Librarians as Partners:
Building Inquiry and Research Skills

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Elements of Inquiry

Inquiry Initiatives at Queen's

Inquiry Working Group:

- ▶ Environmental scan across undergraduate courses

- ▶ Interpretations of inquiry across disciplines

- ▶ Study on supports needed (survey in progress)

Inquiry@Queen's

- ▶ Annual conference to celebrate inquiry-based learning that showcases research projects from Queen's undergraduates

Inquiry@Queen's Undergraduate Research Conference

- Interdisciplinary conference – started 2007 – now in its 11th year

- Opportunity for students to share the results of their inquiry

- Students submit abstract for an oral presentation or poster

- Present in themed sessions – same topic from different disciplinary perspectives

- One keynote session with faculty guest speaker and students

- Poster session – with pizza!

- Held in Queen's Learning Commons in the library

Task #1: Identifying Inquiry Skills

What inquiry skills are needed? Record one idea per post-it.

Geography 101: People and the Environment

Describe and assess one of the environmental issues we have discussed in class (e.g. deforestation, water pollution) and its impact on a Central American country. Consider the physical, biological, and socio-economic aspects of the environmental problem. Be sure to include an evaluation of the policies or technologies that could be implemented to manage the environmental impact. This assignment should be double spaced, not exceed 12 pages, and include a list of references. It is worth 25% of your final grade.

Table 1: Researcher Skill Development Framework

A conceptual framework for the explicit, coherent, incremental and cyclic development of the skills associated with researching. ©Willison & O'Regan, August 2008/October 2015

RSD7

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Researchers...

	← supervisor instigated →	← researcher instigated →	← discipline leading →				
	Prescribed Research Level 1 — Highly structured directions and modelling from supervisor prompt the researcher(s) to...	**Bounded Research Level 2** — Boundaries set by and limited directions from supervisor channel the researcher(s) to ...	**Scaffolded Research Level 3** — Scaffolds placed by supervisor enable the researcher(s) to independently...	**Self-initiated Research Level 4** — Researcher(s) initiate and supervisor guides.	**Open Research Level 5** — Researcher(s) determine guidelines that are in accord with discipline or context.	**Adopted Research Level 6** — Researcher(s) inform others' agendas	**Enlarging Research Level 7** — Researcher(s) enlarge the field of inquiry.
a. Embark & Clarify (Curious) — Respond to or initiate research and clarify or determine what knowledge is required, heeding ethical, cultural, social and team (ECST) considerations.	Respond to questions/ tasks provided explicitly. Use a provided approach to clarify questions, expectations and ECST issues.	Respond to questions/ tasks implicit in directions. Choose from several provided structures to clarify questions, expectations and ECST issues.	Respond to questions /tasks generated from instructions. Choose from a range of provided structures or approaches to clarify salient elements including ECST issues.	Generate questions/aims/ hypotheses framed within structured guidelines. Anticipate and prepare for ECST issues.	Generate questions/aims/ hypotheses based on experience, expertise and literature. Delve into and prepare for ECST issues.	Identify previously unstated gaps in literature and articulate research directions and ECST issues in response to gaps.	Articulate research directions that expand or direct the field and anticipate the corresponding ECST issues.
b. Find & Generate (Determined) — Find and generate needed information/data using appropriate methodology.	Collect and record required information or data using a prescribed methodology from a prescribed source in which the information/data is clearly evident.	Collect and record required information/data using a prescribed methodology from prescribed source/s in which the information/ data is not clearly evident.	Collect and record required information/data from self-selected sources using one of several prescribed methodologies.	Collect and record self-determined information/ data, choosing an appropriate methodology based on structured guidelines.	Collect and record self-determined information/ data, choosing or devising an appropriate methodology.	Synthesise others' methods to formulate novel methods/ methodologies or apply existing methods to novel applications.	Generate new methods/methodologies that are used widely.
c. Evaluate & Reflect (Discerning) — Determine and critique the degree of credibility of selected sources, information and of data generated. Metacognitively reflect on processes used.	Evaluate sources/ information/data using simple prescribed criteria to specify credibility and to reflect on the research process.	Evaluate sources/ information/data using a choice of provided criteria to specify credibility and to reflect on the research process.	Evaluate information/data and inquiry process using criteria related to the aims of the inquiry. Reflect insightfully to improve own processes used.	Evaluate information/data and the inquiry process using self-determined criteria developed within structured guidelines. Refines others' processes.	Evaluate information/data and inquiry process using self-generated criteria based on experience, expertise and the literature. Renews others' processes.	Generate substantial research outcomes, so that ideas, practices or interpretations are cited/implemented by others.	Generate substantial research outcomes, so that ideas, practices or interpretations become foundational in field or discipline.
d. Organise & Manage (Harmonising) — Organise information and data to reveal patterns and themes, and manage teams and research processes.	Organise information/data using prescribed structure. Manage linear process provided (with pre-specified team roles).	Organise information/data using a choice of given structures. Manage a process which has alternative pathways (and specify team roles).	Organise information/data using recommended structures. Manage self-determined processes (including team function) with multiple pathways.	Organise information/data using self-or-team-determined structures, and manage the processes, within supervisor's parameters.	Organise information/data using self-or-team-determined structures and management of processes.	Form a research team or a team of community-based practitioners.	Form and develop research networks/communities.
e. Analyse & Synthesise (Creative) — Analyse information/data critically and synthesise new knowledge to produce coherent individual/team understandings.	Interpret given information/data and synthesise knowledge into prescribed formats. *Ask emergent question.*	Interpret several sources of information/data and synthesise to integrate knowledge into standard formats. *Ask relevant, researchable questions.*	Analyse trends in information/data and synthesises to fully integrate components specified. *Ask rigorous, researchable questions.*	Analyses information/data and synthesizes to fully integrate components, consistent with parameters set. Fill knowledge gaps that are stated by others.	Analyse and create information/data to fill researcher-identified gaps or extend knowledge.	Synthesise others' concepts or interpretations to frame novel outcomes. May also address substantial concerns of a community.	Develop new concepts or interpretations that expand the field or discipline. May also address substantial concerns across communities.
f. Communicate & Apply (Constructive) — Discuss, listen, write, present and perform the processes, understandings and applications of the research, and respond to feedback, accounting for ethical, cultural, social and team (ECST) issues.	Use prescribed genre to develop and demonstrate understanding from a specified perspective. Apply to a similar context the knowledge developed. Follow prompts on ECST issues.	Use discipline-specific language and prescribed genre to develop understanding, and demonstrate it to a specified audience. Apply to different contexts the knowledge developed. Clarify ECST issues.	Use discipline-specific language and genres to demonstrate scholarly understanding for a specified audience. Apply the findings to diverse contexts. Specify ECST issues that emerge.	Use appropriate language and genre to address gaps of a self-selected audience. Apply innovatively the knowledge developed to a specified context. Probe and specify ECST issues in each relevant context.	Use appropriate language and genre to extend the knowledge of a range of audiences. Apply innovatively the knowledge developed to multiple contexts. Probe and specify ECST issues that emerge broadly.	Change the conversation within the discipline/field through publicly-available communication of knowledge/understanding. Articulate and promote relevant ECST issues.	Change the direction of the conversation across disciplines/ fields. Articulate and promote ECST issues that were previously unstated.

Facets of Research

Willison, J. & O'Regan, K. (2015). *Researcher skill development framework.* www rsd.edu.au

Task #2: Match Post-its to GEM

Create Communicate & Apply

Analyse & Synthesize

Embark & Clarify

Find & Generate

Organise & Manage

Evaluate & Reflect
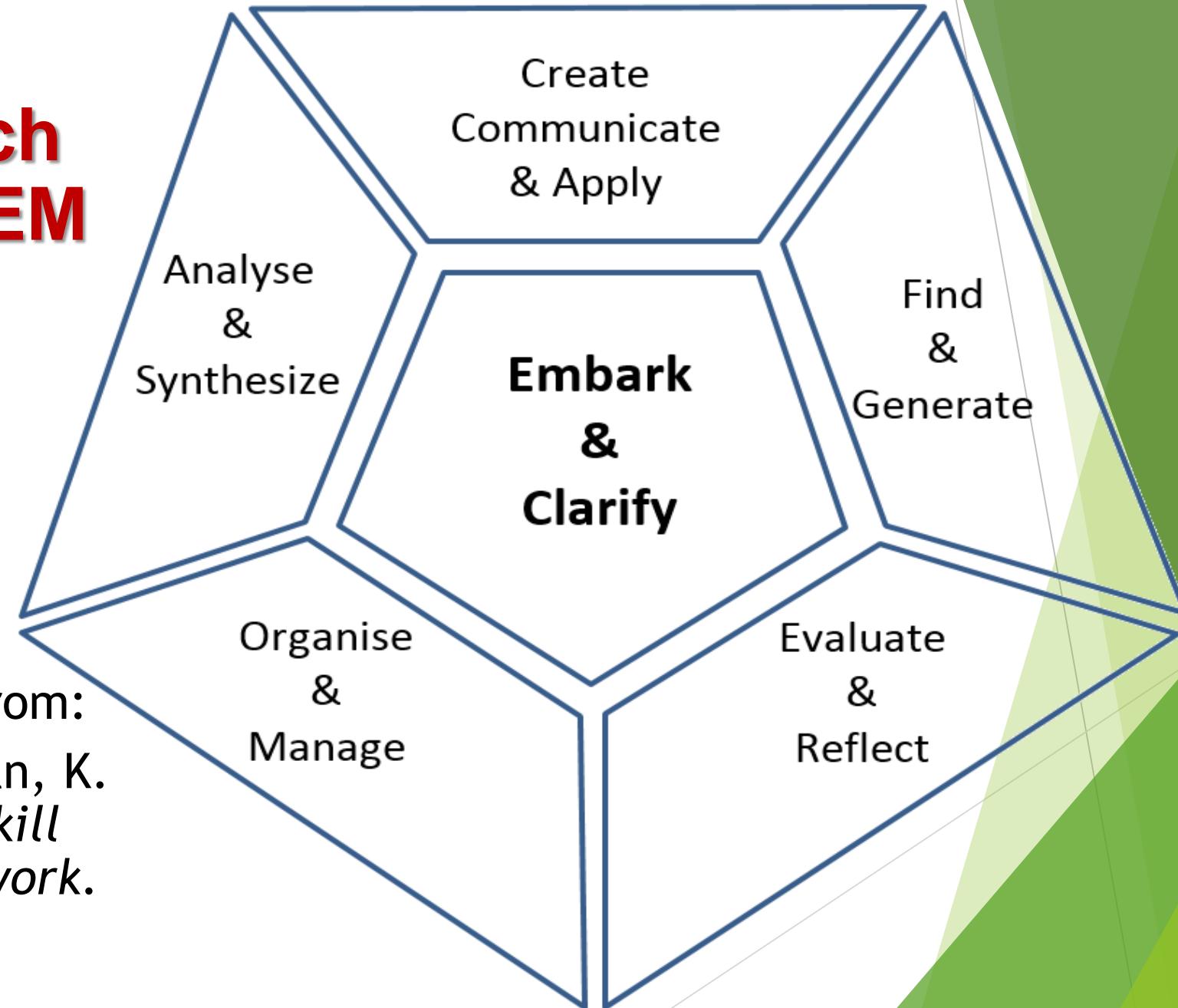
Facets of Research from:

Willison, J. & O'Regan, K. (2015). *Researcher skill development framework.*

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Task #3: Suggest Feedback Methods

Create Communicate & Apply

Analyse & Synthesize

Embark & Clarify

Find & Generate

Organise & Manage

Evaluate & Reflect
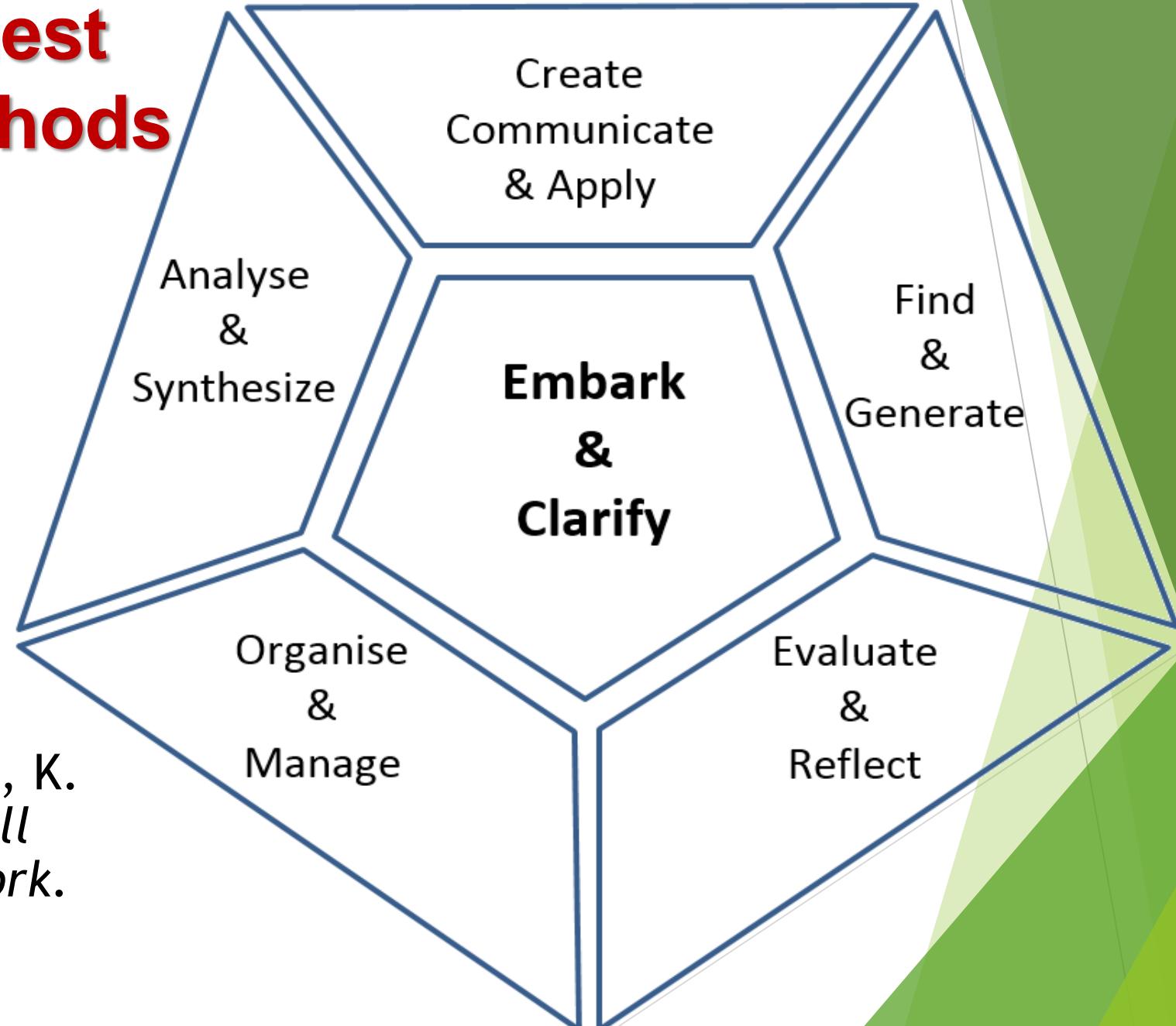
Willison, J. & O'Regan, K. (2015). *Researcher skill development framework.*

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Scenario: Applied Science

Engineering Design and Practice Sequence; first-year;

two required assignments; 900 students; showcase projects

Librarian Role:

- Set information literacy (IL) outcomes collaboratively
- Build IL guide: http://guides.library.queensu.ca/apsc
- Contribute to assignment design: List of sources (week 1); Annotated bibliography (week 4); Final design report (week 11)
- Build section of rubric to assess IL
- Provide hands-on workshop for open-ended project in year 2

Scenario: Law

Introduction to Legal Research & Writing taught by librarian

Librarian Role:
- Develop outcomes based on accreditation requirements
- Design flipped classroom model using Camtasia videos in Moodle
- Apply best practices for online learning
- Develop legal research problems for in-class group work
- Use in-class time to reinforce and build on online content

Scenario: Sociology

Sociology 122; 650 students; one capstone project; First Year Coordinator trains 18 TAs

Librarian Role:

▶ Identifies learning outcomes with coordinator and course instructor

▶ Designs scaffolded assignments to prepare students for final assignment: value of background sources; Wikipedia reference analysis; annotated bibliography

▶ Tutorial based on learning outcomes: http://guides.library.queensu.ca/socy122-tutorial

▶ Sets quiz for 5% of grade to assess tutorial outcomes

▶ Provides hands-on class based on quiz challenges

Scenario: OT/PT 897: Critical Inquiry

150 first-year students

Librarian Role:

▶ Sets learning outcomes collaboratively

▶ Creates multiple choice questions in mid-term (5%)

▶ Co-wrote chapter on literature searching in Evidence-Based Rehabilitation: A Guide to Practice, 3rd ed. (course text)

▶ Participates in assessment to review search strategies

▶ Co-designs assessment rubric: Journal Literature Search Strategy Rubric

Scenario: Medical Curriculum

Year 1: Critical Appraisal, Research & Learning

Fundamentals of Therapeutics

Year 2: Critical Enquiry (CE)

Year 3: Introduction to clerkship (Mini-scholar exercises)

Librarian Role:

▶ Set learning outcomes

▶ Create online modules for viewing prior to class

▶ Teach alone or with faculty

▶ Set assignments for each course and mark using rubrics

Scenario: Education

120 students in intermediate senior history curriculum

Librarian Role:

- Set outcomes to enable use of primary and secondary sources in developing curriculum for high school students
- Provide hands-on workshop for comparing information tools
- Create online wiki to document and discuss resources
- Create online repository for open access projects

Scenario: Across Campuses

Student2Scholar: 10 collaborative modules from Western, Toronto, and Queen's designed for social sciences graduate students;

www.student2scholar.ca

Librarian Role:

- ▶ Set outcomes based on GDLEs and threshold concepts for IL
- ▶ Create content and assessments (quizzes, videos, concept maps, research workbook, search strategy analysis, research proposal evaluation)
- ▶ Include facilitator's guide for faculty to use in class in conjunction with online modules
- ▶ Currently testing module on Grey Literature

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