

## Section 6. Matters arising - stages in teaching the research process

### Introduction

Discussion in this section focuses on attempts that have been made to delineate stages in the learning process through which undergraduates pass in order to enhance their research skills. The notion of defining these stages links with including a dissertation preparation course unit in history programmes, a matter examined in the previous section, but extends the scope of the discussion by adding a conceptual perspective to curriculum planning that helps to inform both the nature of, and the rationale for, the types of provision that are made at each course level.

To illustrate the approaches that have been adopted, examples from the University of California, Berkeley (history), Otago University in New Zealand (geography), and Santa Clare University, California (sociology) have been selected. Each has considerable use value in demonstrating how students' research skills can be enhanced throughout their undergraduate programmes, raising matters that are of fundamental concern in terms of curricular design, especially with the promotion of autonomous forms of learning in mind.

### Teaching history research at Berkeley

#### Institutional response

Responding to the Boyer Commission of 1998, which advocated as one of its key principles the need to involve all undergraduates in the research process, the University of California, Berkeley formulated an approach to linking teaching and research - the Undergraduate Research Trajectory - that identifies three stages in the development of undergraduates' research competency. By progressing through these stages, it is argued, the quality and sophistication of students' research capabilities continually rises. The three stages are:

#### 1. **Exposure** Features are:

- Students learn to recognize a good research question.
- They are exposed to methods of approaching the research problem, including identifying, gathering, evaluating, and synthesising evidence, information, and ideas.
- As a rule, faculty members are fully responsible for structuring the research question and the approach.
- In some cases, students may be engaging questions the answers to which are already known

#### 2. **Experience** Features are:

- Students practice formulating research questions and developing plans for approaching research problems, the answers to which may be either known or unknown.
- They acquire research skills such as conducting a literature review or learning qualitative interviewing techniques.
- They may practice structuring a research problem and plan for investigation, which they carry out under close faculty supervision. Or they may contribute to the conceptual development, execution, and analysis of an ongoing research project a faculty member has defined.

### **3. Capstone** Features are:

- Students marshal the skills needed to develop their own research or creative questions and to initiate investigations, the outcome of which is largely unknown.
- In doing so, they organize and synthesize knowledge and skills acquired in the course of their undergraduate career under the guidance of a mentor.
- Students typically have opportunity to present the results of their inquiry to a larger audience. This audience may vary widely and could include, for example, a classroom symposium, publication in a student-run journal, participation at a professional conference or presentation as part of a student-initiated course.

**Source:** Analytical Essays: 1.Preparing Students for Successful Capstone Experiences at [http://education.berkeley.edu/accreditation/ee\\_essays\\_1.html](http://education.berkeley.edu/accreditation/ee_essays_1.html)

### **Points arising**

1. Those Stage 1 students actively engaging in re-discovery as opposed to new research, it is argued, still gain a deeper understanding of the research process. The essential point here is that they are being invited to consider the processes involved in undertaking research activities and not merely to appreciate the findings that arise from research. It might be concluded that the re-discovery dimension is a crucial first-stage in learning about the research process, not only to inform students about the requirements arising, but also to give them confidence and insights that will save them time and effort when they come to engage in their own original research.
2. Students at Stage 2 are seen as being typically committed to a major subject and are gaining discipline-appropriate tools and knowledge. A key question to address here is that of how much historical understanding, including consideration of research activities, students actually need before they become actively involved in research projects.
3. It is acknowledged that the level of independence students achieve at Stage 3 might vary considerably between disciplines, with a high degree of autonomy and solo work arising in some instances; whilst in others knowledge is typically generated through teamwork or collaboration. Probably history students will gravitate towards the former approach as far as final-level dissertations are concerned, though the extent to which they might engage in group project work, and at what stage in their programmes this might take place, are also matters to consider.

### **History subject response**

In relating its provision to the Undergraduate Research Trajectory, the university's history department offers both upper and lower division course units. These are:

#### **1. The Practice of History** Features are:

- It is a lower division elective course unit. Its objectives are to help students understand (a) what constitutes primary source evidence (b) where evidence can be located and how it is validated (c) how evidence is placed into context, what questions can be asked of it, and what interpretations are possible as a result of such interrogation (d) how master historians have used evidence and written.
- The course unit is also designed to help students develop formal citation skills and understand established protocols for academic honesty.

## **2. History proseminars** Features are:

- They comprise a suite of upper division course units that are organized around themes, times and places, one of which has to be taken by major history students.
- They seek to develop the historiographical or methodological skills necessary to complete the required senior thesis.
- In some instances, students are required to use primary material in the assessed coursework they prepare.

## **3. History Research seminars (capstone)** Features are:

- They also comprise a suite of upper division course units that are organized around themes, times and places and again one of them has to be taken by major history students.
- Working independently, students undertake an original research project using primary sources and placing their findings in historiographical context.
- A 30-40 page research project is required.

**Source:** Further details can be found on the history department's website at <http://history.berkeley.edu/undergraduate/courses/spring2006/lowerdivision.html>

### **Points arising**

1. Major students are advised that it might be preferable to take a proseminar before enrolling for a capstone. Taken in the sequence, the three course units relate closely to the Undergraduate Research Trajectory, though the attention paid to the use of primary evidence varies from one prosemester to another. Even so, the emphasis the prosemesters place on historiographical awareness enables students to deal with a fundamental research matter that they need to address in their capstone course unit.
2. In terms of curriculum design, a major consideration to arise from incorporating a progressive suite of research-orientated course units into an undergraduate programme is that of how far other course units in the programme are also given responsibility for enhance students' research expertise. More advanced course units might well be able to do so with regard to promoting historiographical understanding, for example. There may also be scope at all levels of provision for introducing practical exercises into seminar sessions that engage students in using primary source material to investigate historiographical issues.

## **Teaching geography research at Otago**

### **The conceptual framework**

At issue here is how fieldwork should be taught to geography undergraduates. The guiding principle is that disciplinary study should be contextualised by teaching how knowledge is generated, with understanding of research methodology preceding its application in the field. The approach is informed by using two continua, namely observation-participation and dependency-autonomy, to define the nature of the learning stages for students. These continua are set out below to define four types of learning and teaching dimensions.

Autonomous

Autonomous/independent observation	Autonomous participation
Dependent observation	Dependent participation

Dependent

**Source:** R.Panelli & R.V.Welch, 'Teaching research Through Field Studies: A Cumulative Opportunity for Teaching Methodology to Human Geography Undergraduates', *Journal of Geography in Higher Education*, 29 (2005), pp.255-77.

Expressed in relation to geographical fieldwork these types are:

1. **Dependent observation** - staff guide the activity with the students being mainly in the role of passive observers. This is seen as the 'Cook's Tour' approach to fieldwork. (The less elegant term 'talk and gawp' is also used.)
2. **Autonomous/independent observation** - students define the object and mode of field observation.
3. **Dependent participation** - staff define the parameters of data gathering in the field which is undertaken in by students.
4. **Autonomous participation** – students define the nature of data gathering in the field and undertake the data gathering.

### Points arising

1. The first two cases are seen as primary learning outcomes, though student autonomy varies. The second two cases show students gaining hands-on research experience, whether by staff-led, group or individual investigation. Autonomous participation is evidently seen as the most demanding of the processes, though the autonomy achieved might be within a group rather than in an individual learning situation.
2. How far, in practice, students require and receive staff guidance when they are placed in autonomous learning situations remains an issue. No doubt some need more help than others, whilst some who need more help will fail to seek it. And the complexity of the research involved also enters into the account.

### The modules

Students majoring in geography take the following compulsory modules in order to build up their understanding of the research process and to engage them actively in research activity that they devise.

**Level 1 Human geography Introductory course unit** Features are:

- Eight sub-disciplines of the discipline are considered.
- Also included is a brief, highly structured staff-led field exercise.

**Level 2 Research methodology course unit** Features are:

- The course unit is compulsory.
- Teaching takes place through lectures, laboratory classes and a research simulation.
- An introduction is given to all phases of the research process, including identifying a research question, designing an appropriate methodology, evaluating information and effectively communicating the findings.
- There is no fieldwork experience in this course unit.

**Level 3 Research methodology course unit** Features are:

- This course unit is year-long and compulsory.
- At the start of the year, students nominate their preferences from a list of research topics devised by staff. Working in groups, they plan research projects, drawing on their previous learning about research methodology. Some staff guidance is given.

## Points arising

1. The intention is that students gradually build up their research expertise so that they achieve dependent and autonomous participation by the time they reach the third-level course unit.
2. One issue that students raised in the course evaluation was the lack of actual fieldwork research – as opposed to a research simulation – in the level 2 course unit. In terms of achieving progression, their concern raises the question of the point at which undergraduates should begin to undertake original research. It may be that, at an early stage, they are given the opportunity to engage in a form of dependent participation, with the research approach and the data required being provided by staff. In history, for example, they could be asked to determine local occupational distributions from, say parish register entries, perhaps working in small groups. More challenging activities could arise later by, say, the students collecting their own parish register data to undertake comparative analysis, whilst using the techniques shown to them. Autonomous participation might be achieved by students collecting occupational data from different types of local source material to analyse change over time, determining their own approaches and using other types of evidence.
3. The course evaluations revealed that students had high rates of recall about the activities in which the second-level course unit involved them, thereby helping to provide them with the understanding they required in taking the third-level course unit.
4. That the students spend a good deal of time on specialist research-orientated course units at level 3 raises issues about how much time should be devoted to this type of activity and at what point in programmes of study it should occur. It may be that an overall sequence of studying the process of research at level 1, followed by

undertaking closely-guided, small-scale research projects at level 2 and by largely independent research in the form of a substantial dissertation at level 3 is the preferred progression. But there may be much to be said for throwing students in at the deep end early on in their studies, when making mistakes is unlikely to have a dire effect and opportunity to gain first-hand experience of the problems involved will prove an effective means of learning. Equally, a more gradual approach might be preferred, with the second-level work focusing on students planning research projects in detail, before undertaking them at a later stage. And whilst core modules might be deemed necessary to ensure that all students have opportunity to develop research skills, much might be achieved in this respect by ensuring that research-type activities are suffused throughout the curriculum, or large parts of it. Staged approaches could be mapped onto provision at each level, enabling research skills to be systematically developed, either gradually or in a more concentrated way beyond the early stages of provision.

## Teaching sociology research at Santa Clare

### Main features

Enabling students to progressively acquire skills has underpinned curriculum development in sociology at Santa Clare University. The emphasis has been on creating a 'developmental building blocks' approach, which is intended to promote undergraduates' problem-solving abilities throughout their programmes of study. The stance is taken that the competencies students acquire 'should be reflected in lessons introduced early, repeated often and integrated into meaningful exercises'.

Key features of the approach, which has four stages, are as follows.

#### Stage 1

- Students gain familiarity with a range of basic concepts to cultivate their awareness of sociological perspectives.
- This dimension of their understanding is primarily achieved in lower division course units, but continues throughout the courses they take.
- The concepts are agreed amongst the course team and include such matters as race, gender, class, reference group, power and prejudice. Modification was required to some course units in order to highlight the concepts.

#### Stage 2

- Students' ability to apply basic sociological concepts, interpretative frameworks and analytical tools to real world problems is fostered.
- The process begins in lower-division course units, but is the focus of topic-related, upper-division course units.

### Stage 3

- The emphasis is on enhancing students' capability in offering explanations that extend their thinking and improve their expertise in collecting data to test these explanations.
- All course units deal with these matters, but a special sequence of theory and methods classes is also incorporated.
- At the time of writing (2003) students undertook Qualitative Methods during the first semester followed by theory and applied statistics course units in the following semester. During Spring, students undertake a team research project supervised by a faculty member. Theoretical grounding is encouraged, along with the use of both qualitative and quantitative data.
- Amongst the expectations of the sequence are that students will relate their findings to major perspectives; draw practical implications from them; and present them in a professional-style paper.
- Most students take the theory and methods sequence in their junior year.

### Stage 4

- At this level, students acquire the ability to see how sociological insights can improve organizational effectiveness and community outcomes.
- This dimension permeates the programme, but occurs most explicitly during the final year and is facilitated by, for example, internships geared towards student interests and work placements related to the discipline.

**Source:** C.H.Powers, 'Evolving A Developmental Curriculum in Sociology: The Santa Clara Experience', *Teaching Sociology*, 28 (2000), pp.41-9.

### Points arising

1. In terms of developing students' research expertise, the notion of articulating a range of key concepts from the outset of their studies brings advantage in identifying major concerns within which their future research activity can be contextualised.
2. In developing their research skills, both the Otago and Santa Clare students are involved in group research work with staff guidance. As with all group work, difficulties no doubt arise both in terms of teaching and assessment. Even so, the approach is likely to provide valuable experience for students in learning about the research process, enabling them to draw on the collective interests and expertise of the group before they embark on their own individual research.