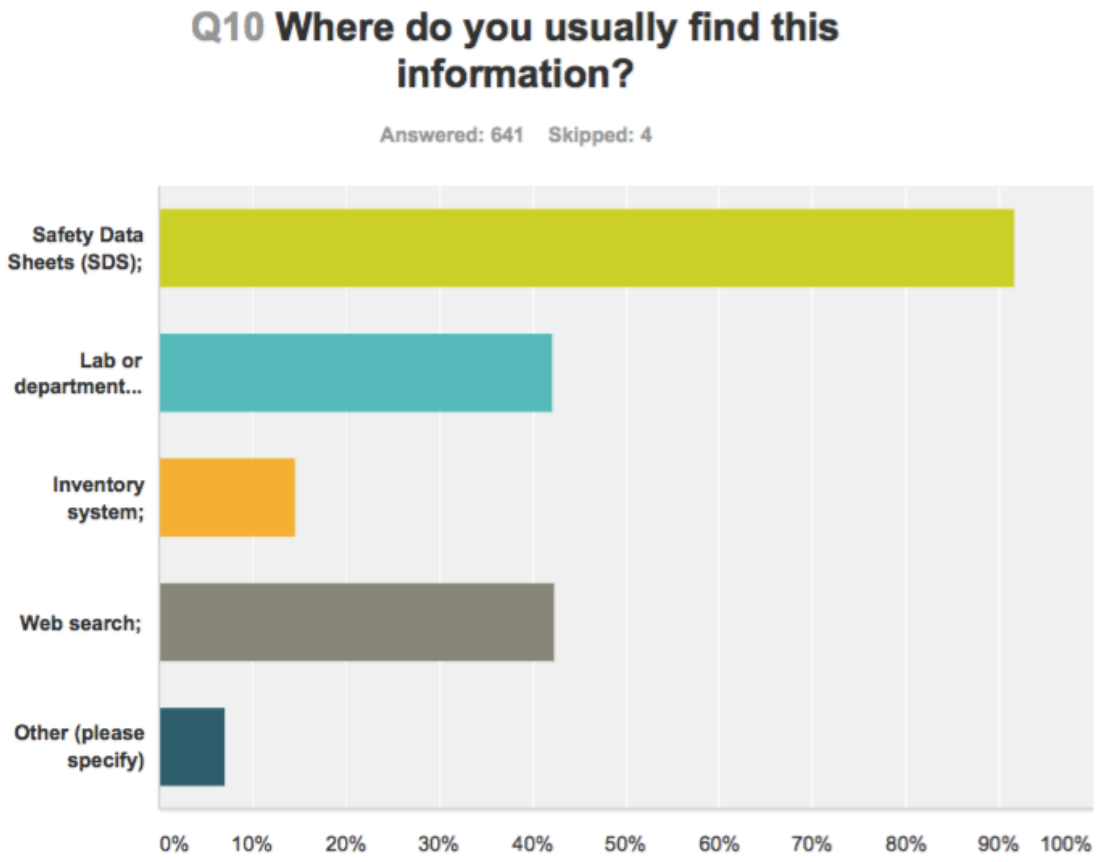
- PubChem has an LCSS view for about 5000 chemicals; Wikipedia has Chemboxes for about 10,000 chemicals
- Of those in the PubChem LCSS collection, about 30% have a ChemBox entry in Wikipedia
- 4% of the Wikipedia collection has GHS information; 12% of the Wikipedia collection has NFPA diamond information

	Not in Wikipedia	In Wikipedia	GHS Hazard Statement	NFPA 704	Total
n	2441	1038	157	431	3486
%	70.02%	29.78%	4.50%	12.36%	

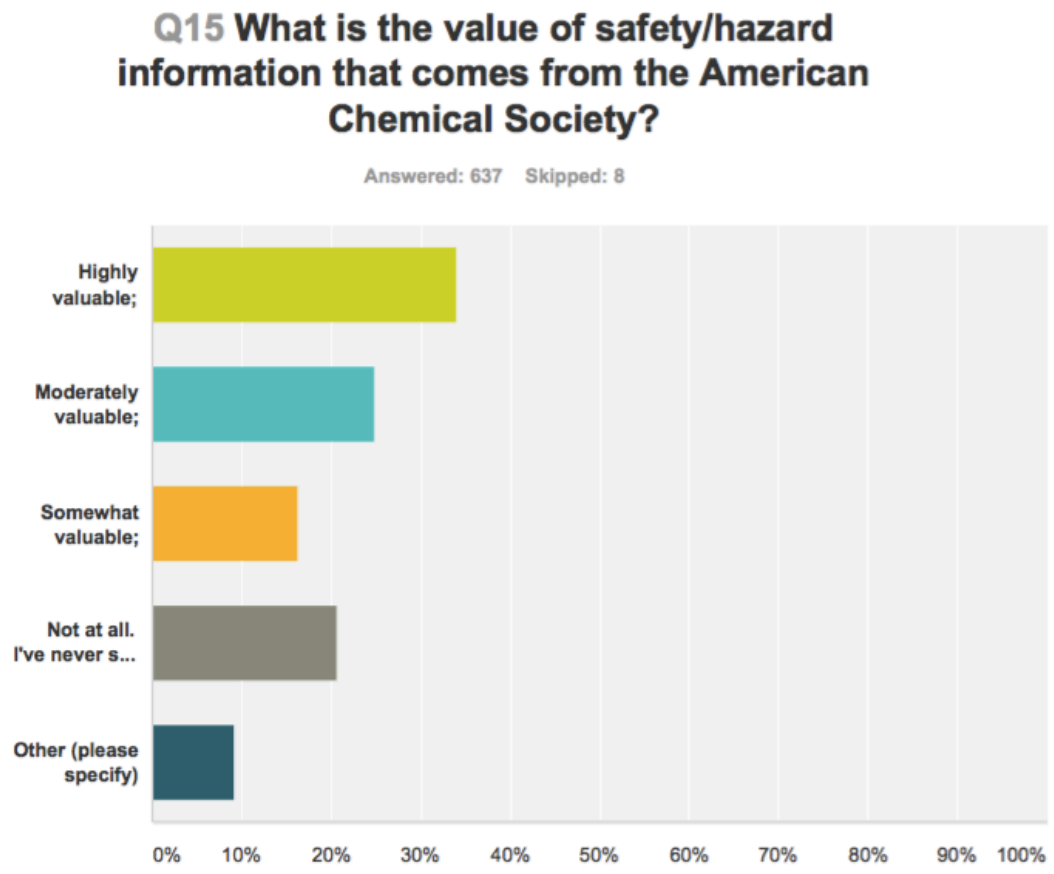
Users Study 1:
Chemist's Safety Information Needs



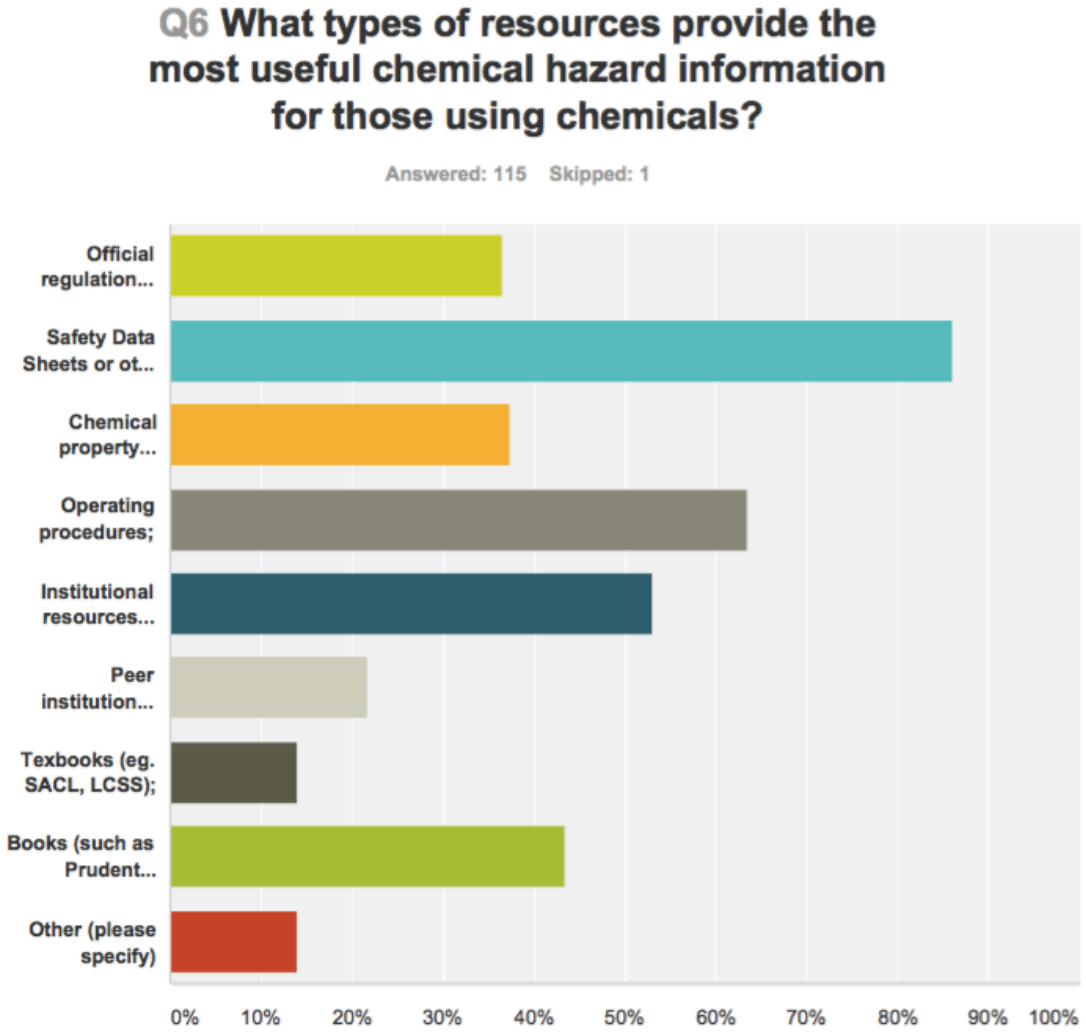
Users Study 1:
Chemist's Safety Information Sources



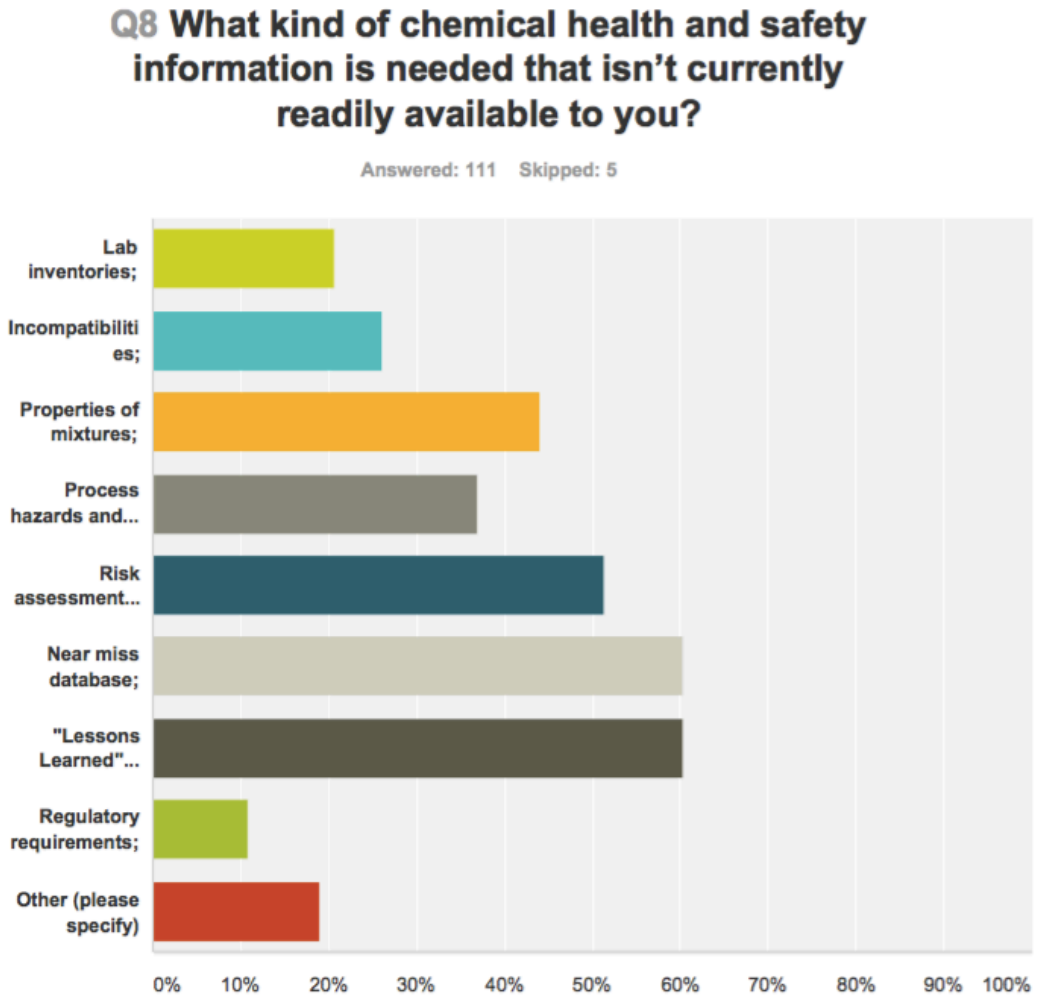
Users Study 1:
Chemist's Value of ACS Info



Users Study 2: Safety Community's Value of Information Sources



Users Study 2:
Safety Community's Missing Information



Moving Forward

- Focus groups this fall with a focus on high school teachers and new chemists
- Formal survey in the spring of the larger chemistry community

iRAMP Goals

- **iRAMP vision:** Capture the imagination of the academic chemistry community by presenting an inspirational vision of the chemical safety and chemical informatics
- **iRAMP mission:** Support a flexibly structured **ecosystem** of data, workflow tools and domain expertise mapped to the **essential commonalities** of the use case and content, connected by **good information management practices**

iRAMP System Diagram

Chemistry InfoSystem Diagram

Mapping the pain points and the Powerpoint in the chemical infoscape