

Centre for Excellence in Enquiry-Based Learning

Essays and Studies

Enquiry-Based Learning, internationality and interdisciplinarity:
a case-study of a trial Anglo-American student event

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The principles and process of Enquiry-Based Learning

Enquiry-Based Learning refers to types of learning driven by a process of enquiry. The emphasis on collaboration and co-operation places the students themselves at the centre of the process: it places the responsibility for the learning process on the participating students themselves.

The course tutor sets out the general area of study and the themes to be covered. The tutor sets out the scenario within which the learning process will take place.

It is then the students who examine the materials presented and determine how the task will be pursued. Students will identify existing relevant knowledge within the group, define areas where further knowledge is required and decide on appropriate research methods to fill the gaps in knowledge. It is the students themselves who identify the required resources and how to use them; and it is the students themselves who decide on the appropriate format for outcomes, within the parameters of the assessment requirements provided by the tutor. Thus the learning is continually student-centred and collaborative. Students need to agree among themselves about individual contributions, distribution of research tasks, and responsibilities for parts of outcomes.

Interdisciplinary Study and Enquiry-Based Learning

Processes for learning are integral to disciplinary learning. They are central to 'knowing and behaving like a lawyer, engineer, historian etc....'. They are also integral to learning in the world that lies outside institutionalised academic learning....a world of unpredictability, a world in which knowledge is shared and grown within small work groups. (Jackson 2003)

An interdisciplinary approach to academic study is inherently collaborative. It brings together scholars from different academic disciplines (as traditionally conceived) in order to work jointly towards shared objectives. It works on the premise that many problems and tasks raise issues that relate to two or more subject areas.

Interdisciplinary studies may be defined as a process of answering a question, solving a problem, or addressing a

topic that is too broad or complex to be dealt with adequately by a single discipline.

(Julie Thompson Klein and William H. Newell)

This is true of many existing academic areas. For example, some critics would argue that the study of a cultural artefact (such as a novel, a painting, a play, a musical composition) necessitates knowledge of the social and historical conditions under which it was created. The whole area of cultural criticism as it has been developed in the late twentieth century rests on such an assumption.

Existing academic areas may develop in ways that bring together significantly different aspects, such as the social analysis of technology. New research areas may arise that straddle existing academic subjects: for example, bioinformatics combines biology and computer science.

Moreover, it may be the case that social problems, such as global warming or disease control, necessitate for their attempted solution expertise drawn from several areas.

Because Enquiry-Based Learning brings students together into collaborative learning sets, it is **structurally** appropriate for interdisciplinary activity. Collaboration is the key word, for the research outcomes need to reflect an interpenetration of different disciplines.

These outcomes may be effected by a process more exactly described as **multidisciplinary**. Here, researchers from more than one discipline may work together on a shared project, but each contributes his or her area of expertise towards an amalgamated result. The individual student thus does not change the essence of his or her own method or alter his or her conceptual framework. The outcome (the presentation, the paper, the poster, the essay) constitutes a compilation of different strands. It may be argued that true **interdisciplinarity** involves a conceptual development in the participants, by which their recognition of the inter-relatedness of aspects of the problem necessitates a degree shift in the conceptual framework of each student. Individual approaches are not just combined, but modified in the process of combination.

Example: An Inter-disciplinary Student Summer School

In September 2003, undergraduate students from the University of Manchester and UMIST were invited to apply for a place to participate in a three-day residential off-campus Summer School 'Inter-disciplinarity with Social Responsibility' organised through the Universities' Student Enterprise Office by Marcia Ody and Karen O'Rourke. This pre-semester pilot event was free of charge in exchange for students' energy, enthusiasm, commitment and ideas. To gain a place applicants were asked to submit a short written (500 words) account of their views on the potential benefits of interdisciplinary study and how it might make a difference to their education and professionalism.

Twenty-three students representing a diverse range of disciplines, ages, gender and cultural backgrounds were eventually allocated places, sub-divided into three interdisciplinary groups, with three staff facilitators (Karen O'Rourke, Marcia Ody and Bland Tomkinson) assigned one group each to lead throughout the experience. The Summer School benefited from the expertise of Visiting Professor Charles Engel (Centre for Higher Education Studies, University of London) who had recently challenged our Universities to examine current ways of teaching and learning and our philosophy about education for the professions. It was Professor Engel's belief that we should be preparing students to work together across disciplines in order to face the ever-growing dilemmas of this new century, and so it was appropriate that he should attend the Summer School to provide advice and support to the staff facilitators and the student groups. An international colleague, David Chapman, Dean, Howard College of Arts and Sciences, Birmingham, Alabama USA, was invited to join the Summer School, to observe activities and provide feedback from an external perspective in order to support an evaluation of the initiative.

Over the course of the three days, after an ice-breaker activity during which each group created an 'emblem' or identity, students were asked to work collaboratively in their set groups on a real-world issue, 'Refugees', and enquiry-based learning (as characterised above in 1) seemed the most appropriate method to encourage wide exploration of ideas and discipline perspectives. The groups were provided with limited resources (newspaper and magazine articles) to kick-start their discussions and were asked to work towards a group presentation to be delivered at the end of day two.

Time spent working on the task was negotiated between the students within each group and freedom to choose where to work and the eventual format of the presentation were also within the students' power.



Student reflections on this process included:

We found that it was the skills we learned from this experience listening, communication, empathy, tolerance, negotiation, patience, time management, focus....everyone feels they have got a role or some part in the group and there is equal power relationship within the group. We learned how to step back from things sometimes, to see things from other people's views. And we just changed our way of thinking a bit..we have all been taught to think, and now we see a different way to think....

At one time universities were a place where you weren't just given an education in narrow subjects, it was somewhere you came out and you were expected to be wise in the world as well. Most students are 20 years plus, and if you are not going to accept responsibility when you are 20 and above then when are you going to start accepting responsibility? I mean, what is the purpose of a university? Does it have a responsibility to open our eyes to the bigger picture, as we have done over the past two days, to other disciplines, to show us that it is not just our way of thinking?

The third day of the Summer School was spent in a student-chaired whole group debate on how interdisciplinary study might realistically be introduced into programmes of study. This lively discussion was tape recorded and transcribed, and provided many useful ideas to support moving our ideas forward as well as identifying some of the challenges for development and implementation of interdisciplinary curricula. Our external observer, David Chapman, commented:

I was able to see how deeply the EBL work has permeated the academic culture. The students demonstrated their ability to work methodically through a complex problem. In reviewing their own group processes the students enthusiastically endorsed the goals of the summer school and recommended that the



opportunity be extended to more students. They recognised the critical need to communicate across disciplinary boundaries and to view their work in the context of global concerns. The unanimous opinion of the students and staff was that social responsibility was not an optional element of the curriculum but an essential element that is necessary for the university to fulfil its mission in society.

International Collaboration and Enquiry-Based Learning

An element of many EBL scenarios is that they contain an international dimension. This is evidently the case with such problems as global warming; but it may also be the case that issues traditionally approached through a single perspective may be enriched by the addition of an international element. At the very least, such an addition provides the possibility of increased learning on the part of participants, as they are thereby made aware of the kinds of assumptions or arguments made by people from other cultures and societies. Again, the collaborative nature of Enquiry-Based Learning makes it an ideal vehicle for this extension.

Example: An Interdisciplinary International Pilot Project

Building on the outcomes of the Summer School outlined in (3), and following Karen O'Rourke's on-going dialogue with David Chapman, it was decided to run a similar small-scale project, this time bringing together students from The University of Manchester, UK, and Samford University, Alabama, USA, to cover some of the questions we as members of staff had been asking:

- To what extent does Enquiry-Based Learning facilitate a deep level of cross-cultural interaction?
- Does national identity affect interaction and decision-making?
- What factors affect the ability of an international group to engage in productive dialogue?
- What do American students perceive to be typical characteristics of British society?
- What do British students perceive to be typical characteristics of American society?
- What techniques can be used to promote deep interaction in cross-cultural environments?
- Can Enquiry-Based Learning be used as a means of promoting a deeper understanding of other cultures beyond that of the usual student exchange experience?

Between 4-5 January 2006, exploiting the availability of group of seven students from a Baptist College at Samford University, Alabama (visiting the UK as part of their credit-rated London Program of Study www.samford.edu/groups/london/jan2006) a two-day interdisciplinary EBL workshop was held at the London offices of the University of Manchester. Seven students from across Manchester's four Faculties volunteered to participate and were accompanied down to London to meet the Samford students, having already made some tentative pre-meeting introductions by email and WebCT to plan a mutually acceptable social activity for the evening of 4 January. The Manchester participants, as part of involvement in other interdisciplinary activities, knew each other fairly well but it was interesting to note that the Samford students were not as socially familiar with each other. A Samford student response to email contact from a Manchester student included:

I can get a list of names and emails of all the people in our class. There are only six of us, but I don't know everyone's last names. I am loving that we are getting in touch with each other already and am so excited! I can already pick up on some differences in "culture" just in emails! We are so excited about January, I can't believe how close it is!

Staff facilitators were drawn from both institutions: Professor Dana Basinger (Samford), Dr Bill Hutchings (Manchester) and William Carey (Manchester) and the workshop was structured and facilitated overall by Karen O'Rourke.



On January 4, Day One, informal introductions were made over a buffet lunch. Then in plenary Karen gave an overview of the programme, a re-cap on the EBL process, introduction to the facilitators, presented the task and assigned students and facilitators to their groups. The participants were sub-divided into three groups representing a mix of disciplines and UK/USA students. Students immediately immersed themselves in examination of the resource materials provided and engaged in wide-ranging discussion.



The task

The topic chosen by the tutors for this interdisciplinary workshop was 'Crime and Punishment'. The students were given the following limited resource materials (since the event took place in London, the materials were chosen from an English context):

- Two news reports from *The Guardian*, dated October 1st 2005 and November 12th 2005, reporting violent attacks on schoolgirls by fellow schoolgirls (www.guardian.co.uk/classroomviolence/story/0,,1640952,00.html) and www.guardian.co.uk/crime/article/0,,1582560,00.html)
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- An opinion column by the journalist and social commentator Simon Jenkins (*The Guardian*, 30 November 2005), arguing against the theory that getting tough on crime involves an increase in the use and length of prison sentences (www.guardian.co.uk/Columnist/Column/0,,1653728,00.html)
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- A copy of Samuel Johnson's *Rambler* essay number 114 (April 20th, 1751), arguing against the theory that increased use of capital punishment will bring about a decrease in criminal activity (www.gale.com/EighteenthCentury/)

The exercise had as its focus two key questions:

- How far would the students' processes and outcomes reflect a genuinely interdisciplinary approach?
- How far would the students' processes and outcomes reflect a genuinely international approach?

Between 2:00pm and 5:30pm students negotiated their working time and comfort breaks in line with their perception of their progress with the task. By 5:30pm most

students were ready to close the day's activities and left the offices to enjoy free time and the pre-planned, tutor-free social event.

January 5th, 9.30-12.30 the students re-convened in the same groups to continue facilitated sessions. Some time was spent re-visiting the material and notes produced by the students the day before. There was some reformulation and reconsideration of issues and a move towards making decisions on what ideas would best represent the outcomes of their discussions. Each student sub-group had been asked to produce a poster to present to the whole group and then to make a short oral presentation using their poster as a guide. At the end of these presentations, time was allowed for the group facilitators to give some feedback on their observations of the EBL processes undertaken by the groups.

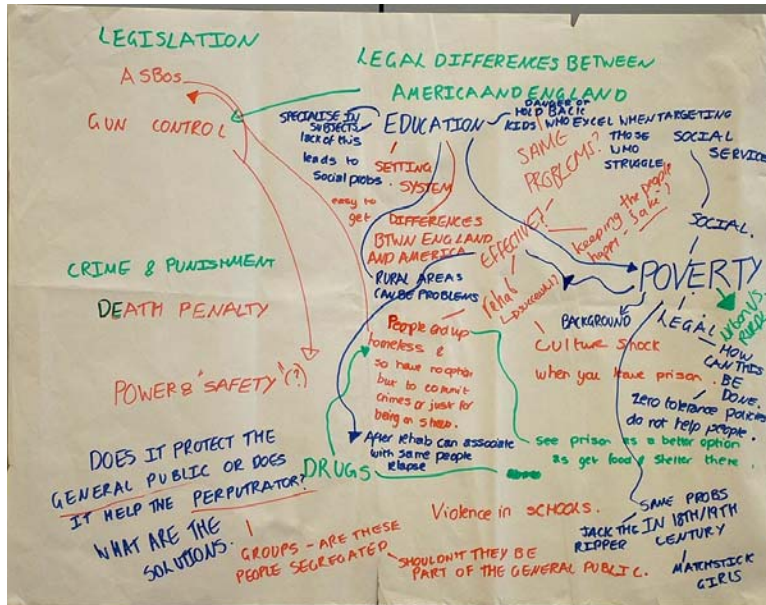
After lunch, between 1:30pm and 3:00pm, a collective discussion was led by a student chair, reviewing the processes undertaken in the task, and the challenges and opportunities revealed through the international and interdisciplinary aspects of the activity. What 'values' emerged? What did students as individuals get from the event?

Outcomes

Group 1

Group work centred on the relationship between the legal frameworks and social structures of the countries. Causes of criminal behaviour were identified as lying within large cultural and social issues.

Presentation noted that two different cultures were producing the same, or similar, social problems. Hence the sources of the problems may well lie in causes deeper than social differences. Poverty, the level of education attained by offenders, the positions people hold in society were identified as possible root causes. The key result of an accurate identification of root causes would be to develop a strategy that is preventative and not reactive. Actions advocated were micro-scale empirical studies, such as of the operation of ASBOs in the United Kingdom.



Group 1 'pre-presentation' notes



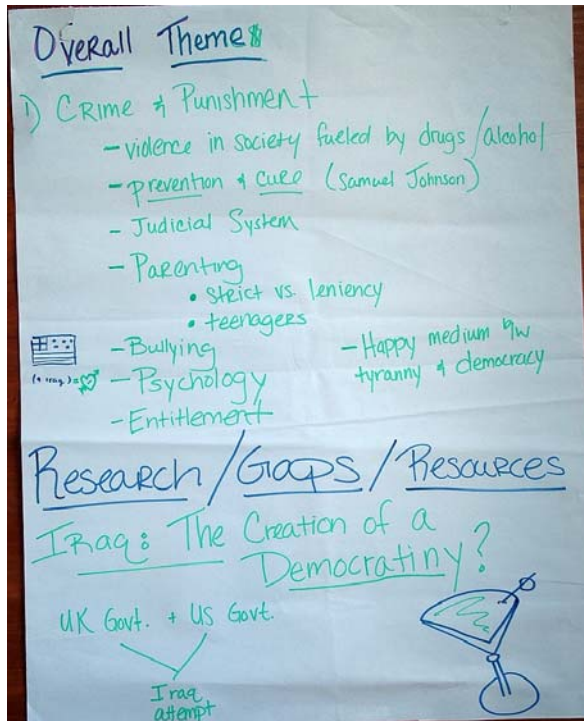
Group 1 Presentation Poster (D)

Group 2

Group work took as its focus the religious aspects of the issue. Do the laws operating in a society emanate from religious dogma? A research project was projected, with the aim of defining what are the law-making structures in different countries. Given the contemporary political situation, Iraq was identified as a rich source of research material.

Presentation defined the intended research project. Iraq was to be the case-study, with key questions to include: "Who is currently making the laws in Iraq?" and "What is the role of the law in the Iraqi state and in the Iraqi education system?" Research

methods were to attempt to gather data by setting up communication with: (a) agencies of relevant governments (Iraq, United States, United Kingdom); (b) elements of the Iraqi population; c) representatives and controllers of media.



Group 2 Presentation Poster (B)

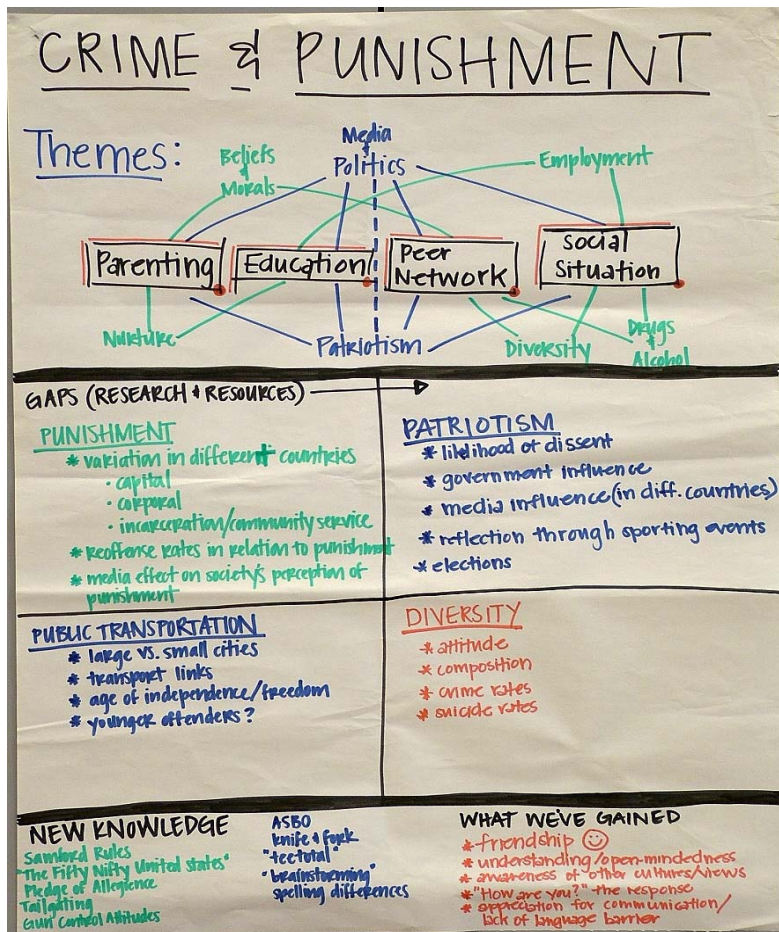
Group 3

Group work concentrated on the identification of key strands within the issue: education, systems of punishment, cultural differences, parenting. The group then sought to establish the research processes that would be needed to gain the required information.

Presentation set out the identified themes, then subdivided them into constituent factors. Key research areas were then identified, such as re-offending rates in relation to different forms of punishment in the different countries. Methods of research were located, such as questionnaires and sampling. Outcomes were anticipated to provide new knowledge for the group, leading to increased inter-cultural understanding.



Group 3 'pre-presentation notes' (C)



Group 3 Presentation Poster (A)

The posters and linked oral presentations demonstrated that the following outcomes had been achieved:

- Increase in knowledge of the other society: posters A, D

- International cooperation: poster A
- Awareness of differences between societies: posters A, B, C, D
- Some awareness of the historical dimension: poster B
- An interdisciplinary approach: poster A

It was perhaps inevitable that the novelty of a first meeting between two sets of students from different nations should result, in the first place, in a significant emphasis upon the different national approaches to the issue of crime and punishment. Thus a **fostering of international understanding** was the most prominent outcome. The facilitators observed that a considerable amount of time was spent in exchanging information about the two societies, especially in the early stages of work on the task. Thus the process of transforming students' prior conceptions of the other society took place within the general preliminary discussion. This discussion is reflected in some of the posters, such as poster D's combination of American criminal issues (the death penalty, Columbine) and British criminal issues (ASBOs). All the groups were struck by differences between the societies around the question of gun ownership and control.

Less marked was a movement from understanding to shared approaches and then to solutions. But there was clearly some evidence that thought had been given to how **diversity** could generate **collaboration**. For example, the structure of poster A shows 'diversity' as a sub-section of generic thematic areas, such as Media and Politics, as mediated through the social situation. 'Diversity' is then given its own space in a group of four major areas (Punishment; Patriotism; Public Transportation; Diversity), with its own four sub-headings (attitude; composition; crime rates; suicide rates). In a less carefully structured way, poster C locates different cultures as creating different kinds of crime. The movement from poster C to poster A (reflecting different stages of the work of one group) shows how initial concentration upon difference can be worked into a more integrated set of issues for investigation.

The task's invitation to consider **interdisciplinarity** was taken up in poster B's observation of the existence of similar problems of crime and punishment in the eighteenth and nineteenth centuries. However, no group really followed up the possibilities of pursuing a historical dimension. This may well be because time did not allow for the kind of extensive research that a pursuit of the historical dimension would involve. Interdisciplinarity is more strongly reflected in poster A's combination of social

issues (such as parenting and education) and geographical issues (such as transport), and these would certainly have been further developed had time allowed for more work on the task.

Conclusions

The limited time-scale of the exercise inevitably restricted the outcomes. It is significant that poster A's list of 'what we've gained' has friendship at the top of the list: the initial stages of an international student event are likely to generate inter-social relationships, but there may be some evidence here that the EBL process itself, centred as it was on an intriguing and thought-provoking collection of trigger resources, stimulated inclusive discussion and thus contributed to group social cohesion. Poster A structurally parallels 'New Knowledge' and 'What We've Gained', indicating that such inter-social processes are an integral part of the sharing of knowledge which has to be the basis for international collaboration. The work of all the groups strongly indicated that a period of time spent understanding the nature of the different societies is the essential grounding for working towards outcomes that have cross-cultural concerns. For example, poster B has 'Legal Differences between America and England' as a key heading. Thus emphasis upon the **international** dimension took precedence over **interdisciplinary** enquiry.

Reflection

The collective discussion with which the event finished ranged broadly over the experience. Key themes that emerged were:

- The nature of the material provided as stimulus to Enquiry-Based Learning. Does the material matter: does it define approaches or does it merely indicate the general thematic area for work? There were markedly different views about the extent to which the materials are central or peripheral to the discussion. The open-endedness of the issues was identified as a crucial factor.
- Awareness of national identities. Differences were seen as allowing a wider degree of exploration of the relevant issues. The international nature of the experience was thus seen as central to its effectiveness.
- The qualities of Enquiry-Based Learning as an educational system. Qualities identified included: active engagement of students as a means to greater retention of ideas; the process maintains a substantial degree of focus on the part of

students; the process obliges students to develop their arguments robustly, as they have to defend them and argue for them.

- How transferable across the disciplines is Enquiry-Based Learning? Focus here was particularly on the application of the method to the sciences, where a firm factual basis was seen as essential. The participants stressed that facts alone were not enough: the key question was what one does with the facts. Subject areas were seen as having implications outside the immediate knowledge area of the discipline. For example, medicine was involved with ethical values and economic issues; and engineering was affected by issues of the environment and sustainable development. The interdisciplinary issues were thus seen as crucial to the full development of Enquiry-Based Learning. Education was defined as being about more than one's subject area: it is about developing the all-round individual.
- The transferable (to career etc) skills developed.
- The advisability of making Enquiry-Based Learning a part of students' experience in their early years.

Student reflection given some time after the Manchester-Samford event included:

One of the activities I most enjoyed were those where I can collaborate and learn from others. I feel the Samford exchange event is an excellent example. It raised a number of thought-provoking points.

One of my most enjoyable experiences was the Samford exchange. It was such an interesting cultural experience and it demonstrated how much can be learnt about a subject from such a learning tool [EBL].



References

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Websites

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