Research Based Learning: An Igniting Mind

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Abstract:

Globally there is an overwhelming concern over the quality and relevance of education. Undoubtedly, quality of education is direct consequence and outcome of the quality of teachers and teacher – education system. Now a day, Universities are introducing new pedagogies in response to changing social demands. These demands are encouraging universities to experiment with new ways of educating students. Studies have proven that Research-based learning (RBL) when implemented well, can increase retention of content and improve students' attitudes towards learning, among other benefits. The goal of education at research-intensive universities is to provide students with the capacity for academic thinking.

Keywords: *Education. Igniting mind, RBL*

1. Research Based Learning

By research-based learning we mean:

1. All programmes will actively develop students' independent research skills and provide students with opportunities to put these skills into practice such that at the culmination of the programme, students are able to undertake, with supervision, an autonomous piece of research work
2. Students can articulate the benefits of their research-based experience, and describe the skills they've acquired and demonstrated.

As such, it would include Enquiry based Learning, problem-based learning, project work, field-work, case studies etc. research carried out as part of the curriculum by the students - would have the following essential components :

1. Learning the epistemologies and forms of discipline-based inquiry
2. Learning particular disciplinary research methodologies
3. Linking the questions and forms of inquiry explicitly to academic staff research interests and current research foci in the disciplines; and
4. Producing work that mimics the forms of knowledge creation and dissemination in their disciplines and professional areas.

2. Principles

There are some principles which are given below:

1. Research-based learning (RBL) is the fundamental basis of all the educational programmes and should be evident in all modules, even those that might be described as 'basic' in that the origins of basic knowledge once too must have derived from original research or thought.
2. Within the context of the discipline, all educational programmes will demonstrate explicitly the integration of research with learning and teaching, incorporating the development, practise and assessment of appropriate academic skills and competencies ('academic literacy').
3. RBL can be characterised as a journey, taking students from their school-based experience through research-led teaching to research-based learning – a journey from being taught to being autonomous, self-reliant, supported and supervised.

4. Schools should be able to demonstrate how any educational programme will take all students through the RBL journey from research-led teaching to research-based learning, irrespective of the options a student might choose.

3. Approaches to Research-Based Learning

Some possible approaches to research-based learning are student led, while others are teacher guided.

1. Teacher Guided Investigations

These type of investigations are generally set by the teacher. That is, the problem, topic or nature of the investigation is defined by the teacher to a greater or lesser extent. Depending on the age, ability and experience of the students, the teacher can take more or less of a part in guiding the students as they explore the ways in which they can complete the investigation.

2. Student Devised Investigations

Here the student defines the investigation as part of studying a particular topic that is taught in a curriculum or scheme of work. If the investigation is part of an ongoing curriculum topic the teacher may have to define the broad science area (i.e. light, energy, forces) but the student could devise the investigation themselves within the boundaries of the topic and resources available.

3. Collaboration with Students

As such, it is good for students to work with other students in a collaborative way. Investigations can be defined by the student group or by the teacher . Collaborative work such as this helps students develop an understanding of how a team can work in an interdependent way to achieve a specified outcome.

4. Collaboration with Professional Scientists

The opportunity to work with professional scientists has some very real benefits for students and for their teachers. Scientists are experts in their areas of research and have a passion for their subject like nobody else. This enthusiasm can be a very powerful motivating factor for students

4. Research Process / Student Activities

1. Formulating a general question
2. Overview of research-literature
3. Defining the question
4. Planning research activities, clarifying methods/methodologies
5. Undertaking investigation, analyzing data
6. Interpretation and consideration of results
7. Report and presentation of results

5. Benefits of Research-Based Learning

5.1 Potential Benefits for Students

1. Motivation

Students report that they are often inspired by lecturers whom they perceive to be experts in their field, and who convey their enthusiasm for the subject.

2. Active learning

Students tend to learn most when they are actively involved in developing their knowledge.

3. Skills development

Through research-based learning students can develop the intellectual skills of critical analysis and also valuable transferable skills such as group work, time- and resource-management and data handling.

1. Through research based learning students get Opportunities to develop complex skills, such as higher-order thinking, problem-solving, collaborating, and communicating.
2. Student's attitude will be improved toward learning.

5.2 Potential Benefits for Staff

Drawing teaching and research activities closely together supports an economy of effort between the two.

1. Less time spent on teaching preparation

The more research-like learning activities' that can be devised for students, the less the teacher has to concentrate on preparing a content-based curriculum.

2. Contributions to the research process

The more involved students are with research-like learning, the more likely there will be dialogue between students and teachers which feeds into research activity.

3. The Relationship between Teaching and Research

In the now widely cited classification, Griffiths (2004) described a number of models of the relationship between teaching and research in the following way:

1. Research-led teaching - based on the 'information transmission' model; curriculum structured around subject content; focus – understanding research findings;
2. Research-oriented teaching - curriculum structured around research processes as well as subject content; focus – understanding research processes, teaching inquiry skills and 'research ethos';
3. Research-based teaching - curriculum designed around inquiry-based activities; focus - learning through inquiry; the teacher-student division minimised.

6. Challenges Facing Teachers

Teachers who bring Research-based learning into the classroom may have to adopt new instructional strategies to achieve success. Having the teacher take the role of guide or facilitator is not the way that most educators were taught, nor even the way they were taught to teach.

Specific challenges facing teachers include:

1. Recognizing situations that make for good projects
2. Structuring problems as learning opportunities
3. Collaborating with colleagues to develop interdisciplinary projects
4. Managing the learning process
5. Integrating technologies where appropriate
6. Developing authentic assessments

Indeed, teachers may have to be willing to take risks to overcome initial challenges. A supportive administration can help by implementing more flexible schedules, such as block schedules or team planning time, and providing teachers with professional development opportunities.

7. To Encourage the Research in Learning

7.1 Create an Active Learning Environment

- Create short narrated presentations for students to be able to review repeatedly and when needed
- Provide sample exams and LowStakeQuizzes to help students assess their own learning
- Provide links to additional resources for further analysis
- Keep in-class discussions alive after class ends in an online forum
- Warm-up students for in-class discussions with thought-provoking questions in an online discussion forum
- Consider holding a virtual class session around a holiday when you or many students may have to miss class

7.2 Provide and Gather Timely Feedback

- Use frequent and low-stake quizzes with automatic feedback that help clarify why an answer is correct or wrong
- Use anonymous mid-semester evaluations to gather suggestions from students on how to improve the course

- Use online gradebook to keep students always up-to-date on their performance
- Collect, skim, and copy samples of students' most common "muddy point" posts to address in-class
- Post periodical highlights of important student discussions or submitted works for that period
- Develop high-level conceptual questions for students to answer and convince a classmate why they think they're right
- Use 'hidden text' features in electronic documents to provide feedback on submitted works

7.3 Encourage Faculty-Student Interaction

- Develop a clear policy to manage and set appropriate expectations of how, when, and what communication channels will be used
- Consider holding virtual office hours with online chat during a specified time but any location
- Maintain your own Frequently Asked Questions (FAQ) to easily respond to repetitious student questions.

7.4 Encourage Students-Student Interaction and Collaboration

- Establish group spaces for student teams to share files, discuss, and collaborate
- Develop high-level conceptual questions for students to commit to an answer and convince their classmate of their logic
- Establish or help students establish their own specific roles in team projects
- Establish a student-driven FAQ space for peer instruction and support.

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