Enquiry Based Learning

Talking About... Learning & Teaching Series

University of Birmingham

Enquiry is at the heart of the University of Birmingham's Learning and Teaching Strategy. We are committed to enabling all our students to profit from a culture of learning, aligned with our research ethos, which is based upon critical enquiry, debate and self-motivation.

Academics who want to foster inquiry in their classes put less emphasis on lectures, while incorporating more critical discourse, research, and group work. Discussion and reflection are critical features of the enquiry process.

Enquiry: Process & Product

Enquiry-based learning is an approach in which learning is driven by a process of enquiry shared with the student. Depending upon the level and the discipline, it can encompass

- problem-based learning
- evidence-based learning
- small scale investigations
- field work
- projects
- research

Enquiry-based learning enables students to take control of their own learning as they progress through their degree programmes. It encourages students to acquire essential skills for the highly competitive graduate employment sector, such as:

- Creativity
- Independence
- Team-working
- Goal-setting
- Problem-solving

Such skills are key to our graduates' personal development and enrich their capacity for 'lifelong learning'.

Essential Features

- Problem or question driven
- Involves critical discourse
- Requires self-direction from students
- Involves students in research activities such as information gathering, synthesis of ideas, and communication of research
- Evaluation of the student is aligned with enquiry learning goals

Fostering Enquiry in Your Session, Module or Programme

Enquiry is a simple concept, but complex to implement. The following list includes some suggestions for making your course more enquiry-based:

- Put less emphasis on the lecture method of teaching
- Use questioning techniques that focus on higher-order thinking skills, such as evaluating a situation or applying a principle, instead of factual recall
- Ensure congruency in questioning strategies between in-class (or online) discussions, and formal assessment activities
- Avoid accepting a single statement as an answer to a complex question
- Prompt students to extend their thinking, communicate their ideas, see issues in a different light or consider other ways of approaching a problem
- Facilitate learner interaction through group work, discussion boards, and peer feedback
- Use appropriate enhancement technologies, such as the iVLE (WebCT), tools such as questionmark, peer and self assessment, blogs, wikis etc
- Promote learning as a process, not a finished product; for example, break an assignment down into stages, giving feedback and credit for each stage
- Contact your local College E-Learning team for consultation in regards to course redesign

Give Me an Example

Students select a topic or area of study from an approved list. This can be an individual assignment or a group project. Alternatively, they may define their own specific research question from a general theme provided by the tutor. Then they begin to investigate their question. This can involve research, study, scientific experiments, observation, interviews, and so on. As students work through the project, they learn the necessary factual knowledge while gaining new ideas and building new theories about the topic. They also make interdisciplinary connections and relate the learning to their own experiences. Tutors, PGTAs, peers and/or others provide feedback throughout the inquiry process. The inquiry process is iterative, not linear: Students might refine or reject their original research question as they progress through the project and learn more about it. Discussion and reflection are a vital part of the inquiry process. Discussion allows students to share the results of their investigation, compare their thoughts with comments from others, and share personal experiences in order to make sense of their ideas. Through reflection, students examine whether or not they have reached an adequate resolution to their question, what other conclusions could be made, and what new questions result from the investigation. At the end of the inquiry process, students communicate & evaluate their results.

Evaluation in Enquiry Based Learning

Evaluation should give students the opportunity to demonstrate what they have learned as a result of their investigation, as well as the processes and skills used to generalize learning to other situations. Here are some ideas to get you started:

- Aim for fidelity between learning objectives, teaching and learning activities, and student evaluation. For example, if your objective is for students to learn how to write reports, work will involve writing reports and students will receive a portion of their grades from this work.
- Focus student evaluation on higher-order thinking skills, such as problem solving or applying new learning and skills.
- Communicate your expectations to students.
- Provide frequent and timely formative evaluation. It can come from instructor feedback, self and peer assessment. It should be frequent and timely.
- Give credit for participation in processes such as self and peer assessment, reflection, for the quality of student contributions to a discussion board (not the number of postings or words they have written).
- Ask a librarian to give students feedback and assign grades for the research portion of an assignment.

Other Considerations

- Provide rationale for using enquiry learning in the course, to promote student buy-in.
- Students need guidelines and well-defined parameters. Be clear about your expectations regarding course work and assignments.
- Set milestones for each assignment to assist students in staying on track and meeting deadlines.
- It takes a significant amount of time for tutors and PGTAs to provide the feedback. evaluation. and interactivitv needed for an EBL course.

Where Can I Go for More Information?

- **University of Birmingham Learning and Teaching Strategy (2007)**
  http://www.as.bham.ac.uk/study/assess/learnandteach.shtml
- **EBL Website (Video Case Studies)**
  University Of Birmingham
  http://www.ebl.bham.ac.uk/
- **Social Sciences (General) - Problem Based Learning Resource Centre (WebCT self enrolment)**
  http://www.weblearn.bham.ac.uk/selfenrol_2008-09/
- **Guide to Curriculum Design: Enquiry-Based Learning**
  Peter Kahn and Karen O'Rourke
  http://www.heacademy.ac.uk/resources/detail/id359_guide_to_curriculum_design_ebl
- **Teaching & learning through inquiry: A guidebook for institutions & instructors.**
  Lee, V. S. (Ed.). (2004). Sterling, VA : Stylus.
- **Inquiry and critical thinking – Reflective inquiry. Garrison, D.R. (n.d.).**
  http://commons.ucalgary.ca/documents/ReflectiveInquiry.pdf
- **Technology and Problem-Based Learning.**
  Uden, L. and Beaumont, C (2006). London : Information Science Pub.
- **Your College E-Learning Team**