Research & Advanced Scholarship

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Overview and Outcomes

One of the important differences between diploma and degree level teaching is the emphasis in Honours Bachelor degree programs on academic scholarship, research and creative processes. The ability to consult, understand and utilize primary literature, discuss new developments in the field, and apply appropriate research or creative methods are critical skills for graduates to master. The opportunity to explore one's own ideas and take responsibility for one's own learning can be highly engaging activities and may stimulate students' interest in a topic.

This final module in the series explores strategies and ideas for incorporating research and scholarly activities into your degree courses.

By the end of this module participants will be able to:

- Identify the main primary sources, current advances and key methodologies in their field
- Develop strategies and ideas for incorporating primary sources, current research and methodological methods into their lessons, learning activities and assessments

Incorporating Research and Scholarship

Many degree programs include an upper semester research study or capstone project. However, research and advanced scholarship should not be restricted to this one learning activity but should be incorporated into the curriculum at different levels throughout the entire program. A progression of learning model which guides learners to gradually develop proficiency in research and scholarship skills by increasing the complexity of activities and assignments is recommended.

Research and advanced scholarship should be incorporated into all courses throughout a degree program.

Understanding the Literature

Working with primary literature may be daunting for students unfamiliar with this type of resource. Many new skills must be developed with regards to finding and retrieving sources, discerning between valid and poor resources, and understanding, interpreting and extracting the information contained in the source, correctly summarizing and referencing the information and learning how to critically evaluate the content.

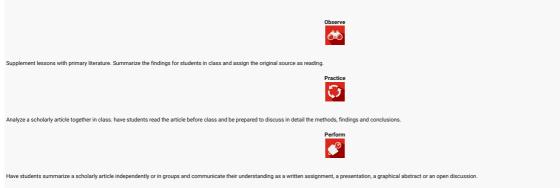**Here are some suggestions for helping students navigate these tasks:**

- Identify the different types of primary sources in your field and incorporate these into your readings. Primary sources include case studies, scholarly journal articles, conference proceedings, clinical reports, white papers, patents, dissertations, interviews, autobiographies and original creative works (music, video, photography etc.)
- Curate for your students a list of the top journals or other primary sources in your field. This can help direct students away from resources of questionable validity. Refer students to the appropriate Seneca Libraries Subject Guide for your course.
- Discuss with students how to evaluate the credibility and authenticity of the information contained in primary sources using the CRAAP test or a similar tool.
- Teach students "how" to read an academic paper/article. Students should be aware of the structure of a paper, the purpose of each section and what type of information can be obtained from each section. As students become more proficient in this activity, have them try to interpret the findings for themselves rather than rely on the author's conclusions. See the progression of learning example below.
- Identify the seminal papers, articles or other bodies of original work which led to the development of key concepts in your field. Incorporate these into your lectures, discussions and assigned readings.
- Create assessments that require students to summarize, consolidate and/or critique primary sources.
- Provide instruction in essay writing, the development of scholarly arguments, and proper citation. The library is a good source of existing resources in these topics. Consult the Seneca Libraries Guide to Citing Sources or arrange for a classroom visit by one of the librarians.

Progression of Learning for Interpreting Scholarly Articles

Observe

Supplement lessons with primary literature. Summarize the findings for students in class and assign the original source as reading.

Practice

Analyze a scholarly article together in class. have students read the article before class and be prepared to discuss in detail the methods, findings and conclusions.

Perform

Have students summarize a scholarly article independently or in groups and communicate their understanding as a written assignment, a presentation, a graphical abstract or an open discussion.

Adapt

Ask students to apply, adapt and/or critique a primary article with respect to a specific context. For example, to adapt the method or process in the article to solve a problem, to apply the findings towards a novel situation or to make recommendations to a client following a critical analysis of the information.

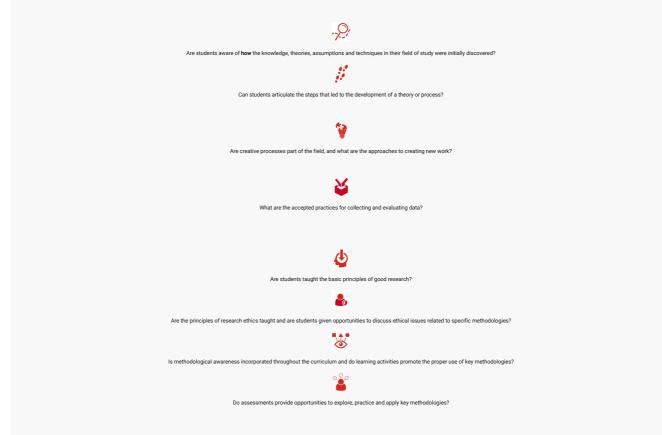### Integrating Current Research and New Advances

The discussion of recent advances in the area of study maintains currency and relevancy of the course curriculum. It can also provide an introduction to advanced topics and other timely material that is of interest to students. Awareness of current research can stimulate new ideas and help prepare graduates for future careers or continued learning.

- Identify the main areas of current research or exploration in your field and incorporate these topics into your lessons.
- Invite guest speakers (industry professionals, subject experts, alumni working in the field) to your classes to discuss their own research or creative projects.
- Assign new advances and other current topics as self-study projects.
- Encourage students to sign up to social media/news alerts from relevant journals, websites and professional associations. This can be incorporated into classroom activities or assignments.
- Arrange a site visit to an industry, business, clinic or other representative organization.
- Provide an opportunity for students to attend a conference, symposium, networking event or other professional gathering.

Key Methodologies

The ability to interpret primary research or recent advances in a discipline requires a knowledge of the methodologies involved in generating new information and content. Methodological awareness is the first step in the processes of discovery and creation. Graduates should be able to apply key methodologies to problem solving within a range of topics in their respective fields. Although methodologies will vary considerably based on the discipline, basic principles of Inquiry and Analysis should be emphasized in all programs. The following questions may guide you when incorporating methodological awareness into the course curriculum:

Are students aware of **how** the knowledge, theories, assumptions and techniques in their field of study were initially discovered?

Can students articulate the steps that led to the development of a theory or process?

Are creative processes part of the field, and what are the approaches to creating new work?

What are the accepted practices for collecting and evaluating data?

Are students taught the basic principles of good research?

Are the principles of research ethics taught and are students given opportunities to discuss ethical issues related to specific methodologies?

Is methodological awareness incorporated throughout the curriculum and do learning activities promote the proper use of key methodologies?

Do assessments provide opportunities to explore, practice and apply key methodologies?

It is important for students to be aware of the methodologies commonly used within their specific discipline. These may be quantitative or qualitative, and involve experimental, opinion-based, or observational approaches. Examples of research methodologies include controlled variable studies, surveys, focus groups, interviews, meta-analyses, case studies, and phenomenology. The choice of methodology will depend on the discipline and the objectives of the research. For a comprehensive resource on research methodologies, consult Creswell's "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches".

Ethical considerations are an important component of any research methodology and a discussion of ethics should be part of the instruction in methodologies. The Tri-Council Policy Statement (TCPS) promotes and outlines the ethical conduct of all research involving humans. Guidance on the TCPS is available through the TCPS 2 CORE online tutorial. At Seneca, any research which involves human subjects must receive prior approval from the college's Research Ethics Board. Seneca faculty and students conducting human-based research on or off campus must consult with the REB before beginning the study.

Research / Capstone Projects

Most Honours Bachelor degree programs require that students complete an original body of work in their final year of study. This may take the form of a brief thesis paper, a short research study or a capstone project. Projects may be theoretical or applied, and are generally structured to be completed in one semester. A literature review is usually a key component of the project. In many instances, studies and projects are conducted with an industry and/or community partner.

An important learning objective is for students to understand how to approach project design and management, and students may need guidance in this regard. Have students spend time developing a proposal or outline of the project before commencing. In some programs projects are split over two consecutive courses; the first course focuses on methodology and project design, while execution of the project takes place in the second course. It is essential to allow adequate time during the planning stage to secure REB approval. It is also important to ensure the scope of the project suits the students' level and can be completed in the time allotted.

Research and capstone projects are also venues for students to gain experience in communicating their ideas. Incorporate opportunities for students to present their work to their peers in a variety of different formats such as in-class presentations, poster sessions, online discussions, exhibitions and showcases.

Activity – Incorporating Research & Advanced Scholarship into your Teaching

This activity will assist you in incorporating research methodologies and academic scholarship into your teaching practice. The exercise begins with a survey of your field with respect to sources, topics and methodologies. You are then asked to consider how each of these may be integrated into your course curriculum. A template is provided to assist you with this activity.

- Identify the main areas of current research or exploration in your field and incorporate these topics into your lessons.

Step 1: Indicate the field of study in which you are teaching.

Step 2: Create a list of the main primary sources within your field. What types of sources are encountered? What specific publications, organizations or outlets are most relevant? How would you or your students access this information?

Step 3: Write down ideas for how you could use these sources in your teaching, or how you could assist students in correctly interpreting and applying these sources. Refer to the section "Understanding the Literature" for ideas. **Be specific** and develop a plan for incorporating a named source or sources into your teaching activities and assessments for a particular course that you teach.

Step 4: Identify two or three topics within your field that are areas of active research and exploration, two or three leading experts and/or two or three influential companies or institutions.

Step 5: Write down ideas for how to introduce your students to these topics and key players. How might you encourage students to follow new developments in your field? Again, develop **specific ideas** for one of your courses.

Step 6: Describe the primary methodology that is used within your field to discover new information, processes or creative development. Refer to the section "Key Methodologies" for guidance.

Step 7: Consider how this methodology is taught to and practiced by students in your course. How might you incorporate awareness of this methodology into your classes, activities and assessments? How might you help students to apply this methodology to their own creative or research projects? Try to describe one or two specific ideas for one of your courses.

Activity Template

Incorporating Research and Advanced Scholarship template (PDF)

Complete this Module and Apply for Your Badge

To demonstrate completion of the module, you will be asked to:

- Review all learning materials.
- Complete the "Incorporating Research & Advanced Scholarship" exercise and submit the worksheet.

Apply for a Badge

Badge Application Form

References

- Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada and Social Sciences and Humanities Research Council of Canada. (2014). Tri Council Policy Statement: Ethical Conduct for Research Involving Humans.
- Creswell, J. (2014). Research design : Qualitative, quantitative, and mixed methods approaches (4th ed.). Thousand Oaks, California: SAGE Publications.

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