Mentoring and Tutoring by Students

edited by
Sinclair
Goodlad

BP

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PREFACE AND ACKNOWLEDGEMENTS

Like its companion volume, *Students as Tutors and Mentors* (Goodlad, 1995a) this is not a book of conference proceedings. It was, however, stimulated by a conference planned by John C Hughes and Julie Nicholls of British Petroleum. Without their good work and without the financial support of BP, the conference would not have happened and the book would not have been written. They were assisted in the task of planning the conference by a team consisting of Roger Banfield (England), Amos Carmeli (Israel), Russell Elsegood (Australia), Nigel Giles (England), Sinclair Goodlad (England), Joe Hogan (Scotland), Tonya Hunter (USA), Danny Saunders (Wales), Elaine Slater-Simons (England), Jo-Anne Vorster (South Africa), and Jerry Wilbur (USA). They were assisted in the refereeing of papers for the conference and for this book by Toni Beardon, Fritz Becker, Marc Freedman, Barbara Fresko, Meenal Gupta, Jane Hofmeister, Joan Leach, Glen Odenbrett, and Keith Topping.

We are grateful to Kluwer publishers for permission to reproduce a paper by Keith Topping (Chapter 4 of this book) that first appeared in their journal *Higher Education*.

Caroline Gatenby, Charles Lewis and Trijntje Ytsma helped greatly with typing and the reproduction of tables. Pat Lomax of Kogan Page was the commissioning editor and Claire Cohen the desk editor. To all, I, as editor, am very grateful; I gladly take responsibility for any infelicities of style that remain.

Sinclair Goodlad
Imperial College
London, July 1997

FOREWORD

Following our second BP International Conference – Students as Tutors and Mentors, early in 1997 it is a pleasure for me to provide the Foreword to this book.

As a managing director of a major international company that believes that sharing best practice across the globe is a way to grow and learn, I am pleased to see evidence of experience from so many countries in this book – the conference itself had delegates from over 30 countries. This rich cultural diversity encouraged learning and this book now helps to extend those lessons learnt to you.

BP's community affairs programmes are one of the most visible demonstrations of our wish to be a source of positive influence wherever we operate. BP believes that it is the company's duty to be a good neighbour and to earn the trust of the community by being a responsible corporate citizen. We therefore aim to work in partnership with the communities around our business sites. In so doing we aim to maintain and enhance our valued good reputation and thus our ability to perform.

With continuous change and uncertainty about the future nature of work, the need for an educated society and business to work closely together is greater now than at any time. BP contributes to these partnerships in a variety of ways including this project on mentoring and tutoring.

University students who act as tutors and mentors are provided with the opportunity to develop their transferable skills, which helps them find rewarding and challenging careers. School pupils who have student tutors/mentors are provided with positive role models to raise their aspirations to continue with their education and training and also get added assistance with their learning.

This is the seventh year of our partnership with Imperial College, University of London, on the International Mentoring and Tutoring Project. In that time we have run two international conferences, many country seminars and published a range of resources to help with the establishment of

new programmes. It is inspiring to be involved with a project that has put into practice the true spirit of tutoring and mentoring. We have been able to use our international presence to help educational practitioners to think globally while acting locally to help more than 500,000 young people in over 30 countries.

Dr Chris Gibson-Smith
Managing Director
The British Petroleum Company plc

For more information on the range of educational and related resources published by BP please contact:

BP Educational Service
PO Box 934
Poole
BH17 7BR
United Kingdom

Tel +44 (0) 1202 669940
Fax +44 (0) 1202 661999
e-mail: bpes@bp.com
http://www.bp.com

CONTRIBUTORS

L A (Toni) Beardon lectures in the University of Cambridge School of Education, and is Director of the Cambridge STIMULUS peer education project and the National Royal Institution Cambridge University Mathematics Enrichment Online Maths Project (NRICH Maths http://www.nrich.maths.org.uk). She is an OFSTED school inspector with 15 years' school teaching experience and 20 years in universities teaching mathematics, training teachers, running a peer tutoring scheme and publishing research on the pedagogical issues surrounding peer education, software for teaching mathematics and statistics, and papers and articles on mathematics teaching and student profiling. Toni is active in popularizing and promoting the public understanding of mathematics.

Fritz Becker, who is Professor of Geography and Head of the Department of Geography and Environmental Studies, University of Namibia (UNAM), took his higher doctoral degree at the Ruhr University, Bochum, FRG. He worked for UNESCO in Asia, taught at the Ruhr University, the National Institute of Public Administration in Sana'a, Yemen and the Asian Institute of Technology in Bangkok, Thailand. He has conducted research in Asia and Africa since 1974. His engagement at UNAM, where he served the Faculty of Humanities and Social Sciences as Dean (1992–1994) introduced him to the challenges of student tutoring and mentoring in higher education.

Linda Brennan is currently a lecturer in marketing management at Monash University, Clayton campus, and is coordinator of advanced marketing for Honours students. Linda has a Bachelor of Business (Marketing) (Hons), a Diploma of Marketing Research and is currently completing a PhD in the marketing of institutional services. Linda also operates as an independent marketing consultant to privately owned and non-profit organizations, including facilitation in the development of strategic and marketing plans. In the 15 years prior to joining Monash, Linda held various marketing positions within industry. She is a full member of the Marketing Research

Society of Australia and an Executive Committee Member of the Monash Marketing Alumni Association.

Val Clulow is a Senior Lecturer in the Department of Marketing, Faculty of Business and Economics at Monash University, where she is Course Director for retail studies at both undergraduate and postgraduate level. She has a Diploma of Teaching, Bachelor of Arts degree and a Master of Education degree. She has extensive experience in the Australian retail industry. She is currently undertaking her PhD at the University of Melbourne, in the Faculty of Education. She has written a number of unique retail subjects for delivery by distance education. Her teaching specializations include retail management, retail consumer behaviour, and retail technology. She has research interests and publications in the fields of mentoring, peer tutoring, experiential learning and retail case studies. She is co-leader of Monash University's Marketing International Study Program. She consults to businesses and is a Chartered Member of the Australian Human Resources Institute.

Moira de Groot holds the position of Senior Tutor in the Department of Psychology at the University of the Witwatersrand, Johannesburg. She holds postgraduate degrees in the fields of both education and psychology. Her primary interest and publications lie in academic development work, focusing on the needs of students who are 'underprepared' for university-level study due to disadvantage in educational background. One of her research interests with respect to tutoring and mentoring is in the role of ethnically-similar advanced peer tutors in academic development.

Russell Elsegood, Public Relations Manager at Murdoch University in Perth, Western Australia, is also Director of the BP Australia-sponsored Science/Technology Awareness Raising (STAR) Peer Tutoring Programme. The STAR Programme, launched in 1994 as a pilot programme with six peer tutors in three schools, now has 60 peer tutors working regularly in 19 high schools and two primary schools, and it is the model for similar programmes in universities throughout Australia. The STAR Programme evolved from the success of using university students as peer tutors in the WA Science Summer School – a one-week, fully-residential programme – of which Russell is also Director. STAR was awarded two $100,000AUD National Priority grants by the Australian government to develop the scheme as an Australian model, and this year STAR was cited in Western Australia's Science and Technology Policy and granted $50,000AUD to launch peer tutoring via the Internet to high schools throughout this vast state.

Joan Freeman is the author of 11 books, many of which have been translated into other languages, as well as hundreds of scientific and popular publica-

tions on the development of exceptionally high-level abilities. She has given invited presentations on the subject in most parts of the world to universities, schools and conferences based on considerable research in this area over more than 25 years: most notably her national 14-year comparison study of gifted and non-gifted children across Britain. She received her doctorate in Child Psychology from the University of Manchester and is now Visiting Professor at Middlesex University, London. She is an elected Fellow of the British Psychological Society. She was the Founding President of the European Council for High Ability (ECHA), an association that promotes the development of talent during the life-span, and is now Editor in Chief of the academic journal *High Ability Studies*.

Barbara Fresko is head of the Research and Evaluation Unit at Beit Berl College in Israel where she also teaches statistics and research methodology to prospective teachers and school counsellors. She has been affiliated with the PERACH Project at the Weizmann Institute of Science since 1978 and has published numerous articles and research reports about tutoring/mentoring in PERACH.

Peter Fridjhon is a senior lecturer in the Department of Statistics and Actuarial Sciences at the University of the Witwatersrand, Johannesburg, and obtained his undergraduate degree in science. He holds a Masters degree in Education from the University of Lancaster, and lectures in the Department of Psychology in the fields of statistics and research methodology. He has published widely, both in the prediction of academic performance, as well as in teaching and learning at tertiary level.

Sinclair Goodlad is Director of the Humanities Programme at the Imperial College of Science, Technology and Medicine, University of London. He has taught in India and at MIT and has been visiting associate at the University of California, Berkeley. He has written and edited a number of books about tutoring, including the companion volume to this book, *Students as Tutors and Mentors* (Kogan Page, 1995). One of his recent books, *The Quest for Quality: Sixteen forms of heresy in higher education*, (SRHE and Open University Press, 1995) locates tutoring in the wider context of a systematic philosophy of higher education. With Stephanie McIvor, he has recently completed a study extending the 'tutoring' idea to museum interpretation – *Museum Volunteers* (Routledge, forthcoming).

Ian Gregory is a production technologist working for Shell International Exploration and Production in the Netherlands. He studied a Master's degree in Mechanical Engineering at Imperial College, London, for which he was awarded the New Graduate Engineering prize from the Royal

Academy of Engineering. While in London he was involved with the Pimlico Connection Student Tutoring Project, both as a tutor and chairperson of the student committee. In 1996 he undertook six months' voluntary educational development work in South Africa, based at Rhodes University, Grahamstown, together with Line Sorensen. Current interests include educational partnerships between industry and schools, particularly raising awareness of environmental issues.

Ruth Hickey lectures in Science Education at Murdoch University School of Education, and coordinates a unit in Peer Tutoring and Mentoring in Science. She has been a teacher and primary school principal and has worked extensively in curriculum design for primary and secondary students in science and social studies. Her interests include the effect of science knowledge on teaching, and on the development of the school practice component in teaching qualifications.

Jane Hofmeister has been, since 1986, a university professor at the University of Amsterdam in the Faculty of Pedagogical and Educational Sciences for the In-service Teacher Training Department and since 1991 also in the Central Bureau of the University for the Expertise Centre of Academic Affairs as a general manager (coordinator) of the Alignment Pre University – University scheme.

Bruce Jeffreys has been the co-ordinator of the STAR Programme since 1995 and, most recently, has been instrumental in developing the procedures for using the Internet and e-mail to launch peer tutoring for science students in Australia's far-flung regional schools.

Ray Kingdon is Special Projects Manager within the Educational Development Unit at the University of Glamorgan. His main interests are in the recording of student achievement, and he is module leader for the student tutoring scheme that accredits students for their work within local schools. His background is in information systems and the training of staff within higher education who have an interest in educational technology applications.

Ronen Kowalsky received a Masters degree with high honours from Tel Aviv University in clinical child psychology and has begun doctoral studies in political psychology. For the past three years he has been involved with evaluation of the PERACH Project.

Claudia Landsman obtained an Honours degree in Psychology from the University of the Witwatersrand, Johannesburg and is currently completing her Masters degree in Psychology by coursework and research report. She is currently employed as a full-time tutor in the department. Her research

interests include issues in educational psychology such as peer-tutoring, tutoring, teaching and learning, as well as social cognition and child sexual abuse.

Judith MacCallum is a Lecturer in Educational Psychology in the School of Education, Murdoch University and has been involved in teaching in secondary and tertiary institutions since 1974. Originally a science teacher, her main teaching and research interests are student motivation and using social interaction and collaboration for learning. Judith runs workshops on collaborative learning for teacher groups and facilitates the use of peer tutoring and collaborative groups for learning in tertiary courses.

Mmanosi Daisy Matlou is a student counsellor at the University of the Witwatersrand offering to students within the College of Science an academic development programme designed to increase access of educationally disadvantaged students. She has a BA honours degree in Sociology, and is currently doing a Masters degree in Psychology.

Barnabas Otaala is Professor of Educational Psychology and Dean of the Faculty of Education, University of Namibia. He has previously worked at Makarere University, Kampala, Uganda; Kenyatta University, Nairobi, Kenya; the University of Botswana, Gaborone, Botswana; and the National Teacher Training College, Maseru, Lesotho. He is one of the International Advisers for the Child-to-Child Trust at the Institute of Education, University of London, with which he has been associated since 1979.

Joseph T Pascarelli has designed, developed, installed and evaluated youth mentoring programmes and systems in New York, Oregon, the US Virgin Islands, and other states and school districts. He has been actively engaged in research and development in educational reform, including effective teaching and learning programmes, instructional design, and professional development in the United States and the US Trust Territories. He is an action researcher in systems change and is presently on the faculty of the University of Portland, School of Education in Portland, Oregon.

Ceasar Pirs obtained his first degree in 1996 at the University of the Witwatersrand, Johannesburg, majoring in psychology. He has been involved as a part-time tutor in the department in 1996 and 1997, and is currently completing his Honours degree in physical education at the University. His interests lie in human movement studies and sports psychology, as well as in teaching and learning, with particular emphasis on peer tutoring.

Michael Pitman obtained his BA with distinction from the University of the Witwatersrand, Johannesburg in 1994. He then continued his studies at Wits, obtaining a first class Honours in Applied Psychology in 1995, and a

first class Honours in Philosophy in 1996. Michael worked part-time as a tutor in the Department of Psychology in 1994 and 1995, and as a tutorial supervisor in 1996. He was then appointed to a full-time position as a tutor in the department in 1997, where he coordinates and supervises the tutorial programme for the undergraduate research design and analysis courses.

Charles Potter is an educational psychologist by training, and holds a number of degrees, including a Masters degree in Educational Psychology (*cum laude*) from the University of South Africa, and a PhD in curriculum development from the University of the Witwatersrand, Johannesburg. He is a senior lecturer in the Department of Psychology at Wits, where he lectures in research methodology and in programme evaluation. The majority of his publications are in the field of evaluation, with particular emphasis on the evaluation of innovatory projects and programmes. He has also published in the areas of student development and peer tutoring. He is the editor of both the *Journal of Educational Evaluation* and the *Bulletin of Assessment and Evaluation.*

Meira Puterman received her Honours in Applied Psychology in 1996 and graduated top of her class. She has been involved in tutoring in the department for one and a half years. She is currently undergoing a psychometric internship at the Johannesburg General Hospital, and continues to assist in the development of tutorial programmes in the department.

Margaret Rutherford was born and educated in the UK, taking her first degree in aeronautical engineering at Imperial College, London. Her research interests moved to physics and then to physics education (for her PhD studies). She is currently Director of the College of Science, University of the Witwatersrand, Johannesburg, and involved in programmes for increasing access with success for educationally disadvantaged students. Her major research activities are in language and communication in science for second-language students and in relevant explanations in science.

Danny Saunders is head of the Educational Development Unit at the University of Glamorgan, Wales. He has a strong interest in experiential learning and is the series editor of the *Simulation and Gaming Yearbook* (Kogan Page) as well as the *Complete Student Handbook* (Blackwell). His background is in social psychology and the analysis of communication within society, and he is dedicated to the pursuit of strategic innovation and change within higher education.

Line Sørensen is a facilities engineer with Shell International Exploration and Production, although currently working with the development of

global human resourcing systems, based in the corporate centre, The Hague, Netherlands. She studied a Master's degree in mechanical engineering at the Norwegian Institute of Technology in Trondheim, Norway and at Aachen University of Technology, Germany, where she was involved with small group tutoring of engineering students. In 1996 she undertook six months' voluntary educational development work in South Africa, based at Rhodes University, Grahamstown, together with Ian Gregory.

Carol Taylor, who took her BA in Toronto and her BEd in Nottingham, is a senior tutor in the Department of Social Anthropology at the University of the Witwatersrand, Johannesburg. She has been a member of the department since 1991, with special responsibility for academic development. Her area of special interest is multicultural education.

Keith Topping is Director of the Centre for Paired Learning in the Department of Psychology at the University of Dundee. He develops and researches the effectiveness of methods for non-professionals (such as parents or peers) to tutor others in fundamental skills (eg, reading, spelling, writing) and higher order learning (science, maths, etc), for use across a wide age range and in many different contexts. He is also Director of postgraduate professional training in educational psychology and the Scottish Office project on Promoting Social Competence in Schools, and has interests in electronic literacy and computer-aided assessment. He is responsible for ten books and 140 other publications including multimedia in-service training and distance learning packs, and presents, trains, consults and engages in collaborative action and research around the world.

Megan Virtue is a qualified nurse and subsequently obtained her Honours degree in Applied Psychology from the University of the Witwatersrand, Johannesburg with distinction. She is currently registered for her Masters degree in Applied Psychology, while doing her internship as a clinical psychologist at Tara Hospital and at the Transvaal Memorial Institute. She has been involved in tutoring in the Department of Psychology at Wits since 1993, both as a part-time tutor for two years and as a tutorial supervisor.

Jim Wood took a BSc in Mathematics at Manchester University in 1976 and a PGCE Secondary at Newcastle Polytechnic in 1977. He was appointed to the newly created position of manager for the Tyneside Students into Schools Project in 1993 after 16 years teaching mathematics in comprehensive schools in Newcastle. In 1996, the project was submitted by Newcastle and Northumbria Universities as their joint entry for the Queen's Anniversary Awards for Further and Higher Education.

PART A: INTRODUCTION

Chapter 1

STUDENTS AS TUTORS AND MENTORS

Sinclair Goodlad

Schemes involving students as tutors and mentors are now in place in many countries, with numerous students, schoolchildren and teachers benefiting from the activity. The key task now is to build student tutoring and mentoring into the basic structures of academic institutions so that systems acquire a greater degree of stability. After a brief section of revision of matters addressed in the companion volume to this one, Students as Tutors and Mentors *(Goodlad, 1995a), attention is given to ways in which the training that all student tutors and mentors require can become the focus of much fruitful academic work.*

Preamble

The aim of this book is to stimulate and encourage the use of an educational technique through which teachers in tertiary and secondary education can massively amplify and extend their influence – namely the deployment of students as tutors and mentors. To this end, the book offers:

- reviews of relevant research;
- case studies of mature projects;
- ideas for new uses of student tutoring and mentoring;
- practical suggestions of ways of implementing tutoring and mentoring.

A key emerging issue is that of embedding in institutions' regular arrangements, procedures that are often seen as useful additions to teaching but not a fundamental part of it. For this reason, several chapters of this book (including this introduction) focus on ways in which tutoring and mentoring can become part of the assessed/accredited activity of students in higher education.

Peer teaching has been going on in various forms of education for hundreds, indeed thousands, of years (see Wagner, 1990). Having been neglected as an educational technique since the mid-nineteenth century, following the development of teaching as an organized profession, it was rediscovered in the 1960s as a way of meeting situations of acute need (see Goodlad, 1979; Goodlad and Hirst, 1989; Topping, 1988). It is now recognized as a way of enriching education, and achieving goals that cannot be achieved by other means. (See, for example, Cohen *et al.*, 1982; Devin-Sheehan *et al.*, 1976; Feldman *et al.*, 1976; Wilkes, 1975.) The field is vast and steadily growing.

Psychologists have become increasingly interested in the possibilities of children helping children (see Allen, 1976; Foot *et al.*, 1990) and in the wider field of group and interactive learning (see Foot, Howe *et al.*, 1994). Peer tutoring techniques have been used to help the learning disabled (see review by Byrd, 1990) and as a way of assisting students who are seen as not socially accepted (see Garcia-Vazquez and Ehly, 1992).

Within higher education itself, experiments are proliferating (see Goodlad, 1997b, 1997c). There is even, now, a staff development pack available (Topping, 1997) and a do-it-yourself manual for staff and students (Donaldson and Topping, 1997). Reciprocal peer tutoring has been shown to improve examination scores, reduce stress, and offer student satisfaction (Fantuzzo *et al.*, 1989) and, provided there is mutual exchange in a structured manner, other academic benefits (Riggio *et al.*, 1991).

Moore-West *et al.* (1990) found that 75 per cent of US medical schools responding to a questionnaire had student-based peer advising or peer tutoring in place. Some medical schools have been doing this for over 25 years – for example Case Western Reserve University School of Medicine (Schaffer *et al.*, 1990). In the UK, Carroll (1996) found that a scheme could be successful if the commitment of student tutors was limited and there were tightly-defined goals.

As an adjunct to problem-based learning, peer tutoring has been shown to stimulate students' interest in learning law (Moust *et al.*, 1989; Moust and Schmidt, 1994b), although, in medicine, staff were marginally more effective than students with higher-level work that drew on breadth of knowledge and experience (Schmidt *et al.*, 1995).

However, the thrust of this book, and the IC/BP International Mentoring and Tutoring Project that stimulated it, has been primarily on college-level students helping younger students (usually schoolchildren). This type of tutoring is operating on a massive scale, particularly in the USA (see Cahalan and Farris, 1990; Reisner *et al.*, 1990), in Israel through the much-evaluated PERACH scheme (see Eisenberg *et al.*, 1980a, 1980b, 1981, 1982, 1983a, 1983b; Fresko, 1988; Fresko and Carmeli, 1990; Fresko and Chen, 1989; Fresko and Eisenberg, 1985; PERACH, 1984), and in Australasia (see Jones, 1989, 1990, 1993a, 1993b). At the most recent count there were over 180 schemes in the United Kingdom, (CSV, 1996), and at the IC/BP conference presentations were made about schemes in many other countries including China, The Czech Republic, India, Lithuania, Namibia, The Netherlands, Norway, Russia, South Africa, Thailand, and The Ukraine. For those who have not read the companion volume to this book (*Students as Tutors and Mentors*, Goodlad, 1995a), I will set the scene by recapping some key points; those who have read the first book are asked to see what follows as revision! Although there is now a growing literature in peer tutoring, peer assisted learning, and other activities in which learners help each other, the definitions offered below deliberately limit the field of discourse to activities involving *students* as tutors and mentors. For those who wish to start this type of scheme, there is a splendid resource pack produced by BP (Hughes, 1991).

Definitions of Student Tutoring and Mentoring

Student tutoring and mentoring involve:

- students from colleges and universities
- helping pupils in local schools
- on a sustained and systematic basis
- under the direction and supervision of teachers.

The key differences are as follows:

	Tutoring	**Mentoring**
Focus	Academic learning	Life skills
Location	Usually in classroom	Often outside classroom
Mode	1 to several	1 to 1
Duration	A few weeks	Several months/years

The basic ideas are very old and very fruitful. The word 'mentor' derives from the name of the teacher of Telemakhos in Homer's *Odyssey*, Book 3: 'Mentor, how can I do it?'

One of the pioneers was Andrew Bell, a minister of religion in Madras, India, and superintendent of the Military Male Asylum (a charity school for the orphaned boys of soldiers) at Egmore. Having observed children drawing in the sand on the beach at Madras, Bell became enthused with the idea of using trays of sand as a cheap writing material with which to teach children the alphabet. Having failed to convince his colleagues of the economic virtues of trays of sand, he started, in 1791 and 1792, to use monitors to teach with these materials. He soon realized that the use of children to teach children was an educational discovery far more important than that of trays of sand!

Before he left Madras, Andrew Bell presented to the directors of the asylum an account of his work there. This was published in October 1797 as *Experiment in Education* which commends tutoring in observations such as these:

> 'The tutors enable their pupils to keep pace with their classes.'
>
> Andrew Bell *Experiment in Education*, 1797

> '(It) establishes such habits of industry, morality and religion, as have a tendency to form good scholars, good men, good subjects, and good Christians.'
>
> Andrew Bell *Experiment in Education*, 1797

Another pioneer was the more flamboyant Joseph Lancaster (born 25 November 1778) who opened his first school on New Year's Day 1798 to provide education to poor children. In June 1801, he moved into a room to accommodate 350 boys in Belvedere Place, Borough Road, London (near the location of the present University of the South Bank). Finding 350 boys somewhat difficult to teach single-handed, he adopted ideas from Andrew Bell (whom he met in 1804 when Bell was back in England as Rector of Swanage), and developed the monitorial system of instruction for which he claimed many benefits, eg:

> 'Lively, active-tempered boys are the most frequent transgressors of good order, and the most difficult to reduce to reason; the best way to form them is by making monitors of them.'
>
> Joseph Lancaster *Improvements in Education*, 1805

I quote these worthies so that we may remind ourselves that we have not invented something new: we stand on the shoulders of giants! (Extracts from the works of Bell and Lancaster are reproduced in Salmon, 1932.)

The Known Benefits of Student Tutoring

My own first foray into student tutoring was through a scheme in 1975 involving 12 engineering students from Imperial College visiting a local comprehensive school weekly for two terms to assist with the teaching of science, mathematics and design technology. Their purpose was to try to make these subjects more interesting to the pupils, many of whom gave them up at the earliest opportunity. The school was The Pimlico School, hence the name of our scheme 'The Pimlico Connection' – the name being a deliberate invocation of two famous film titles, *Passport to Pimlico* and *The French Connection* that made people think that they must have heard of the scheme before!

The first experiments, funded by a grant from the Leverhulme Trust, were within the framework of socio-technical group projects in which the students not only did the tutoring but also carried out a detailed evaluation. In every subsequent year, the scheme has been evaluated, with strikingly similar patterns of results, which suggest that the effects derive from the *system* rather than from the personalities or capabilities of individuals. The evaluation was:

- originally by psychometric tests
- then by depth interviews, plus
- open-ended questionnaires
- ultimately by a combination of specific questions and open-ended replies.

The principal findings (replicated frequently in other schemes stimulated by BP and by CSV since then) were as follows:

Pupils:

- lessons more interesting
- lessons easier to follow
- lessons more enjoyable
- seemed to learn more.

Students:

- practice in communication skills
- feeling of doing something useful with what already learned
- getting to know about people from different social backgrounds
- gaining insight into how other people saw subjects
- increased self-confidence

- reinforcing knowledge of subject
- no great interference with college studies.

Teachers:

- lessons were easier to handle
- teaching was more enjoyable
- pupils seemed to learn more.

Numerical values on these items are recorded in, for example, Goodlad, 1985 and Chapter 5 of Goodlad and Hirst (1989). Strikingly similar effects have been found in other schemes elsewhere in the UK (eg, Beardon, 1990; CSV, 1995a, 1995b; Green and Hughes, 1992; Hector Taylor, 1992; Potter, 1994, 1995). Two papers by Keith Topping and Shirley Hill (Hill and Topping, 1995; Topping and Hill, 1995) offer a comprehensive summary of the outcomes for the various types of participants in schemes.

Student Tutoring and Mentoring as Study Service

In the companion volume, I urged that student tutoring and mentoring should always be seen as *solutions to problems*, not activities undertaken just for the sake of it (or as educational experiments). Study service is the wider field of activity into which tutoring and mentoring fall. Study service is activity in which students do work of direct, practical social value as part of their curriculum (see Goodlad, 1982, 1995b; Whitley, 1980, 1982).

A common phenomenon in higher education, particularly perhaps that of scientists and engineers, is for the main ingredients of professional formation to exist as separate spheres of activity (see Figure 1.1). My intention for over 30 years at Imperial College has been to bring about a fruitful merging of these concerns, as shown in Figure 1.2. Each sphere is crucial: the problem is how best to achieve the benefits from each sphere without doing damage to the others. The issues are discussed below.

Main academic work

The key values of traditional academic work consist of the:

- focusing power of disciplines
- systematic limiting of the field of discourse in the interests of precision and economy
- acceleration of learning.

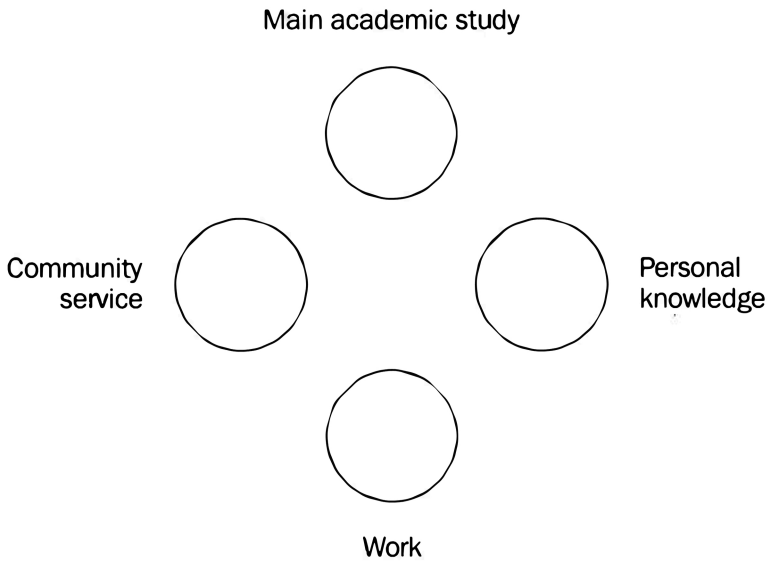

Figure 1.1 The separation of the elements of professional formation

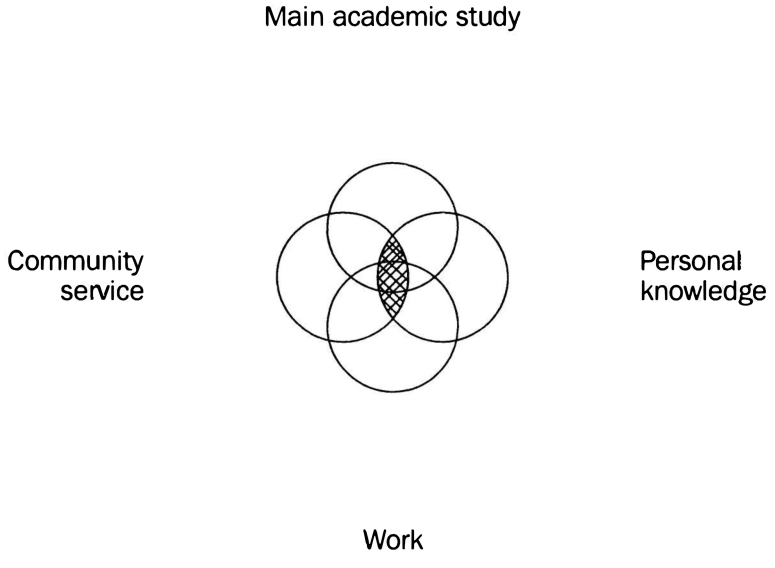

Figure 1.2 The merging of the elements of professional formation

They need to be complemented by opportunities for reflection and social action.

Personal knowledge

Some courses in higher education deliberately and systematically offer opportunities for reflection. Often, however, this is by 'lateral enrichment' – through commentating or 'liberal studies' courses that can sometimes be seen as peripheral to the students' primary academic work.

Work

In like manner, experience of the world of work is usually secured through vacation training/internships/co-op and similar procedures. However, students are sometimes only marginally involved in the main work of the agency to which they are sent, and there is often little interweaving with academic reflection.

Student community action

Student community action is one way in which students engage with social problems in the localities in which they live and work. Usually such action is outside the curriculum, with:

- the elderly (cleaning, decorating, shopping)
- the homeless (soup runs)
- the educationally handicapped (groupwork)
- immigrants (language tuition)
- young people (youth clubs, adventure playgrounds)
- hospitals (visiting, performances)
- welfare rights (stalls and neighbourhood centres)
- fund-raising through 'rags'.

The problem of bringing these spheres of professional formation together is but one example of the wider problem in all forms of higher education of retaining a balance between theory and practice, and the individual and society. (See Goodlad, 1995b for more on this idea.)

Many forms of project work or problem-based learning in higher education try to effect a balance between domains. In addition, they can stimulate in students:

- commitment
- initiative
- cooperation
- communication skills
- knowledge of the organization of knowledge
- a sense of responsibility.

The missing ingredients in college-based projects and problem-based learning are sometimes responsibility to a definable client and direct contact with an ultimate beneficiary. Study service seeks to make good these deficiencies by holding onto one key idea: *to concentrate on work that could not otherwise be done.*

Good practice in any form of study service involves fidelity to two major principles:

- reciprocity – to avoid exploitation of students
- competence – to avoid exploitation of clients.

To qualify as study service, activities that integrate the claims of theory and practice, society and the individual, need to meet the following criteria:

- students (not staff alone) involved
- an integral part of the curriculum – and preferably assessed
- direct contact between students and intended beneficiaries
- effect detectable at individual or small-group level.

From these it will be seen that student tutoring and mentoring are ideal as a form of study service.

Although the idea of tutoring and mentoring is simple, the process of managing schemes is complex. indeed, as a scheme grows in either conceptual or administrative complexity, so the need emerges for a paid coordinator – which may be the most difficult part of a scheme to sustain!

Chapter 16 of this book offers practical suggestions, based on large-scale research, for making mentoring work; Chapter 17 identifies some key factors in making a student tutoring scheme work. Appendix A serves as a sort of checklist for those about to start schemes.

The Fertility of Student Tutoring and Mentoring Encounters as a Focus for Academic Study

Many of us have come to believe that student tutoring and mentoring will only attain stability if they are seen to be *central to the objects of the institutions from which the students come* – further and higher education establishments. And it is the primary obligation of these institutions to educate their students. I therefore turn now to the question of the learning opportunities for students from tutoring and mentoring.

Whatever additional instruction tutors and mentors receive, they must be given certain *basic training* in such matters as the following:

- how to start a tutoring or mentoring session by establishing a friendly atmosphere
- familiarity with the content of the tutees' syllabus
- what to do when the tutee gives a correct answer
- what to do when the answer is wrong
- what to do if a session goes badly
- how to vary the content of tutoring or mentoring sessions
- how to end a tutoring or mentoring session
- record keeping.

But students' education can, and should, go way beyond the inculcation of personal and professional skills. To illustrate the fertility of placements in service learning for generating theoretical questions, let us revert once more to peer tutoring. Some, but not all, of the students who take part in the 'Pimlico Connection' attend a course on the 'Communication of Scientific Ideas' offered by the Humanities Programme at Imperial College. In place of one of the coursework essays, the students can write an analytical report on some aspect of their tutoring. We do *not* at present assess the tutoring itself because the students' tutoring assignments differ widely – from working with cheerful and eager primary school children to coping with sullen and/or disruptive secondary school pupils.

When I have been teaching the Communication of Scientific Ideas course, frequently, in tutorials and seminars, students ask: 'Well, I can report what I did; but what analytic ideas should I pursue?' One technique is to use what I call the 'Gestalt Fix': asking them to think about the tutoring they have done and then to say the first words or phrases that come into their heads. The notion here is that the figure/ground perception that the question elicits will indicate the current configuration in which the students' ideas are

located. This will give a frame of reference into and onto which other ideas can be woven. Typically the words the students utter are: 'noise'; 'enthusiasm'; 'chaos'; 'satisfaction'; 'bad discipline'; 'friendly'; 'mixed ability'; 'teachers under siege'; 'frustration'; and so on. My response to such suggestions is: 'Fine, you have the beginnings of an essay!'

As I have indicated, the key task of academic disciplines is to bring order into the chaos of individual perceptions. By identifying through the 'Gestalt Fix' their principal concerns students are offered the opportunity for academic engagement.

Take a typical tutoring scene from the 'Pimlico Connection': eager student (motivated, enthusiastic with a high level of success in the education system) trying to interest wriggling pupil (inner-city child who does not see the relevance of education and whose family has no history of post-16 involvement) in some aspect of science. The situation bristles with potent questions. The basic question – of why science does not seem to appeal to large numbers of pupils in inner-city schools – offers points of purchase for many disciplines. I will not attempt a complete cut and shuffle of disciplines, but rather highlight a few of the questions that might arise for the students and to which the disciplines (in brackets) offer fruitful approaches.

Selection: What aspect of science is being studied? Facts? Principles? Processes? From all the infinite variety of observations made by scientists, and all the procedures for making them, and theories to account for them, why have these particular ones been chosen for special attention by pupils on this day, in this school, in this place? How do these questions of science relate either to the fundamental structures of the discipline (that scientists might wish to pass on to others) or to the world picture that students and pupils use in practice to make sense of things? (*Science, Philosophy, Sociology*)

Relevance: Do these studies, and should they, relate in any way to the chosen careers either of tutors or tutees? (*Economics, Sociology*)

Demography: Why is it that the children of professional workers are so much more successful in the British educational system than those of other social classes? Why, for example, is not the typical scheme that of black tutor and a white child? (*History, Sociology, Psychology, Social Psychology*)

Culture: Where have these people come from? What are the differential life chances of people from different backgrounds? Should education be adapted specifically for the interests and needs of recent arrivals, who may speak languages other than English? Should there be a uniformity of cultural approach or some form of multicultural approach? (*History, Anthropology, Sociology, Literature, Economics*)

Ambience: What other influences are at work on the pupils? Granted, as research shows, schoolchildren spend some 26 hours a week watching

television compared to some 24 hours a week actually in study at school, what is the impact on their thinking of the world shown by television? If, as is often the case, they seem to have greater interest in the content of television than in the content of their studies, could/should the content of television programmes be brought into the teaching as subject material? If not, how can teachers compete with the glamour and glitter of the rival media? Who, in any case, should determine what is studied? (*Political Science, Sociology, Psychology, Social Psychology, Economics*)

Curriculum: Where has the curriculum come from? Who controls what is done in schools and why, and with what authority? Who pays for what is done? Who determines how long pupils should stay in school? What areas of public life should be left to the market and what areas should be the subject of detailed state or local political intervention? What place should the National Curriculum have in our society? (*Political Science, Anthropology, History, Sociology, Economics*)

Measurement: If pupils seem to perform differently in their scientific studies (as they manifestly do) why is this? Are there differences in intelligence that can be separated out from differences in application, dedication and experience? How do educational measurements differ from measurements in other spheres? (*Science, Political Science, Anthropology, History, Philosophy, Psychology, Social Psychology, Sociology*)

Locating the experience of student tutors and mentors within academic frameworks

The questions above pertaining to a single situation in tutoring offer fuel for a number of academic disciplines. The value of student peer tutoring as an element in teacher training is self-evident. Intending teachers need to think about such matters in depth *before* entering their professional careers. (Tutoring is, incidentally valuable for those thinking of the *possibility* of going into teaching – as a way of helping them to make up their minds. Research on the 'Pimlico Connection' indicates that this is a motivating factor for many tutors.) However, many of the issues raised by the tutoring encounter penetrate to the heart of academic disciplines, such as history, sociology, social geography, anthropology, psychology, economics, political science, etc, and, indeed, science itself (and its numerous sub-disciplines).

At first sight, tutoring and mentoring may seem attractive only in the area of professional development; for instance in promoting the core personal and professional skills. But the professional skills encapsulate many questions that are fundamental not only to professional education but also to other types of education.

The original, and continuing, object of the 'Pimlico Connection' was to provide an opportunity for students of science and engineering to get realistic and demanding practice in the communication of technical information. Skill in communication is not just a frill; it is at the very core of professional practice. Whatever else professionals do, a key part of their work is that of making clear to people less well-informed than the professionals the areas of their choice in technical matters. For example, doctors explain to patients that this or that mode of treatment (or none at all) is possible; the patients then have to choose what they wish to do – with or without the help and intervention of the doctor. Again, lawyers explain to their clients the ways in which the law affects the client's situation; but the client ultimately gives instructions to the lawyer. Likewise, architects ascertain their clients' general wishes and explain the technical options (usually with drawings and/or models); the client then decides what is to be done. The fact that professionals usually go on to execute the wishes of their clients should not obscure the fact that the primary task of professionals is that of indicating to clients the grounds of the choices available to them (see Chapter 1 of Goodlad, 1984).

In all professions, it is necessary for the professional to communicate ideas and information simply and effectively to others. In some professional schools (in engineering, for example), specific instruction in communication skills is included, through report-writing exercises and so on. Such reports are often tedious for the students and boring for the faculty. Communication, strictly defined, means 'sharing'. One cannot communicate unless one has something one wishes to share. Most students know how dispiriting it can be to write reports for their professors when they know that the professor knows everything that they, the students, could possibly write. Communication exercises are, however, transformed when they are done for real. That is why experiential learning in general, (ie, learning from experiences outside the classroom) and study service learning in particular, are so attractive to students who may work with actual clients and have the interest and responsibility of writing reports/making statements that someone positively wants to read or listen to. Similarly, intending professionals can get tremendous stimulus from trying to explain technical ideas to other people in peer tutoring schemes. Many of the Imperial College students who have taken part in the 'Pimlico Connection' have had no intention of becoming teachers; nevertheless they have greatly valued and enjoyed the experience of explaining things to other people.

At the basic level of developing communication skills, the experience of communicating relatively low-level technical knowledge can be more challenging than explaining complex information to people who already have

a highly-developed framework of ideas in which to 'locate' it. To explain ideas to non-specialists requires the communicator to:

- build a framework of ideas into which new material can be placed
- respond to the needs of a specific audience
- decide the specific purpose of communication
- organize ideas in some sort of structure
- choose the order of presentation
- make precise use of simple words, etc.

All these communication skills can readily be practised in tutoring and mentoring.

What is often overlooked is that with minimal prompting, students can be invited to think about the framework of ideas itself – in short, to confront the theoretical foundations of their academic disciplines by testing, through their essay writing, the capacity of the disciplines to illuminate the situations that the students have met. Indeed, some have argued that the type of active, deep, thoughtful learning identified by Marton and Saljo in the 1970s (Marton and Saljo, 1976a, 1976b) is to be found in the process of tutoring (see Benware and Deci, 1984). It is important to note in passing that the benefits to student tutors seem to result from actually *doing* the tutoring, rather than just preparing to do it (see Annis, 1983).

The teaching methods required in study service (of which student tutoring and mentoring are leading examples) are basically ones that work upwards and outwards from specific problems to the coordinating concepts of disciplines, rather than setting out the concepts and then allowing students to find examples. An analogy is that of teaching map reading. One fruitful approach is to drop students in the countryside and let them figure out where they are, and thereby determine how useful or otherwise the map is. A contrasting approach is to have a lecture course on maps (the history of map-making, the design and printing of maps, theory and practice of notation, etc) and then, when the students have passed some examinations in cartography, to let them loose. The art of curriculum planning in study service (service learning) is to know how much of which technique to use when. To drop students into (possibly hostile) unfamiliar terrain with no map at all is simply irresponsible: to talk them through every detail of the map before they can have a look round is likely to bore them and to miss opportunities for learning. Some interweaving of thought and action is called for.

Although tutoring and mentoring, like all study service, must treat the needs of clients as primary, my judgement is that the academic orienta-

tion of Study Service activities for facilitators and students must be from detail towards the coordinating ideas of academic disciplines.

Ten years ago, in *Educating the Reflective Practitioner*, Donald Schön (1987:3) identified a crisis of confidence in professional knowledge:

> 'In the varied topography of professional practice, there is a high, hard ground overlooking a swamp. On the high ground, manageable problems lend themselves to solution through the application of research-based theory and technique. In the swampy lowland, messy, confusing problems defy technical solution. The irony of this situation is that the problems of the high ground tend to be relatively unimportant to individuals or society at large, however great their technical interest may be, while in the swamp lie the problems of greatest human concern. The practitioner must choose. Shall he remain on the high ground where he can solve relatively unimportant problems according to prevailing standards of rigor, or shall he descend to the swamp of important problems and non-rigorous inquiry?'

In much higher education, abstraction is equated with virtue; the high, hard ground of theory is seen as the proper concern of universities. 'Swamp' problems are shunned. The reasons are well-known: 'international visibility' is difficult to achieve from the swamp. For better or worse, most academics are rewarded for the outward and visible signs of their activity, not for the inward and spiritual qualities that give rise to them. The principal tangible currency is publication, and the safest form of currency-minting is that done within very strict confines where principles of exclusion and concentration lead to clarity of vision, and where the process of assay (peer review) can work effectively.

There is nothing intrinsically wrong with this process. It leads to great competitiveness in universities and, at best, the emphasis on refinement of concept leads to very fruitful intellectual insights, and many practical benefits from even the most seemingly esoteric pursuits (for example, solid state physics). The institutional pressure on academics to publish is not, however, very conducive to involvement with study service.

The implications are these: new teaching and learning methods which, like study service, seek to unite thought and action, must, if they are to survive, *recognize institutional realities*. That is to say, unless we are to abandon the idea of universities as specialized institutions making their own uniquely important contribution to society, new teaching and learning methods must emphasize theory – presenting occasions for students to reflect upon their social action with a view to discerning underlying themes, regularities, patterns, concepts, and organizing principles. Service learning facilitators, including organizers of tutoring projects, need to help students