

Using Research Synthesis Assignments to Teach Information Literacy and Critical Appraisal Skills to University Students

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Outline

1. Introduction to topic
2. What is research synthesis?
3. Background
4. Research Plan
5. Lesson plan
6. How we taught the class
7. Research results
8. Recommendations



Introduction

By the end of the session participants will:

1. Understand how information literacy instruction is evolving to include interdisciplinary forms of knowledge and synthesis methodologies
2. Be aware of the challenges librarians face when teaching evidence-based methods to students
3. Have the skills to develop in-depth lesson plans and assignments for teaching evidence-based methods

What is research/evidence synthesis?

“synthesis as 'the contextualization and integration of research findings of individual research studies within the larger body of knowledge on the topic. A synthesis must be **reproducible and transparent** in its methods, using quantitative and/or qualitative methods.” (CIHR, <https://cihr-irsc.gc.ca/e/41382.html>)

The most commonly known form is a systematic review.

Described as “a review of a clearly formulated question that **uses systematic and explicit methods** to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review.” (Cochrane: <https://community.cochrane.org/glossary#letter-S>)

What is a Critically Appraised Topic (CAT)

A Critically Appraised Topic is a type of Rapid Review (White, Raghavendra, and McAllister, 2107).

Originates in Evidence-based medicine, but has been used in other disciplines (Management)

It is a quick assessment of what is known in the scientific literature about a topic or practical issue. It uses aspects of systematic review methodology (with concessions) to search, select and appraise evidence. ([Guideline for Critically Appraised Topics in Management and Organizations](#))



Steps to conduct a CAT

Step 1: Background

Step 2: Formulate question

Step 3: Define inclusion criteria

Step 4: Search

Step 5: Study selection

Step 6: Data extraction

Step 7: Critical appraisal

Step 8/9/10/11: Results, Conclusion, Limitations, Implications



(CEBMa, 2017)

Benefits of CATs?



CAN BE DONE IN A
RELATIVELY SHORT
TIME (DAYS OR
WEEKS)



INCORPORATES
SCIENTIFIC/SCHOLARLY
LITERATURE



CULMINATES IN
RECOMMENDATIONS
/IMPLICATIONS FOR
PRACTICE



HAS A
METHODOLOGY
THAT NEEDS TO BE
FOLLOWED →
MIMICS RESEARCH



INCORPORATES
CRITICAL
APPRAISAL OF
SCIENTIFIC
LITERATURE

Background

CATs/Systematic Reviews in Business

- Skills-based perspectives (Briner & Walshe, 2014)
- CATs are well-suited to a management classroom due to the applicability on decision-making skills (White, Raghavendra & McAllister, 2017)



Background

Graduate Business Instruction

- Discusses student disengagement in orientation sessions – authors noted that increased engagement occurs in workshop style sessions with activities and a chance to build relationships (Baxter, Johnson & Chisholm, 2016)
- Brinkman & Hartsell (2012) discussed building relationships with incoming students and as students view librarians with trust, they become more comfortable with asking for help from library staff.

Background

Graduate Info Needs

- Graduate business students vary from other student populations in that they are often older and more experienced (Mallon, 2014). They are often balancing families and full-time careers with increasing responsibilities in addition to a full-time course load
- Students rely heavily on their workplace knowledge – skills may not be transferable – showed difficulty in finding information outside of the industry. Students perceive a lack of transfer between academics and workplace (Quinn & Leligdon, 2014)
- Discusses false confidence leading to information literacy issues – students who have been in the workplace or recently graduated may confuse ability to browse the Internet with research skills (Hesseldenz, 2012)

Research Plan

We wanted to assess:

- Student knowledge about the process
- Student research skills
- Evaluation about teaching session
- Evaluation of term process
- Evaluation of usefulness of assignment
- Suggestions for improvement

Background: Teaching - Winter 2019 (multiple sessions- varied approaches)

Class/Research development- Block Week Fall 2019

Ethics and Survey development - Fall 2019



The course assignment

Week 1

Students groups (4-5 students) are assigned an HR topic and have to complete a 20-25 page CAT

Week 3

Protocol template due approximately 3 weeks after the in-class session

Week 3

Librarian to discuss the protocols and provide feedback to students during a consultation

Week 10

Final project at the end of the semester

Designing the lesson: skills that students need

1. Formulating a research question
2. Searching a bibliographic database using subject headings and keywords
3. Critical appraisal of scientific studies
4. Scientific writing and reporting methods used
5. Research methodology (CAT)
6. Time management and project management



Lesson plan: Learning outcomes

Students will be able to:

- 1) **Describe** the steps to conduct a CAT
- 2) **Create** a focused researchable question using the PICOC mnemonic
- 3) **Create** and run a search strategy in the Business Source Complete database using subject headings and keywords
- 4) **Apply** inclusion/exclusion criteria to select studies relevant to their topic
- 5) **Describe** the purpose of critical appraisal and where to find critical appraisal checklists
- 6) **Describe** the limitations of a CAT

Lesson plan: Learning activities

Lecture – The process of conducting a CAT (LO #1, LO #6), using PICOC for question formulation (LO #2), searching for studies including search syntax (LO #3), Defining, selecting, and using inclusion/exclusion criteria to select studies (LO #4), finding and using checklists for critical appraisal (LO #5)

Demonstration – How to locate subject headings, and use correct syntax to build a search in Business Source Complete (LO #2)

Activities

- 1) How to formulate a PICOC question (LO #2)
- 2) How to create a search in Business Source Complete (LO #3)

How we taught the class (3 hour session)

0-90 minutes	>>	15 min	>>	105-180 minutes
<p>0-45 min: Introduction to research synthesis, what is a CAT, what are the steps to conduct a CAT, and PICOC activity.</p> <p>45-90 min: Searching for information (what is a subject heading, what is a keyword, search operators such as truncation, proximity/wildcards, what fields to search in a database, how to use database filters to limit date, language, source type, etc.) followed by a demonstration on Business Source Complete.</p>		B R E A K		<p>105-135 min: Activity - Students were given a topic and had to use PICOC to refine and create a research question, find subject headings and keywords, and create a search in Business Source Complete.</p> <p>135- 180 min: Working session where student groups worked on picking a topic for their project, creating a PICOC-based research question, and create preliminary searches in Business Source Complete - with the help of the librarian, as needed.</p>

Activity: Think-Pair-Share

How to assess → What to assess → When to assess?



Submit your responses to the padlet

Activity: Think-Pair-Share

Submissions from participants

How would you assess the variety of learning that is happening in the session and throughout the rest of the semester as students complete the course assignment?	When would the assessments take place?
Self assessments before & after course; Peer-to-peer assessments midway & end of course	Before, middle, end
In class quizzes or marking of assignments after the class.	
Peer feedback during the library session	After a demonstration; at the end
In-class activities - including searching on their own or in groups, sharing strategies and findings	
Kahoot	Pre and post test/survey Assess the final CAT Halfway point for check-in
Survey at end of teaching, how confident do students feel about their research abilities now compared to how they felt before	

Lesson plan: Assessment

In-class

- Student presentations from the PICOC activity
- Librarian observations during the search activity (while going around and talking to the groups)

Mid-semester

- Submitted topic protocols

End of semester

- Survey

Survey

- End of term (after major assignments submitted)
- Short survey (12 questions)
- 20 respondents (from class of 60)
- Qualtrics

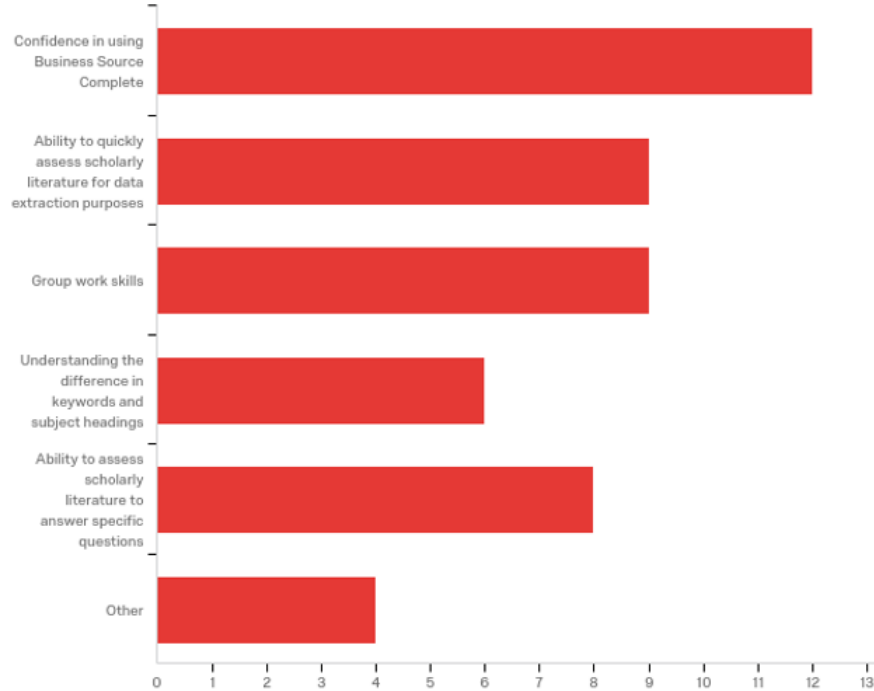


Research results: Overall Knowledge

- What is a CAT?
- What are some limitations?

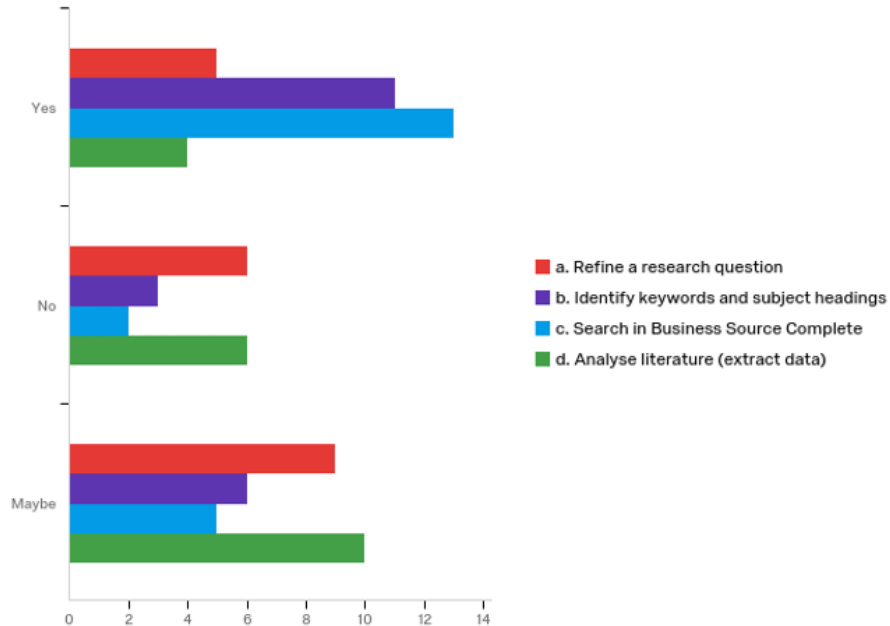


Research Results: CAT skills



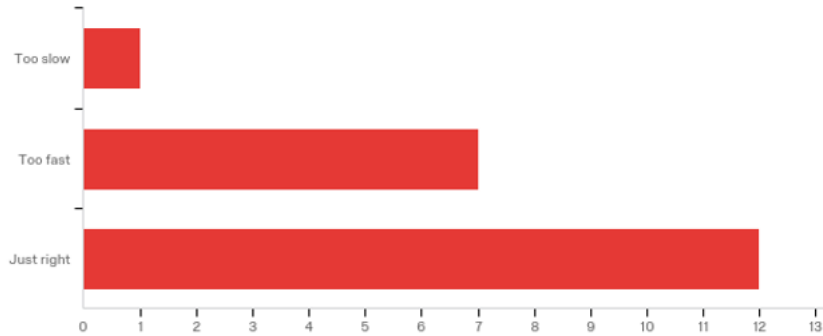
Research results: Student research skills

Q8 - After the session, I felt prepared to

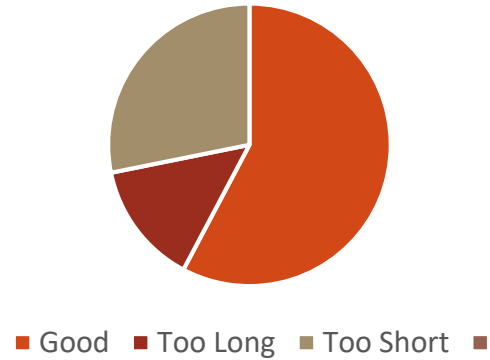


Research Results: Teaching Session

Pace

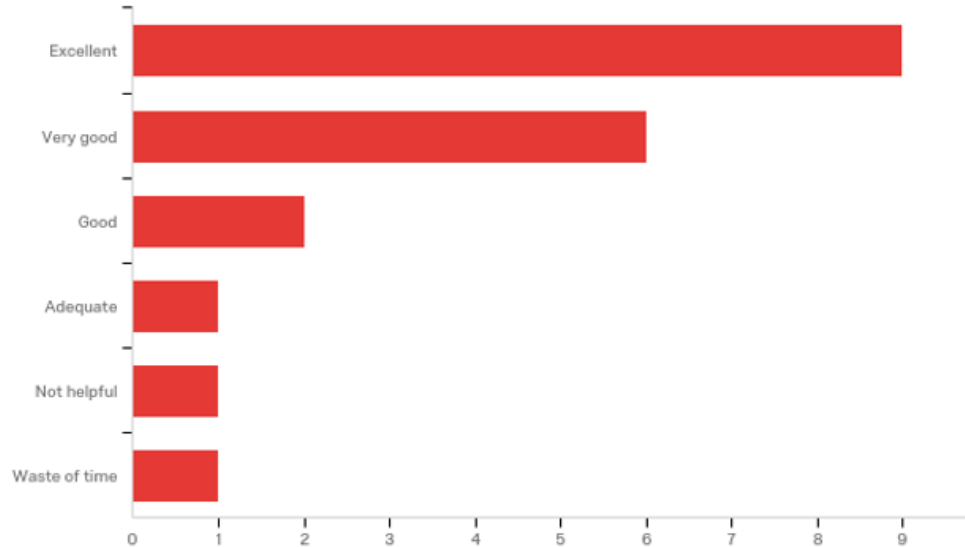


Length



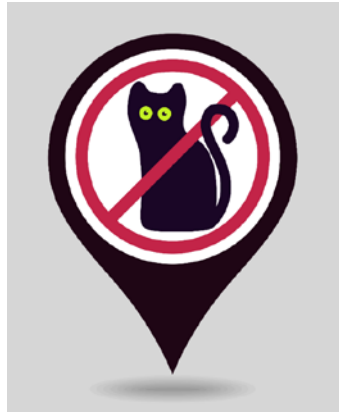
Research results: Evaluation of term process

Q9 - The support from the library in regards to team meetings and follow up questions was:

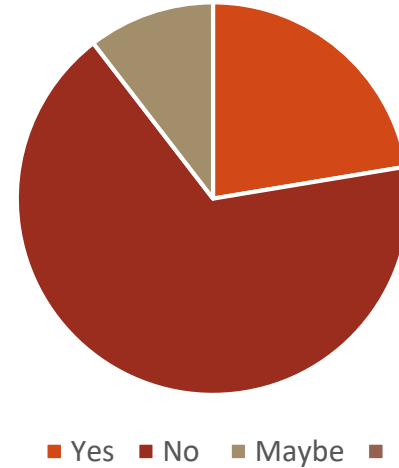


Research Results: Evaluation of usefulness

“This was an irrelevant assignment for any of my past or future needs. The MBA level does not need a report writing assignment, the participants are professionals and do not have time for this.”



Professional Life Usage



Activity

Part One: Identify and rank the main challenges (3 per group)

Part Two: Pick your top challenge and identify strategies you would use to resolve some of the issues



Submit your responses at the Padlet

Activity - responses

Part One: Identify the main challenges

Gauging students' level of knowledge

Maintaining student motivation

Establishing and sustaining the level of support

Too much information in one session, consider scaffolding

Workload

Weight of the assignment

Ensuring students see the value/relevance

Getting student buy-in

Part Two: Pick your top challenge and identify strategies you would use to resolve some of the issues

Guide students to research issues relevant to them

Have a conversation about relevance right after the session introducing CATs

Show a comparison of a student keyword search to a more sophisticated search to show value

Discuss the idea of best practice versus preferred practice

Have an industry person bridge the gap and show relevance

Showcase evidence-based changes that have had success in business

Have students pitch their evidenced based solutions in a competitive environment

Research Results: Improvements

- Selecting research questions
- Articulation of applicability
- Remove from block week (or shorten)
- Turf the whole assignment



Benefits/Challenges

Benefits

- Relationship building
- Introduction of research skills early
- Systematic approaches to research (talk about follow up class in Winter 2020)

Challenges

- Balance between research rigour and needs of MBAs
- Block week
- Length of instruction (heavy on searching, less time for appraisal and data extraction)
- Lack of longitudinal information

Thank you!

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