Information Literacy Challenges Faced by Chinese Students

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Outline

 Context

 Research Question

 Methods

 Findings

 Conclusions

Context
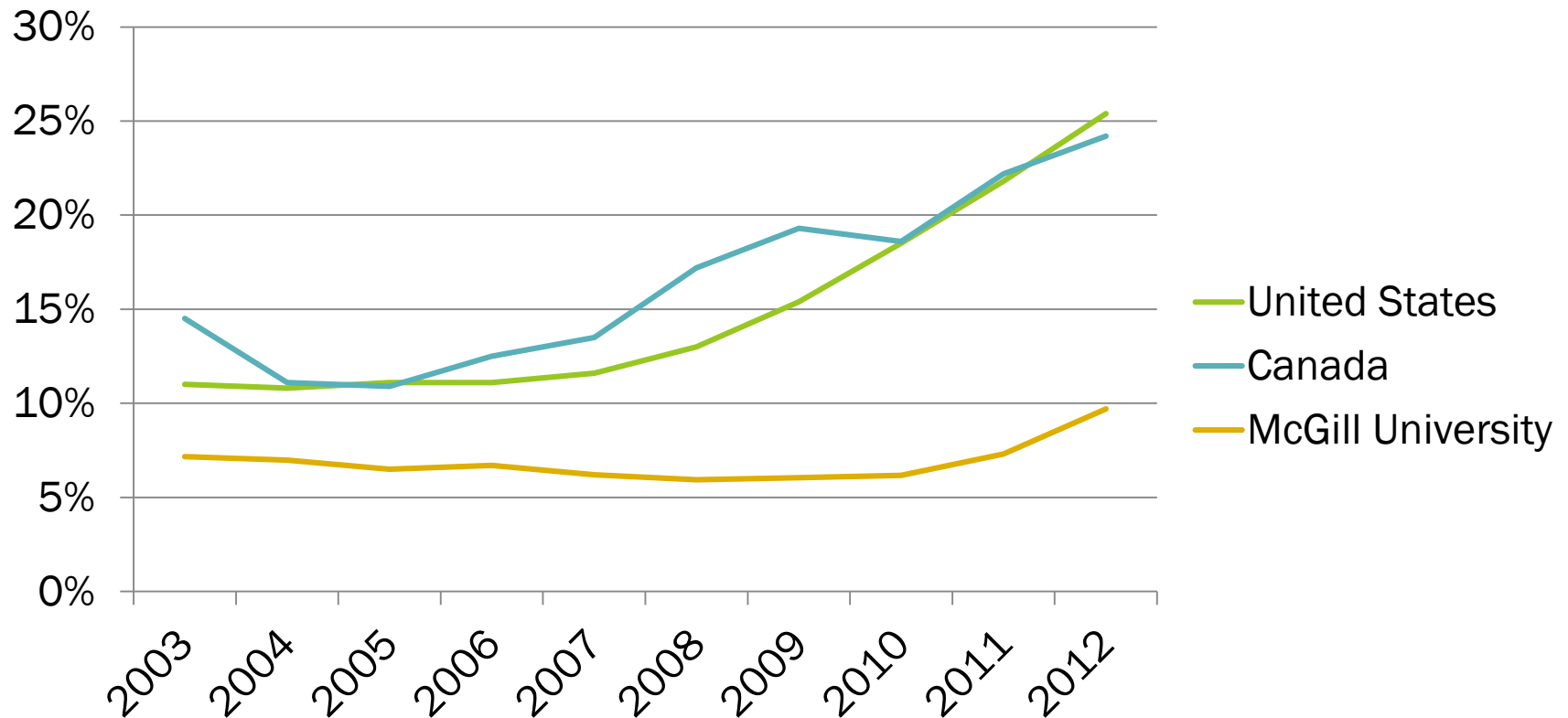

Image from:

Gap in the literature

Lack of research on:

- international engineering students

- international undergraduate students

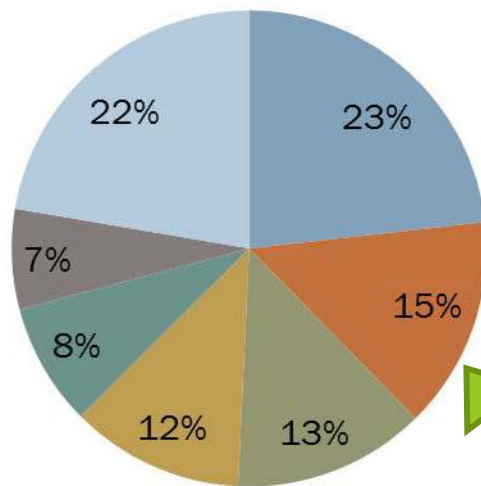- information literacy skills and needs of international students throughout the research process

Rising percentage of international students from China

International students' fields of study

Canada

22% 23% 15% 7% 8% 12% 13%

United States

30% 22% 19% 10% 8% 9% 2%

- ■ Business & management
- ■ Engineering
- ■ Social sciences
- ■ Humanities
- ■ Physical & life sciences
- ■ Mathematics & computer science
- ■ Undeclared & other
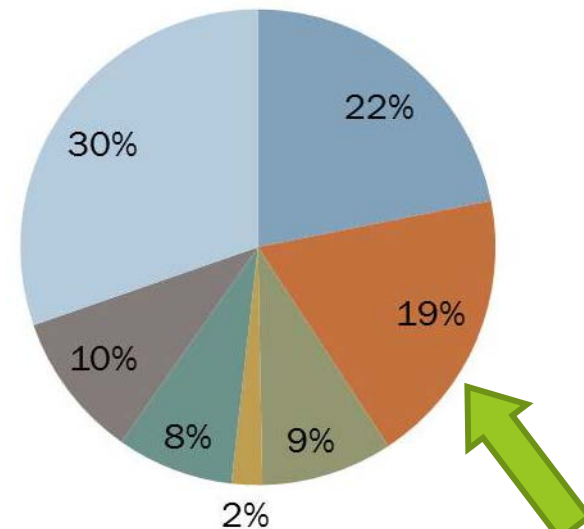
Increasing information literacy competency requirements

1. A knowledge base for engineering
2. Problem analysis
3. **Investigation**
4. Design
5. Use of engineering
6. Individual and team work
7. **Communication skills**
8. Professionalism
9. Impact of engineering on society and the environment
10. **Ethics** and equity
11. Economics and project management
12. **Life-long learning**

Canadian Engineering Accreditation Board Accreditation Criteria and Procedures, from http://www.engineerscanada.ca

Growing emphasis on undergraduate research

ASAP 2012-2017: Achieving strategic academic priorities: A plan for McGill

Strategy 2.5: McGill will continue to extend opportunities for undergraduate research. (*Strengths and Aspirations*; TLS Nexus Project)

Action 2.5.1: Mandate all Faculties to Increase or initiative undergraduate research opportunities, including summer research opportunities, and to monitor and report on them regularly.[36]

Research question

To identify information literacy challenges faced by Chinese-speaking undergraduate engineering students

What are their specific challenges in comparison with native English speakers?

Methods

Image from http://blog.panorama.it/lavoro-in-corso/files/2012/07/Ricerca.jpg

Comparison study

Mixed methods
- Based on Seidman's best interview practice
- Survey
- Interviews

Content analysis

Participants

Chinese speakers

Code	Gender	Program	Year in program
C01	Female	Electrical	2nd year
C02	Male	Mechanical	2nd year
C03	Male	Electrical	2nd year
C04	Female	Materials	2nd year
C05	Male	Mechanical	2nd year
C06	Male	Mining	1st year
C07	Male	Mechanical	1st year
C08	Male	Materials	1st year

Native English speakers

Code	Gender	Program	Year in program
E01	Male	Materials	1st year
E02	Male	Materials	2nd year
E03	Male	Materials	2nd year
E04	Female	Mechanical	2nd year
E05	Male	Mechanical	2nd year
E06	Male	Materials	1st year
E07	Male	Materials	1st year
E08	Male	Electrical	1st year
E09	Male	Civil	2nd year

Interview One

Image from http://www.nait.ca/67009.htm

Survey

2. Identify
In this section, you will be asked questions about identifying your research topic.

2.1 Why did you select the topic you chose for your research paper?
Check any that apply

☐ a. The topic seemed manageable within the given timeline

☐ b. I have already done some course work on this topic

☐ c. I knew I could find research material on this topic

☐ d. I know someone who has expertise in this field

☐ e. I received suggestions for potential topics from the instructor or friends

☐ g. The topic was interesting to me

☐ h. I was curious to explore an unknown topic

☐ Other: [   ]

2.2 Did you change your research topic at any point?

Check any that apply

☐ a. Yes

☐ b. No

☐ c. Don't remember

☐ Other: [   ]

Interview Two

How was your experience … ?

- **General**   … overall in completing your paper?
- **Identify**   … in selecting a topic?
- **Scope**   … selecting a database to search?
- **Plan**   … creating a search strategy?
- **Gather**   … locating the full text of journal articles?
- **Evaluate**   … determining if information was credible?
- **Manage**   … managing your references?
- **Present**   … incorporating ideas from your readings into your paper?

Findings - Searching

Searching

ೞ "The **easiest part of completing the paper was searching** and finding articles. Searching was easy. I only spent one hour." (C03)

Building search strategies

ೞ "I searched mainly for journal articles. **I used some keywords that I found in full-text articles that I read.** Then I used them in searching again." (C05)

Locating full text

ೞ "Locating full text articles was **most challenging** due to my topic… **I gave up on [the articles I couldn't find]** and only looked at results that had full text." (C04)

Findings - Searching

Building search strategies / Locating full text

- "Brainstorming and synonyms [were] **really easy...** but actually getting results from that **wasn't that obvious... My biggest challenge in researching and writing the paper was finding the full text of articles,** especially for older ones. I would see a reference in Google Scholar but not be able to obtain the full text." (E01)

- "I had **difficulty finding the full text for one article** but I made use of the **chat-with-a-librarian** [virtual reference] service and was able to obtain the article." (E06)

Findings - Evaluating

Relevance

ꮯ "[Having had] difficulty understanding articles made it hard to know if they were relevant; even after reading the abstract, [I] didn't always understand the data, methods, terminology included in a paper. [I] went to [the] conclusion to get the useful bits and mostly only used the conclusion to get findings." (C07)

Credibility

ꮯ "I thought articles from Compendex and IEEE would be peer-reviewed... I didn't know how to evaluate [if a source was peer reviewed]... I checked over my sources again and if it looked scholarly, I included it." (C06)

Findings - Evaluating

Relevance

ଛ "I could tell from titles, abstracts and conclusions if articles would be relevant." (E04)

Credibility

ଛ "I liked to look at where the article comes from. Some of the ones that I found were from either government agencies or research councils... to me, that makes something credible... If it was peer reviewed, someone did that work for me... I thought about it but [it was] hard to check [author's bias]...[I noted] no obvious bias or conflict of interest in what I read." (E09)

Findings - Reading

Reading comprehension

ဢ "I had a **lot of trouble reading and understanding journal literature**, the level [of language], the technical issues, I could not understand what they are trying to say." (C02)

Note-taking

ဢ "**It was hard to keep track of notes taken from readings**. [While writing]...I recognized that I couldn't recall from which article **I got the idea... I couldn't remember where I read it**." (C03)

Findings - Reading

Reading comprehension

ೲ "I never had problems with my comprehension. **Reading is easy** for me. But there were words that I didn't understand. So I used Google to search for those words." (E03)

Note-taking

ೲ "**I took notes as I read** and then wrote something relevant." (E02)

Findings - Writing

Linguistic challenges

Chinese speakers

ଈ "**Writing was the most challenging part of the process**. I especially felt **challenged in expressing myself in English**. Something that could be easily spoken out in Chinese is **much harder** to form in English." (C05)

ଈ "I **repeated my words and sentences** all the time, which I shouldn't." (C03)

Native English speakers

ଈ "The writing part was **relatively easy.**" (E01)

Findings - Writing

Chinese speakers / Native English speakers

Persuasive writing

- "The **persuasive part was difficult.** [It was challenging] to make the whole thing look convincing to your audience" (C07)

Incorporating ideas

- "I had to collect points from other papers and cite them in my paper which was **very different and challenging.**" (C03)

Developing outlines

- "**The skeleton part was hard.** What the paper would look like was tricky." (E02)

Findings - Citing

When to cite

ೞ "I wrote about many points that I got from my readings, but I didn't realize that I should cite them." (C01)

How to cite

ೞ "I was not very clear when to summarize and when to quote directly. The instructor didn't like direct quotes longer than 4 lines. So I mainly paraphrased… I really like the original quotes in the text, and I had a difficult time paraphrasing an idea as well as the original one." (C05)

Findings - Citing

How to cite

‽ "I consulted the instructor after the class on **how to cite the same reference in several places** in a paper." (E07)

Recommendations for future practice

- Strengthen the in-class library instruction

- Create stand-alone workshops and online guides targeted to international students

- Provide suggestions to instructors

- Collaborate with Writing Center and International Student Services

- Further promote existing services across the campus

Limitations

ଙ Participants from only one university and one specific course

ଙ Study examines only student perspectives

Further research and practice

- Examining instructors' perspectives
- Implement and assess effectiveness of newly developed workshops and programs on international students' information literacy skills