香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

Successful Recipes to Improve Student Learning
Deep Librarian-Faculty collaboration at HKUST

Victoria F. Caplan lbcaplan@ust.hk

HKUST Library   https://library.ust.hk/

Outline

Background & Overview

Course Enhancement Funds Project

Detailed Example

Lessons Learned

1.1. The issue (problem)

UGs **often struggle** to learn how to **do academic research & convey results**.

But it's an **important outcome of university education**

Information Literacy! **Knowledge + Attitude + Skills + Behavior**

- Know how to ask good questions

- Know where to search for info that may help them answer these questions

- Know where to seek this info & under what circumstances

Then….

- Search for, find, evaluate, select, and <u>USE</u> this info well & ethically

Students learn it best in authentic situations: they have a need & can apply what they learn. They don't learn it once. It's ongoing

1.3. HKUST – Institutional Context

Medium sized, English medium PhD Granting Government supported university:
~ 10,000 UGs, ~ 5,600 PGs, ~680 faculty members

In fall, 2016, 2,500 First year students
  ~ 79% local HK students
  ~ 16% from mainland China
  ~ 5% from elsewhere

http://sao.ust.hk/upload/UG%20Profile/sapf16_tables.pdf

STUDENT ENROLLMENT (AS OF SEP 2018)

	Undergraduate	Postgraduate	Total
Science	2223	1023	3246
Engineering	3356	2256	5612
Business and Management	3396	1652	5048
Humanities and Social Science	228	279	507
Interdisciplinary Programs	448	210	658
Joint School	344	140	484
Total	9995	5560	15555

https://www.ust.hk/about/facts-figures

More interest & space in university curriculum for Information Literacy

In terms of HKUST InfoLit program - 2012 & later

- New curriculum
- More students (4 years, instead of 3)
- More time, more inquiry based
- **More comfort & experience with pilots & experimentation**

3-3-4 details:

In 2012: 1st intake of 3-3-4   (3 years lower secondary + 3 years upper secondary + 4 years university) + last in-take old system

- Previous route to university had 2 big exams:
  - HKCEE (O Levels) – weed-out at age ~16
  - HKALE (A-levels) – specialize early & more weed-out at age ~18
  - 3 year university program – intake by department or major

2012 & later

- Students stay in secondary until HKDSE (a bit more general + Liberal Studies")
- 4 year university program –intake by Faculty or School – less early specialization

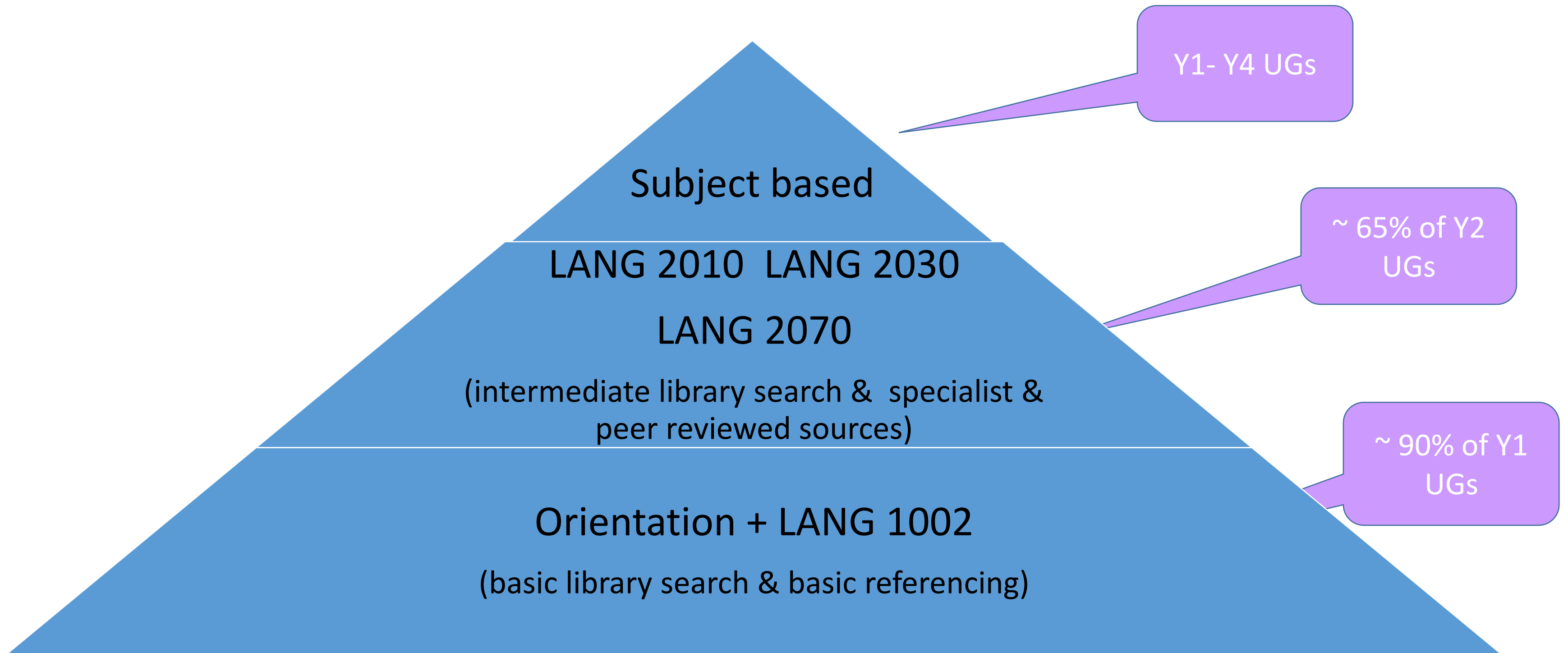# 1.5. How do HKUST librarians work for InfoLit?

- Orientations & Open Workshops

- E-Learning Videos & Games

- Help Desk (now virtual) & Research Consultations (coaching)

- **Working with faculty members to embedding library instruction into courses where students need to do research**
  - Face to Face instruction tailored to assignment
  - LibGuides
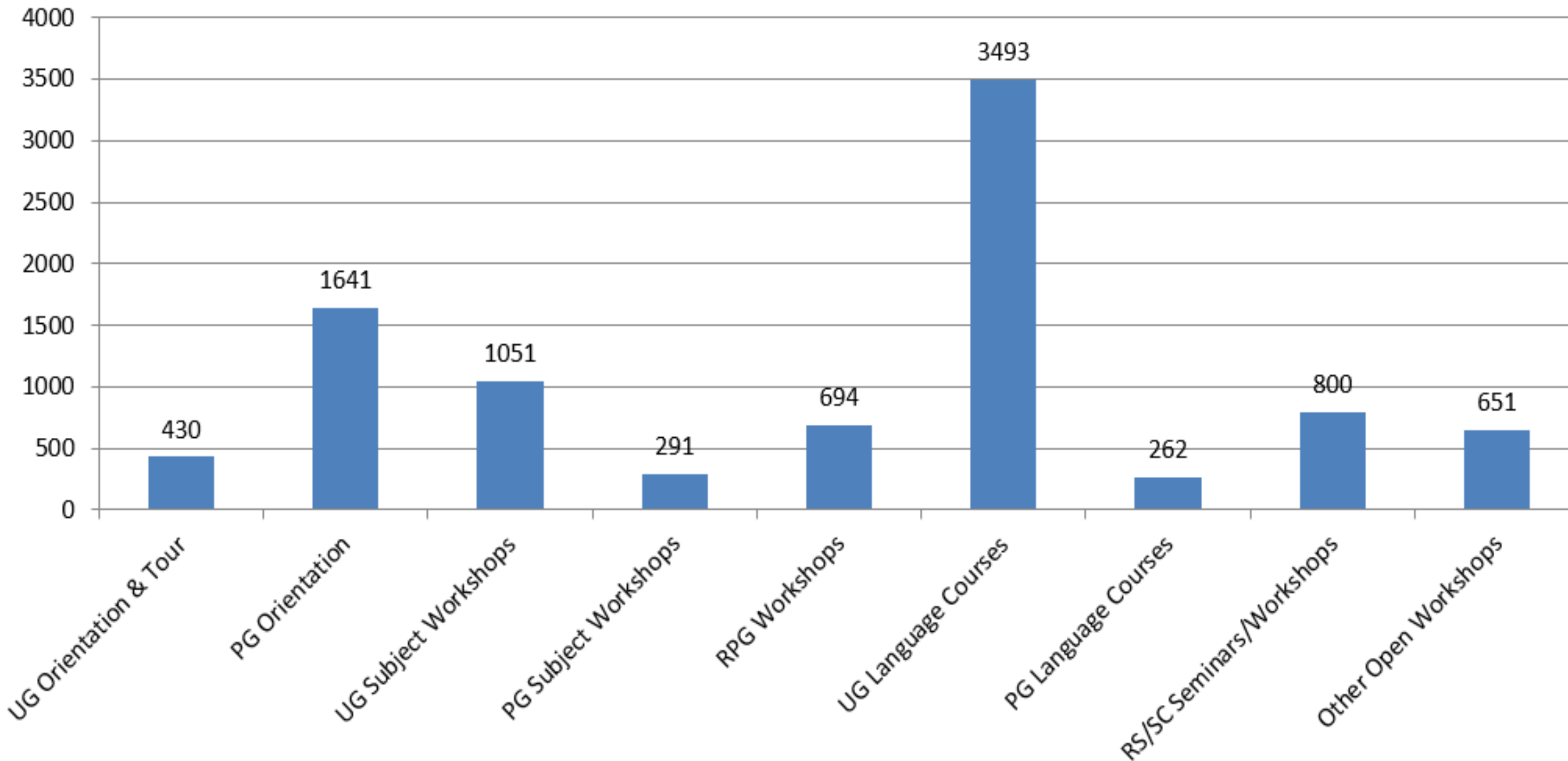 - Videos

ENGG 1110
LANG 1002
SOSC 1270
etc.

https://library.ust.hk/services/learning-support/informationliteracy/

1.6. HKUST's Undergraduate InfoLit Program

Subject based

Y1- Y4 UGs

LANG 2010 LANG 2030

LANG 2070

(intermediate library search & specialist &
peer reviewed sources)

~ 65% of Y2
UGs

~ 90% of Y1
UGs

Orientation + LANG 1002

(basic library search & basic referencing)

1.8. Subject & Course Based InfoLit Workshops OK….

- Librarians & faculty discuss the research assignment

- Try to…
  - Tailor the session to help students ….
  - Connect these skills & resources with
    - Students' past work & knowledge
    - Students' future needs
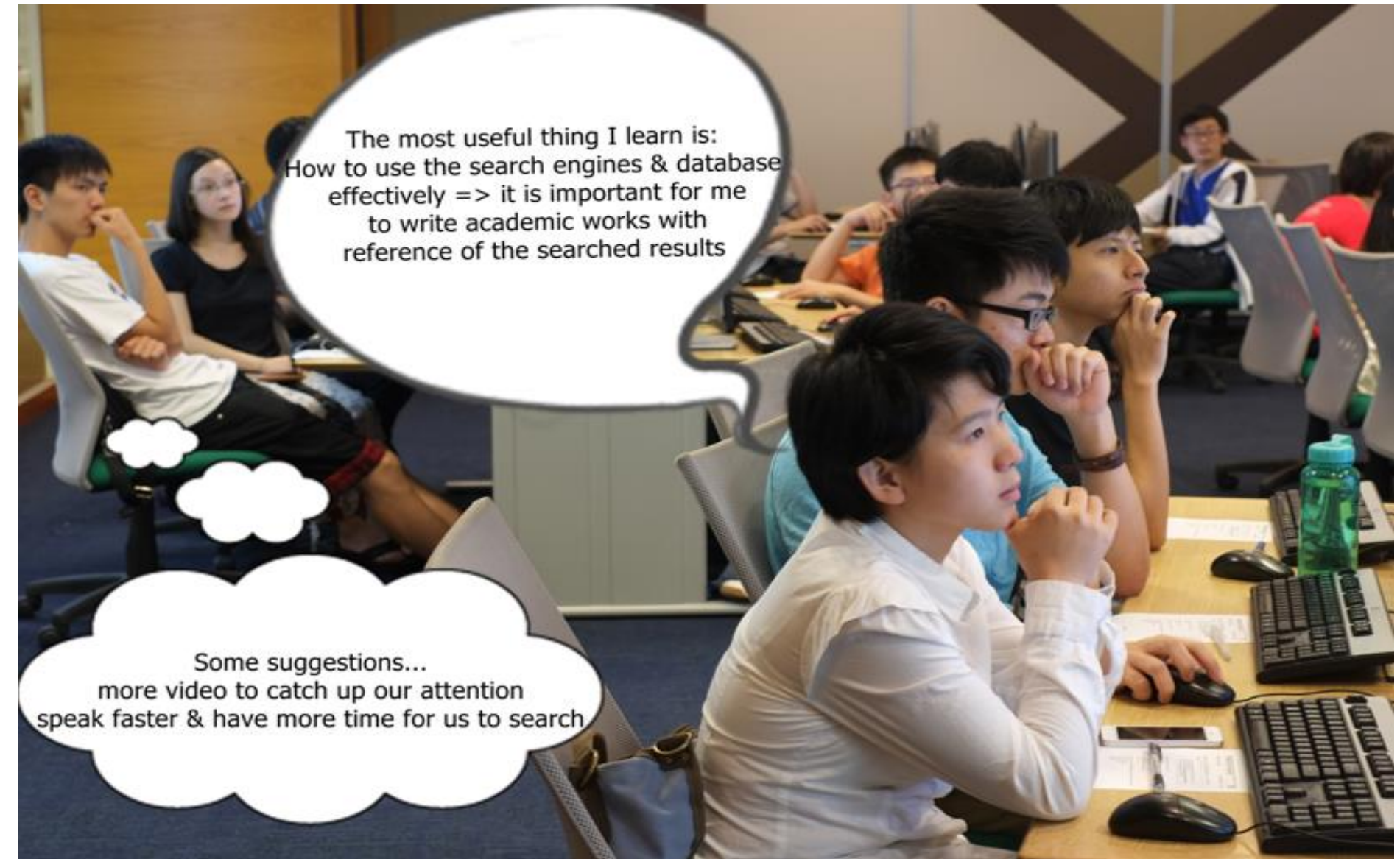 - Find the "sweet spot" in timing (between being given the assignment & due-date)

1.9. But subject based also has issues…

- Still often one-off ("one shot")

- Little true follow-up with the students

- Connection between assessment of course-based student learning & the Library workshops hard to see

2.1. Course Enhancement Fund Projects*

Common features across the CEFs

- Faculty & librarian discussion & plan
  - Students' assignments
  - Assessments (including rubrics)

- Face-to-face & flipped learning (some)

- Faculty required student-librarian research consultations

- Celebrations of student work
  - Mini-conferences or Poster Sessions or Awards Ceremonies
  - Certificates & prizes to encourage student work

Funding: Up to HK $15K (~ $ 1,900 USD) per course for enhancement activities

Beyond "one-shot" sessions

2.2. The CEF Cooks

Librarians:

Victoria Caplan, Celia Cheung, Jacky Leung, Lewis Li, & Eunice Wong

Faculty Partners:

1. **Dr. Melody Chao,** Associate Professor, Department of Management
2. **Dr. Daisy Du,** Associate Professor, Division of the Humanities
3. **Dr. Mengqian LU,** Assistant Professor, Department of Civil Engineering
4. **Dr. Emily Tsang, et al.** Lecturers in the Department of Chemistry
5. **Dr. Fei SUN**, Assistant Professor, Department of Chemical & Biological Engineering

Gather

- Courses with research components (students need to do research)

- Faculty members willing to try new things

- Subject librarians willing to try new things

- Course Enhancement Funding (HKD $15,000)

Mix in

- Adaptability & flexibility
- Commitment
- Frequent Communication
- Managed & Realistic Expectations
- Mutual Understanding

cc. Van der Crabben, Jan. 2005. *Cooking in a wok at the London Mela, 2005*. Accessed from https://commons.wikimedia.org/wiki/Wok#/media/File:Wok_Cooking.jpg August 26, 2019

Connect with faculty members who may be interested

- Email, phone, chat, see in the canteen….
- Talk with "old friends" and new

Librarians & Faculty meet & discuss InfoLit Teaching & Learning

- What the faculty think the students need to learn
- The assignment or project
  - Provide the context for the learning
  - Provide context & rationale for assessment (formative, summative, or both)
- What learning experiences faculty members & librarians will provide to the students?
- Share ideas from things we've tried before, seen at HKUST, seen elsewhere, read about, etc.

- **Librarians & faculty Collaborate to**
  - Create & provide learning experiences: course work, library workshops, librarian-student research consultations, outside experts, etc.
  - Create rubrics for **assessing** the information literacy work of the projects
- **Students Learn by**
  - Have the learning experiences faculty & librarians have arranged
  - Create their assignment (poster, paper, film, etc.)
  - Display or share their created work
- **Faculty & librarians & students**
  - Celebrate the work
  - Assess the work (in some cases students can assess for a "people's choice" prize)
- **Some students**
  - Win awards

2.6. 2016-17 - Course Enhancement Fund Projects (CEF)

| Who	When	What	Size
CHEM 4689 Capstone Chemistry course (re-vamped)	Fall 2016 Spring 2017 Summer 2017	Face-to-face sessions, Outside expert (spring) Research Plan & Consultation, Collaborative Assessment, & Mini-Conference & awards	~ 60
CENG 4970 Chemical Engineering (new course)	Spring 2017	Outside expert, f-2-f workshop, Hiring student mentors, Collaborative Assessment, & Mini Conference & awards	14
MGMT 2110 Required 2nd year course for Business students	Spring 2017	Classroom Videos, Quiz Game with prizes, Face-to-face Workshop, Graded Worksheets, Required Group Consultations, Joint Grading of Student Reports & Presentations, and awards	67
HUMA 3250 Film course (new course)	Spring 2017	Outside expert, Group consultations, Film awards ceremony, trophies & awards	39

2.7.   2017-18   Course Enhancement Fund Projects (CEF)

| Who	When	What	Size
CENG 4970 (re-run)	Spring 2018	Outside expert, f-2-f workshop, Collaborative Assessment, & Mini Conference & awards	8
CHEM 4689 (re-run)	Fall 2017 Spring 2018	Library workshop, Research Plan & Consultation, Collaborative Assessment, Mini- conference & awards	~40
CIVL 3510 (re-vamped)	Fall 2017	Library workshop, PTC poster training, Poster presentation & peer & instructor evaluation, rubrics for assessment, & awards	148
MGMT 2110 (re-run)	Fall 2017	Flipped Classroom Videos, Quiz Game prizes, Face-to-face Workshop, Graded Worksheets, Required Group Consultations, Joint Grading of Student Reports, & awards	51
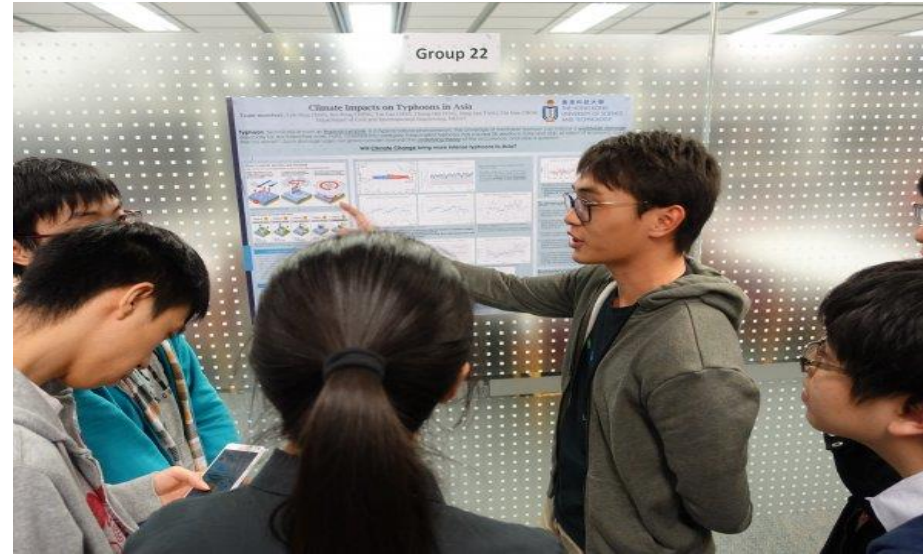
CIVL 3510

Poster session (CIVL 3510)
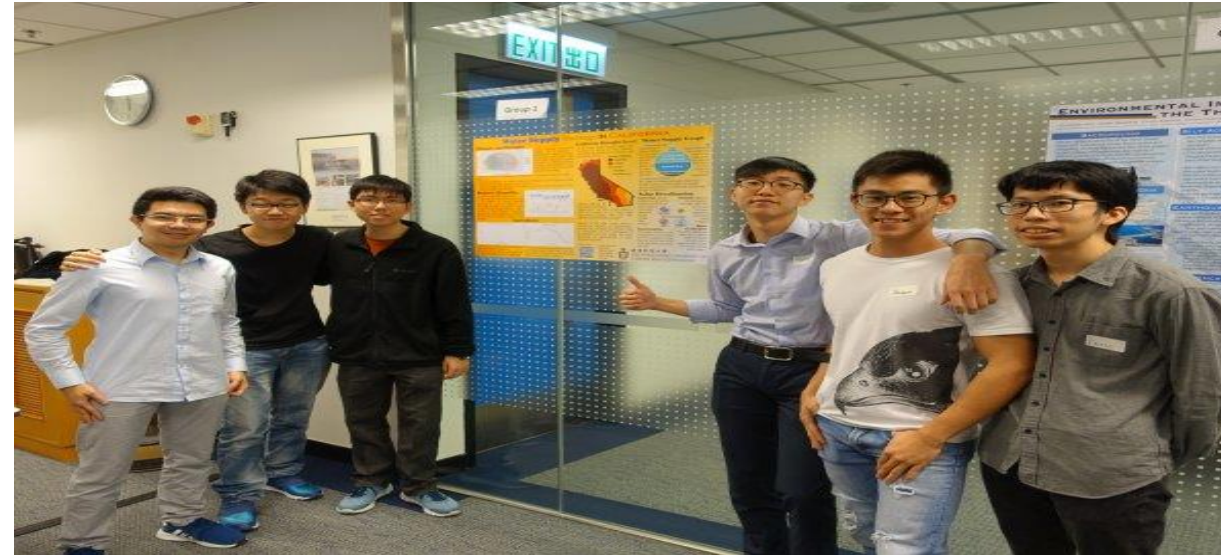
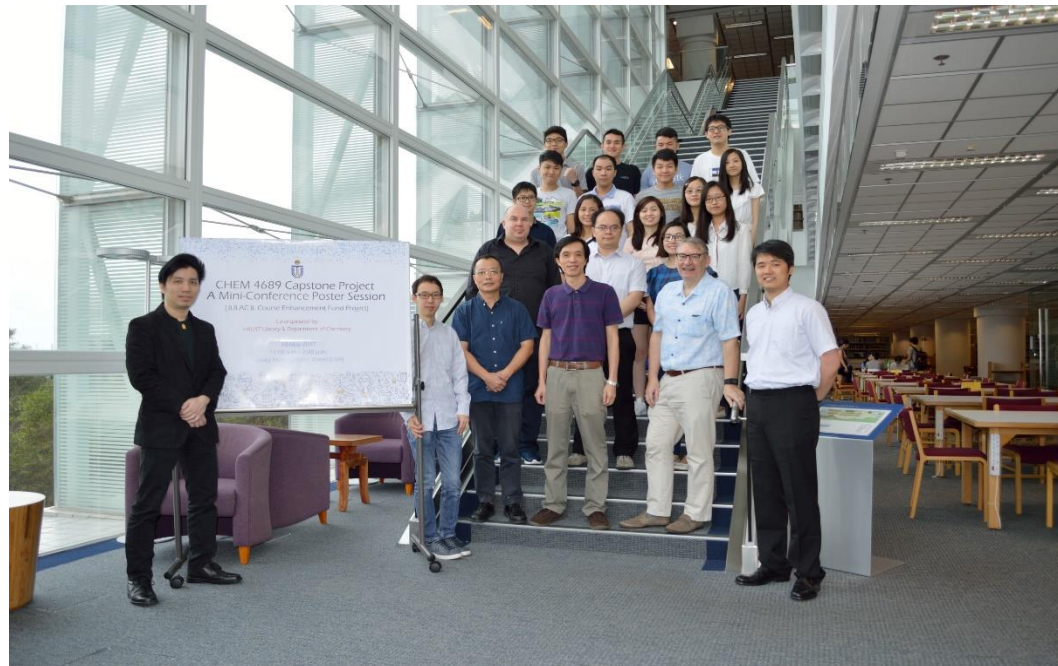

Poster session (CIVL 3510)

Prize Giving (CIVL 3510)

CHEM 4689

Mini Conference (CHEM 4689)

Mini Conference (CHEM 4689)

Prizes (CHEM 4689)

MGMT 2110

CENG 4970

HUMA 3520

Prize presentations (MGMT 2110)

Mini Conference (CENG 4970)

Student Film Festival & Awards (HUMA 3520)

Prize presentations (MGMT 2110)

Mini Conference (CENG 4970)
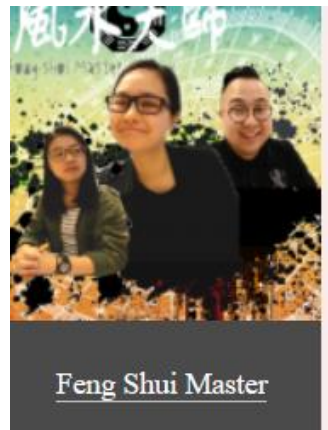
Videos (HUMA 3520)

2.10 Comments from CEF Faculty partners

- ✓ Students **learned how to develop good research questions** & **effective strategies** for literature search

- ✓ **Improved students' information literacy**, should consider such a collaboration for CENG 4970 next year

- ✓ Students were **able to select & use public domain/licensed material** for their films ethically & legally

- ✓ The **IL group consultations were very useful** for my students' film making project

- ✓ **Exchange of knowledge among peers** in the mini-conference is beneficial

3.1. CHEM 4689 - The Pioneering Team

| Faculty | Faculty | Librarian | Faculty | Faculty | Librarian |

Dennis, Jason, Jacky, Lucia, Emily, Lewis

In the multi-function room before mini-conference

CHEM 4689   Capstone Project   3 Credit(s)

Prerequisite(s)	CHEM 3550 AND CHEM 3555
Corequisite(s)	LANG 4012
Exclusion(s)	CHEM 4691

Description

Under the supervision of a faculty member or teaching staff, students will complete a capstone project which requires the integration of the chemical knowledge learnt from their previous courses. The project can be delivered through the format of literature review, research, or practical study. A written report and an oral presentation are required to document their learning experiences. For CHEM students under the four-year degree only. Students should seek instructor's approval prior to enrollment in the course.
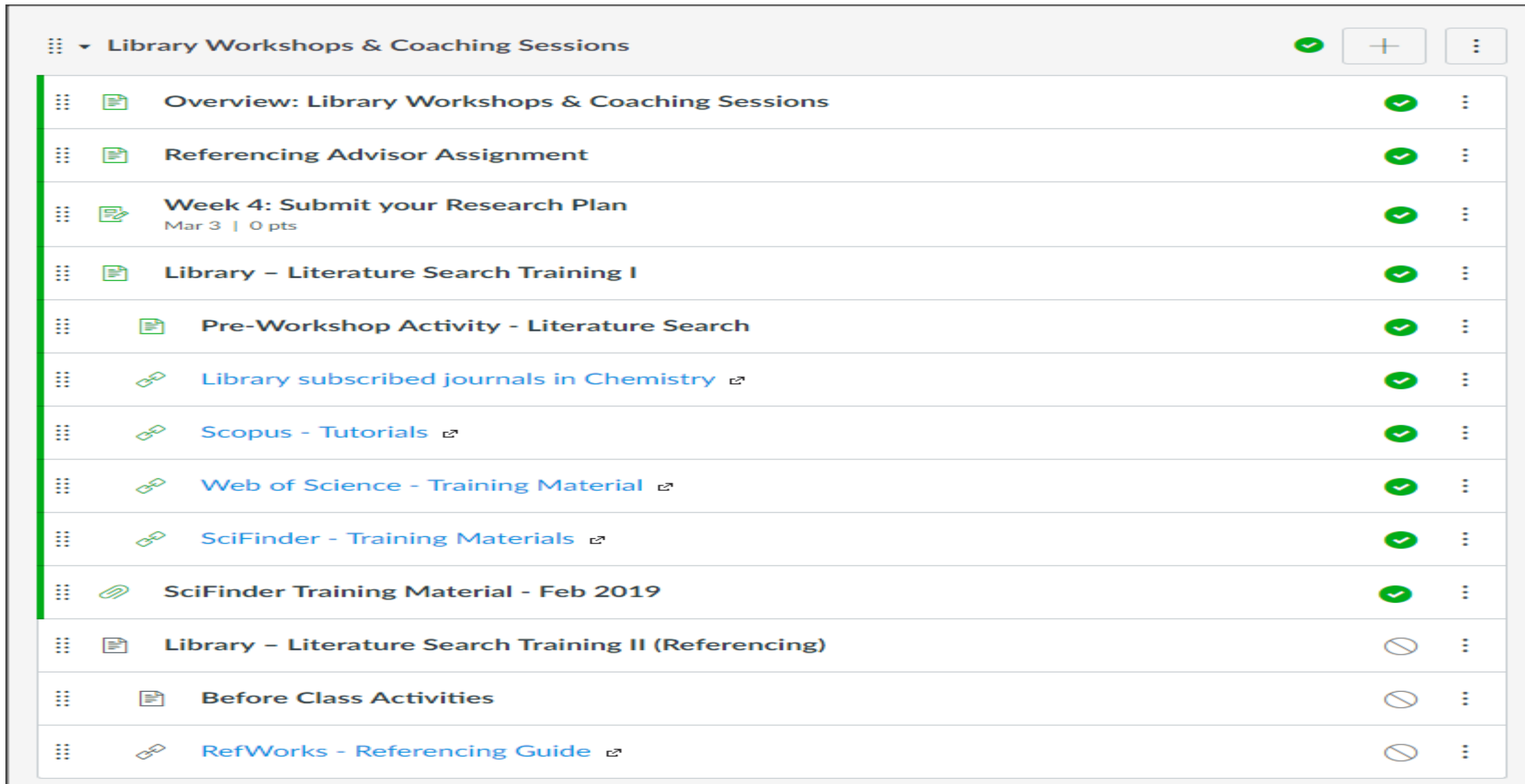
3.2. CHEM 4689: Before & After

Before 2016:

- One face-to-face session (general research process, research databases & referencing)

- Consult the librarian only on demand.

- SciFinder workshop conducted by vendor ("off the shelf")

 After: CEF collaboration (since Fall 2016)

- Two library sessions: one on research process & databases, the other on referencing

- SciFinder workshop with past research topics as searching examples.

- Students write research plan

- Mandatory individual research consultation with librarian ("coaching")

- CHEM structure drawing workshop (outside expert, brought in-house)

- Poster design training   (1st time, paid for an outside expert, in graphic design)

- Poster mini-conference

- Joint Assessment by librarians & faculty

Library Workshops & Coaching Sessions that are compulsory

Week 2:	**15 Feb, 09:30-10:20:** Library – Literature Search Training I	Library LG1 – E-Learning Classroom B
Week 4:	**1 March, 09:30-10:20** SciFinder Workshop [† *submit Research Plan (Deadline: 3 Mar)*]	Library LG1 – E-Learning Classroom B Week 4: Submit your Research Plan
Week 3 - 4:	*To take place between 18 Feb and 1 March* Library – Literature Search Individual Coaching Session [*Compulsory*] Referencing Advisor Assignment	For those assigned under **Jacky/Lewis**, please book an appointment using this form: (Google Form ↗) For those under **Lucia**, please follow the instructions from her email.
Week 7	**22 March, 09:30-10:20:** Library – Referencing Training II	Library LG1 – E-Learning Classroom B
Week 13	**10 May (Fri), 14:00 - 17:00:** Poster Mini-Conference	Library LG4 - Multi-Function Room

** For the above programs, please email the Information Instruction Librarians: Jacky (lbjacky@ust.hk) or Lewis (lblewis@ust.hk) for inquiries.

Research Plan

Guided students to make a clear picture from overview to specific search, help them create & follow a "roadmap"

Research Coaching

Librarians meet with students, provide help in strategically choosing databases, and literature searching techniques

Rubric for Research Plan

	None 0	Poor 1	Developing 2	Intermediate 3	Advanced 4
Can state what s/he hopes to learn (Research question)	No-submission	Has difficulties articulating the information needs	Stated research or information need in broad terms	Stated a clear research need with some details Identifies some concepts & terms	Shows a clear and very detailed understanding of the information & research needs. Identifies key concepts and terms that describe the information need.
Can identify potential research tools and resources, weigh their pros-and-cons	No-submission	Identifies one or two sources. Sources are very similar to each other in terms of format or coverage. Does not describe their value or differences.	Can identify at least 3 potential search tools or resources. Can describe their value or differences vaguely	Can identify at least 3 potential search tools or resources. Can describe their value or differences clearly	Can identify at least 5 potential search tools or resources. Resources are various in type and format (e.g., multimedia databases, website, data set, patent, specialist encyclopedia, research articles, etc.) Can clearly and accurately describe their value and differences.
Can articulate a plan for how s/he will research the topic with clear steps	No submission	Plan is garbled and unclear. Shows no consideration that reading or thinking about the information found will influence a research plan.	Plan is clearly stated, but lacks details (steps). Shows no consideration that reading or thinking about the information found will influence a research plan.	Plan is clearly stated and detailed with clearly stated steps. Shows some consideration that reading or thinking about the information found will influence a research plan.	Plan is clearly stated, and detailed. Plan shows an awareness of the way that researching literature is iterative. Demonstrated a clear understanding that reading or thinking about the information found will influence a research plan.

- Librarian & faculty members built rubrics for grading research plan
- Contribute to 20% of overall course grade
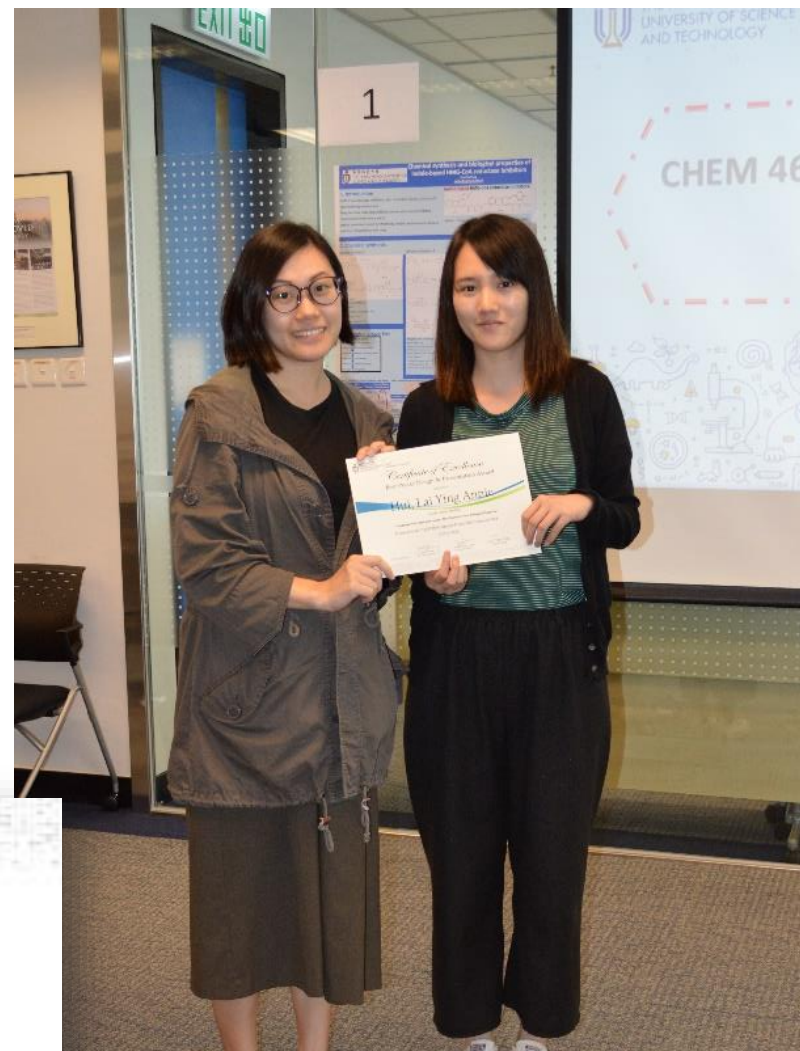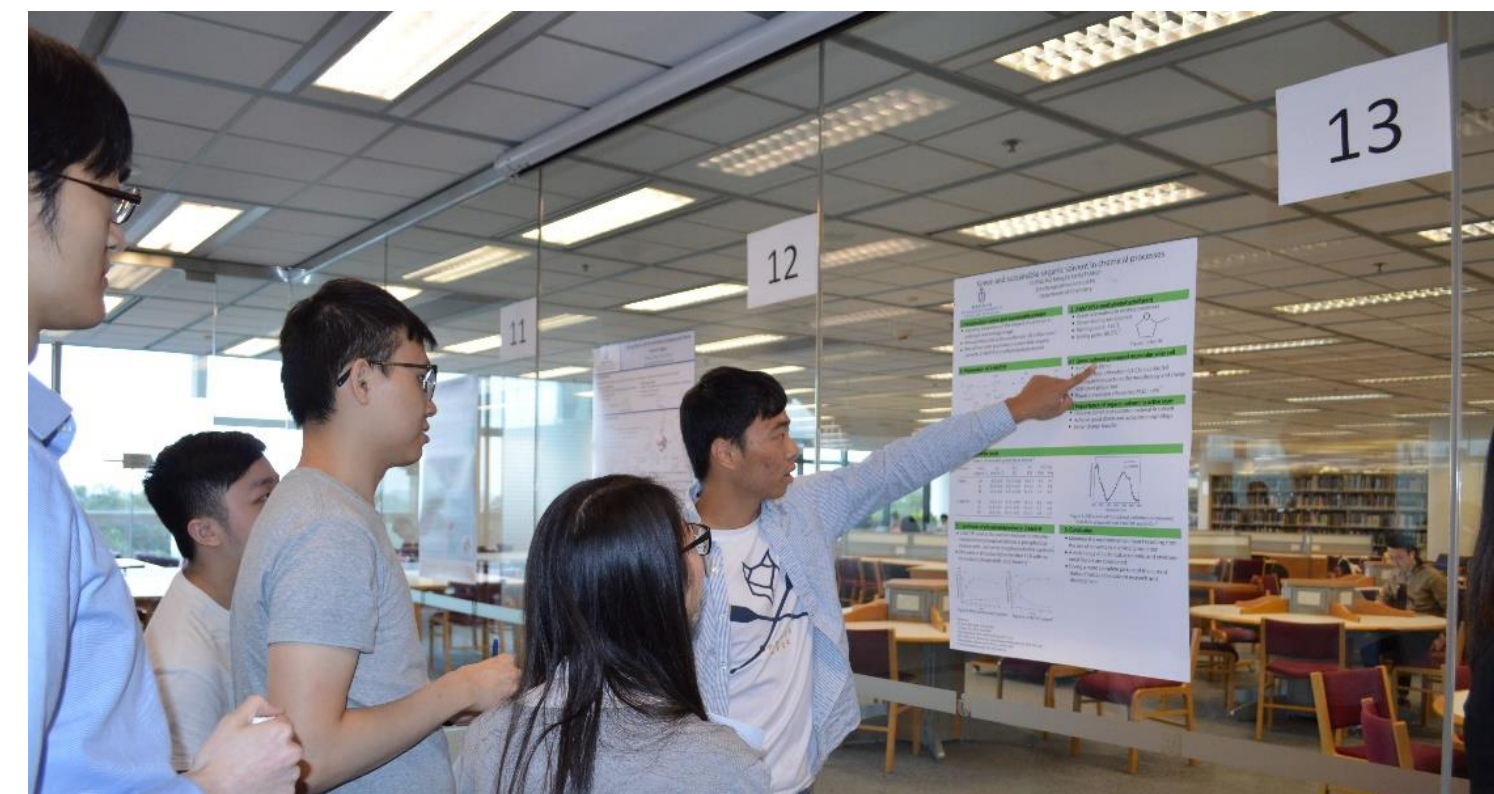
Reflection & Rewards:

- Gave taste of poster presentation in conference like settings

- Shared literature findings to peers, faculty, faced challenging questions

- Celebrated the overall efforts spent and learned

One-on-one Research Coaching (by librarians):

- Students can identify their research question/focus
- Students learn the various tools to get information effectively
- Students can filter and evaluate this information
- Written Research Plan: students can get advice early on their approach for getting information

Poster Design and Mini-Conference:

- Students learned to present information in a concise, poster format
- Students practice exchange of findings and ideas with professionals and peers in an interactive, discussion-based setting
- Students benefited from enhancing their communication skills, which will be valuable for their future career development.

3.7. Student Feedback Questionnaire Results

Before: **49%**

Course Evaluation (Spring 2015-16)

After: **69.8%**

Average Course Evaluation
(Fall 2016 –> Fall 2018)

Selected Student Comments:

"The library workshops are useful to guide me to search information, do the presentation and poster."

"To allow the students to understand more about chemistry in different fields via the

in-depth investigation and the review of literatures."

"Encouraged students to be more independent on learning and doing information research."

At HKUST, the Student Feedback Questionnaires (SFQ) Survey is given to undergraduate and postgraduate students at the end of each term to provide feedback to the University the quality and effectiveness of their course learning experience.
http://oir.ust.hk/4a1.htm

How to find faculty or instructor partners for Course Enhancement
- Tap your current collaborators and see if they want to do more
- Pitch the idea to new faculty
- Look for faculty members who are starting a new course or revamping
- Mention it to lots of people, send emails, etc. chat up "old friends" or new

Starting small is OK
- "Pilot" is a magic word, can help everyone feel comfortable
- Having a single good example can help get others on board: "With CHEM 4689 we did…."

Deep Partnerships for Course Enhancement = Teamwork (librarians + faculty)

- Librarian teams can help (we had 2 librarians per partnership)
- Consider the faculty members or instructors part of the same team
- Co-Assessment of student work by librarians & faculty was a vital component
  - Rubrics
  - Check-lists
  - Etc.

Develop plans in coordination with librarians & faculty members

- Librarians & faculty, talk about things you all wish you could have do more of
  - If you had more time
  - If you had more resources
- Look for and use ideas from everywhere
  - What you've done in the past (librarians and/or faculty)
  - What you know others on your campus have done
  - What you've heard was done elsewhere (other institutions, via conferences, professional reading, gossip, web searching)

Money (Funding)
- Was a good lead-in
- Less money may have worked
- Grant spending has a steep learning curve
- After the money was spent, most partners wanted to continue at smaller scale

Time & Effort

- It takes…
  - Lots of planning, coordination, communication, flexibility
  - Lots of time & effort
  - Hard to scale-up (not impossible)

Thank You!

The Community of Practice – Information Literacy Teaching, Learning & Assessment

- HKUST Colleagues: library staff, faculty members, students, & others
- JULAC Colleagues (present & former)
- Other librarians across the world whose work we've learned from

- PRRLA – Organizers & Audience