Tertiary Teaching Excellence Awards 2005

Nomination for
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The University of Auckland

Category One: Sustained Excellence

Contents

1. Learning to teach

I taught my first class as a newly-appointed Junior Lecturer in 1982. My students were a first-year medical class of about a hundred, reputed to be intelligent, unruly and intolerant of boredom. I was both shy and inexperienced, and I was very anxious indeed. I had written out my lecture word-by-word in case fear numbed my brain. In order to conceal my shaking knees I wore a white lab coat (which turned out to be unnecessary because I found I could hide the lower part of my body behind the lecturn).

I remember very little of the lecture. Afterwards some of the students were slow packing up and when only two or three remained I found the courage to ask them how the lecture had been?
"Well, it was fine. You went at a good speed, not too fast. The slides were interesting and your handout is good. Maybe you could tell a joke or two; we are starved of humour. And why do you wear a lab coat?"

I recall this conversation because it was a significant moment in my teaching career. I realised that far from being confrontational the students were friendly and helpful, and I realised that in order to improve my teaching skills all I had to do was ask them for advice. The link between my teaching and their learning was not a mystery to be understood only from textbooks of educational theory. The students were intelligent people who had twelve or more years experience of the education system. They surely knew what kind of teaching helped them to learn, and what did not. All I had to do was ask them.

Twenty-three years later I am still learning my trade as a teacher. If I had to identify the factors which I have discovered to be most important, and which form a personal "philosophy of teaching", they would include the following.

Student opinion

I have already declared a conviction that whatever students tell me about my teaching will be sound advice, and should be acted on. I use evaluations often to ask students whether or not my teaching helps them to learn, I believe what they tell me, and I change my style accordingly. Other teachers concur, for example Paul Ramsden who stated that, "College and university students are extremely astute commentators on teaching. They have seen a great deal of it by the time they enter higher education. And, as non-experts in the subject they are being taught, they are uniquely qualified to judge whether the instruction they are receiving is useful for learning it."[1]

Enthusiasm

In the late sixties I was one of the lucky generation of students taught by Professor John Morton at the University of Auckland. He had a passion for biology. I remember his lectures as colourful, lively sessions in which learning was effortless; indeed I can replay snatches of them in my mind's eye today. Those classes taught me the importance of enthusiasm. I resolved that as a teacher I would let my own love of biology show through, and I believe I have held to that intention. I have come to feel that learning will surmount almost any fault in teaching style or technique provided the teacher's interest is evident. As a student and as a teacher I have seen faults such as disorganization, a difficult accent, or impetuous speed all forgiven when they are counterbalanced by enthusiasm.

Finding "an angle"

I suppose it is possible that learning can occur in the absence of curiosity, or interest or inspiration; but surely it will occur more easily if one or more of those are present. For every teaching session (especially lectures, which need all the help they can get), I try to think of "an angle" which I can introduce early in the session to provoke curiosity and arouse the interest of students. The angle might be a poem, an anecdote, an image, a video, music, an historical incident, or an unusual pathology. If it is humorous

1 Ramsden, Paul 1992 *Learning to teach in higher education*, Routledge.

or dramatic or bizarre, so much the better. It should be relevant to the topic of the session, but the relationship can be fairly tortuous and the angle still succeeds.

To give one example: in the nervous system, reflex arcs are an important example of nerve-muscle interaction at a very simple level. The withdrawal and crossed extensor reflexes allow one leg to be withdrawn from a painful stimulus (for example when stepping on something sharp) while the other leg thrusts downward to support the body weight. I introduced this topic by reading aloud from Joshua Slocum's account of his voyage around the world alone, where he tells of anchoring for the night in Tierra del Fuego. He was worried that "indians" might creep on board during the night and take him by surprise, so he scattered sharp carpet tacks across the deck before retiring. Later that night he was woken as his bare-footed visitors encountered the tacks and "howled and clawed the air". He was able to repel them with warning shots from his revolver. This story led naturally into a discussion of reflexes. In examinations at the end of the year I was a little worried to find students referring to the withdrawal reflex as "Slocum's reflex" instead of by its proper name; but they gave a good account of its physiology and anatomy, which was the objective of the session.

Learning independent of teaching method

I have come to feel that the link between teaching and learning depends less on the mode of teaching, and more on qualities like enthusiasm, encouragement, clear expectations and concern for progress. For example, between 1991 and 1999 I taught cardiovascular biology by three different methods, run concurrently: conventional lectures, dissection laboratories, and a highly-developed case-based learning project. In the case-based project students were presented (via videotape) with patient who had a heart disease of unknown origin. Working in groups, they had to diagnose the condition and explain the symptoms and signs (details of the project appear in Appendix One). Educational theorists hold that projects of this type are likely to promote long-term learning rather than the more superficial learning which is said to occur in lectures. However, when I evaluated the lectures, laboratories and the case based project and asked students how well each method helped them to learn, they rated lectures and labs around 6.0 on a seven-point scale and the case-based program around 5.7. One has to be cautious about interpreting such scores, but it was a sobering result considering the labour and cost of the case-based project. I now feel that, provided I can think of "an angle" that will make a topic interesting and accessible, then I can help students to learn at about the same level no matter what method of teaching is employed.

Learning through the fingers

As will be evident in this portfolio, much of my teaching involves practical work which is done with the hands. Students always identify this as an easy way to learn (in terms of my comments above, it is a good angle). Manual work occurs in practical classes when students dissect animal organs and tissues, and in the model-making classes which are described later. Shaping or manipulating objects seems to open up an effortless pathway to long-term memory. Perhaps this has something to do with the significance of tool use during human evolution.

2. Context of my teaching

When I joined the University of Auckland I was attached to a small group of science staff who taught first-year medical students on the City Campus. The subjects I was asked to teach were histology (the study of cells and tissues at a microscopic level) and human embryology. In laboratory classes my teaching extended across a wide field of comparative anatomy.

Figure 1. A microscopy session in teaching laboratories at the Department of Anatomy with Radiology, March 2005. Effective teaching of histology requires expensive equipment, and the department is superbly equipped to carry out this work. Apart from being intrinsically interesting, laboratory sessions encourage personal contact between staff and students, which both parties value.

In the early years, class sizes were around a hundred, but in the late 1990s a profound change occurred when the university combined the first year courses of a variety of programmes, (science, health science, medicine, biomedical science, nursing, pharmacy, optometry, sports science, etc.). As a Senior Tutor in the Department of Anatomy with Radiology I now teach combined first-year classes of over 1100. I act as co-ordinator for one of those courses (HUMANBIO 142), sharing the role with my colleague, Peter Riordan. The size of this class means that most of our teaching effort goes into lectures and into laboratories, which we run in 18 separate streams staffed by a small army of tutors and demonstrators.

3. The challenge of large classes

Lectures to large classes are demanding, but also stimulating. I presently deliver 18 such lectures in HUMANBIO 142, and 10 in BIOSCI 107 which is of a similar size. We usually teach in theatre B28 with a video relay to B15, (total capacity about 700 students). The video theatre contains two video projectors and two screens, one showing the lecturer (about 1.5 times life size) and the other showing whatever visual aid is in use at the time (usually Powerpoint, videotape, DVD, or document camera).

Figure 2. Lecturing in the university's largest theatre on March 8, 2005. In one of several digressions from the main thread of the lecture, I am explaining how in the 17th century biologists imagined that each human spermatozoon contained an homunculus which could subsequently give rise to a human embryo. In this theory the sperm was considered to be pre-eminent while the role of the egg was merely nutritive, a view which suited the prejudice of the time.

The lecture as a performance

In my view there is only one way to help students to learn in such an environment, and that is to acknowledge that the lecture will be in some ways a performance, a semi-theatrical event designed not just to transmit information but also to engage, to motivate, and to provoke curiosity. I think (indeed I know, because students tell me) that such lectures can enable students to learn provided the lecturer meets the demands of the venue, understands how to adjust his/her natural style, and is prepared to take small risks.

Students understand that a big theatre is an intimidating environment for a lecturer. They know that through weight of numbers the balance of power is in their favour and that the session can only progress with their co-operation. When things go well I often sense an unspoken agreement or contract offered by students. "We recognise that - despite imperfections - you are doing your best to help us learn and therefore we will allow you to teach us." When that contract is in place students are always more generous and supportive than might be expected; they laugh readily at their teacher's weak jokes, they

do not ask questions for disruptive effect, and they often attempt to quieten classmates who are chattering nearby. It is a good feeling to teach when that contract is in place.

Watching colleagues teach in a large theatre has also made me aware of subtle aspects of performance. In a very large room the lecturer is diminished. Voice and gestures which would seem normal in a small room, appear tentative and flat. In order to appear "natural" the lecturer must compensate for the size of the room by slightly exaggerating voice and body language. I presume all stage actors are familiar with this requirement. However, I have noticed that many university staff are uncomfortable with the suggestion that their lectures should be considered as "performances." Performance implies entertainment, and they reject that as an expectation of lectures. But I now believe that for effective communication to occur in a large theatre, some elements of stage performance are necessary.

Interactive lectures with large classes

During conventional didactic lectures, one fears that all too often students sink into a somnolent state in which the ear sends information to the writing arm completely by-passing the brain. The antidote to this is any activity which encourages students to think actively about the topic, or which requires them to respond. The session then becomes interactive. Against expectations, I have found that interactive lectures are possible even with video-relay to a remote theatre.

For example, in one of my cardiovascular lectures to first-year students I discuss two hypothetical cases which involve heart valve disorders affecting blood flow and blood pressure upstream and downstream of the damaged valve. I work through notes and diagrams provided to students in the Course Guide. At five or six times during the lecture, these notes offer students options, from which they have to choose the correct one. For example, they are offered three sonograms of heart murmurs (Figure 3) and have to choose one. At those times I tell the class to discuss the options with their neighbours, give them a minute or two to do so, and then ask the class to vote on the correct option by a show of hands. This method has been described as "Buzz Groups" because of the noise of conversation which breaks out.[2] It seems to work very well. Colleagues in the video theatre report that although students there do not attempt to vote, they take advantage of the chance to discuss the options and the problem-solving technique seems to work there nearly as well there as in the primary theatre.

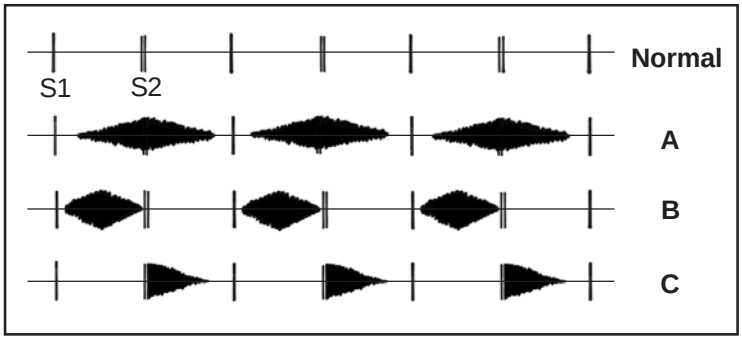


Figure 3. Graphical representation of heart sounds. The upper trace shows a normal heart with the first and second sounds S1 and S2. Traces A - C show murmurs caused by turbulent blood flow in the heart. The timing and duration of the murmurs is diagnostic.

How good is the "video lecture" experience?

When video-relay to a remote theatre was first suggested as a solution to increasing class sizes, I doubted whether students would tolerate it. This is an era of increasing tuition fees, when student expectations about the quality of teaching are also on the rise. However, when I surveyed students in the video theatre I was surprised to find that they had a good opinion of their "virtual" lectures. Of those who responded, 77% said they attended all, or most, of their lectures in the video theatre, indicating that many were there from choice not necessity. An astonishing proportion (85%) said they considered the lecture experience in the video theatre was as good as or better than in the live theatre. Among the advantages cited for the video theatre were the relative lack of crowding, room to sit with friends, a better view of the screens and lecturer, and the ability to enter late from a previous class without disturbing the lecturer.

2 Gibbs G, Habeshaw S & Habeshaw T. *53 Interesting things to do in your lectures* Technical & Educational Services Ltd, 1988.

Small-group tutorials for large classes

While lectures may be large-class events, students expect personal contact with staff. We can provide this in laboratory classes where the staff-student ratio is about 1:15. But in addition, we have long wished to provide optional small-group tutorials where students could receive individual help. However, the logistics of offering small-group tutorials to classes of 1100 are daunting. With the class divided into groups of say fifteen students, each single tutorial will require 73 separate sessions. There are problems of timetabling and of finding small teaching rooms, and there is also the problem of finding tutors. Lecturers in our courses are fully occupied with their current teaching and could not reasonably be asked to act as tutors. Graduate students who might act as tutors are already fully employed by us as lab demonstrators.

In 2004, I organised a trial program of small-group tutorials in course HUMANBIO 142 to test one solution to the problem of finding tutors. It occurred to me that there was a group of people who did know the content of the course very well, and that was the students who had passed it the previous year with high grades. Perhaps, despite their youth and inexperience, they could act as tutors. I had no difficulty finding nine second-year medical students who had gained A+ grades in HUMANBIO 142 in the previous year and who were keen to be employed.

As predicted, the timetable and room issues caused real problems during the trial program, but those students who were able to attend tutorials reported enthusiastically about them:

> *The tutorials I had were really great. I had an awesome tutor. I don't really think the tutorials I had could have been any better.....*
>
> *Hello Colin, the tutorials were great! They really helped in my understanding of the coursework and really helped me improve my study skills. Now I feel more confident going into the 142 exam.....*
>
> *The tutor was very helpful and helped me a lot with understanding difficult concepts. She also gave us sample exam questions which were really useful.....*

Another indication of the success of the tutorials came when I compared the end-of-course grades of students who attended tutorials with the grades of students who did not. My analysis suggested that attendees gained about a 5% (1.25 grade point) advantage from coming to tutorials, which was a worthwhile lift. If every weak student in the course had made that gain, an additional 73 students would have passed at the end of the semester. Hopefully in future we can overcome timetable and room problems and make this a reality.

4. Innovative teaching and learning

The sections which follow describe aspects of my teaching which are, if not new, at least different from the standard fare of lectures and labs. These projects are stories from my teaching career which chance has made successful. There have been many others, equally interesting and worthwhile from my point of view, which have succumbed to external pressures such as curriculum reform and the need to free up time for self-directed learning; they are not included here.

4.1 Model-making in the teaching of embryology

Human embryology is a major part of my teaching to first-year biomedical students. Lectures on this topic are straight-forward, but I have always struggled to invent laboratory sessions which might accompany the lectures because of the obvious difficulty of obtaining material relevant to human embryos.

This remained unresolved until 1995 when, as part of a course for second-year medical students, I was asked to contribute lectures on the embryology of the human heart. This is a complex topic due to the folding and looping movements of the heart early in its development. In order to understand it clearly I bought some plasticene and made a series of three-dimensional models. This was great fun, and very instructive. Changes in shape and structure which had been hard for me to understand, became clear. I realised that for my first-year students a laboratory class based on model-building might be a unique way of helping them to understand and remember the structure of whole human embryos.

The embryo model

As a basis for the model, I chose a one-month embryo. This is a critical age because, for the first time, the rudiments of all the major organs can be recognised. If students can fix the anatomy of this particular embryo in their minds, many other aspects of later development will fall into place.

I supply the students with five colours of a modelling compound (similar to *Fimo*, which is plastic at room temperature but can be hardened in an oven). The colours are used as a code to distinguish the primary germ layers from which the various organs originate, and also to distinguish arteries from veins. I provide instructions containing full-size drawings of each part of the model, and suggestions on the order of construction. Students assemble their models during one three-hour lab period. The models are then handed in for marking and curing in the oven. Labels are added later and the students take their models home where, I am told, they take pride of place on the mantlepiece (or are given to Mother)!

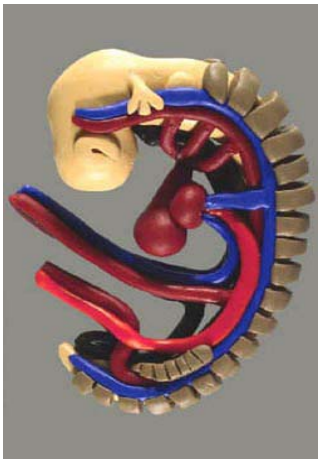


Figure 4. Human embryo model, complete except for labels and stand.

How successful is the model-making?

I enjoy these labs and it is clear the students do too. For example, we often have difficulty getting them to leave the lab at the end of the session (the only lab topic where such a problem occurs). In student evaluations of the labs the following are typical comments:

The model making helps so much by increasing understanding. Could we make more?

The modelling is an excellent way of learning & very worthwhile.

The modelling is great. It is not only fun and interesting, it helps us to see where certain things are located, and thus we would remember better.

Excellent to use models which "stick" structures in memory.

Further developments

In 2002 I visited Dr Jeremy Cook who teaches human embryology at University College London. Jeremy has developed an interactive CD ROM on human development which he sells worldwide. He was keen to offer plans for the model as an adjunct to his CD, and we decided that the easiest way to do that would be for me to make the plans available over the web, (with a link to the site provided on Jeremy's CD). I completed that project in 2003; the site is at *www.health.auckland.ac.nz/embryo/*

Appendix Two shows the index page of the site, and step-by-step construction photographs which are reached from the index page via clickable links.

Benefits of model-making

I think this type of lab has great potential. It is a powerful tool for gaining a conceptual grasp of complex structures, and for forming strong memories. It also has practical advantages. First, it is inexpensive; the cost of materials is about $2.00 per student. Second, it adapts well to large classes. It now (2005) forms part of course BIOSCI 107 with more than 1100 students enrolled. It is taught by a large team of tutors and demonstrators to 18 streams of students. I am reduced to a spectator, but happy to have created a project which I think will have lasting value.

4.2 Drawings in lecture and lab handouts

In teaching anatomy, a drawing is worth a thousand words. Student handouts prepared by anatomy lecturers are therefore rich in images, usually copied from textbooks. These illustrations are often very beautiful ones done by medical artists, but they have some drawbacks. They are sometimes so photo-realistic that underlying principles can be concealed by intricate but trivial details. They are often grey-scale or coloured images, which reproduce poorly when photocopied. They are subject to copyright which constrains the way they can be used. Finally, they are finished works, fully labelled, to which a student need add nothing.

Many years ago I realised that drawings could be an excellent teaching tool, especially when students were encouraged to contribute personally to them by labelling or colouring them, for example. I began to make my own drawings in a simple style which required students to add to them during lectures. My Course Guides are now populated with these drawings, some hundreds of them. Typical examples, (from a human embryology lecture) are shown in Figures 5 and 6. Sometimes (as in this case) the diagrams are fully labelled. Often labels are missing, to be added by hand during the lecture.

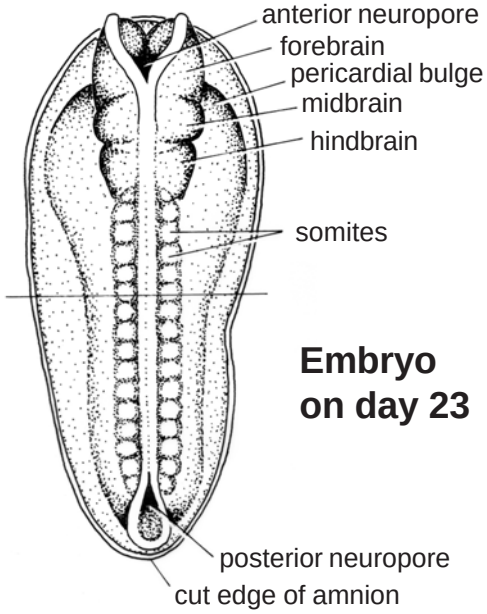


Figure 5. Course Guide diagram from a lecture on human development. The drawing shows a 23-day human embryo in dorsal view. The central tubular structure splayed open at both ends is the future brain and spinal cord; the paired somites on each side will form muscle and connective tissue of the trunk and limbs.

Document camera

During lectures I project my diagrams onto the video screen using a document camera (now standard equipment in lecture theatres at the University of Auckland). These cameras are a wonderful teaching tool. They have a field of view ranging from about an A4 page down to a postage stamp. Drawings about the size of a playing card are best, because their labels will be legible when the camera is zoomed in and the drawing fills the screen. I use highlighters to colour in drawings during the lecture. In Figure 6, colour-coding the tissue layers indicates their origin during embryonic development, which is an important concept. Students soon learn that a set of coloured pencils is essential equipment in lectures.

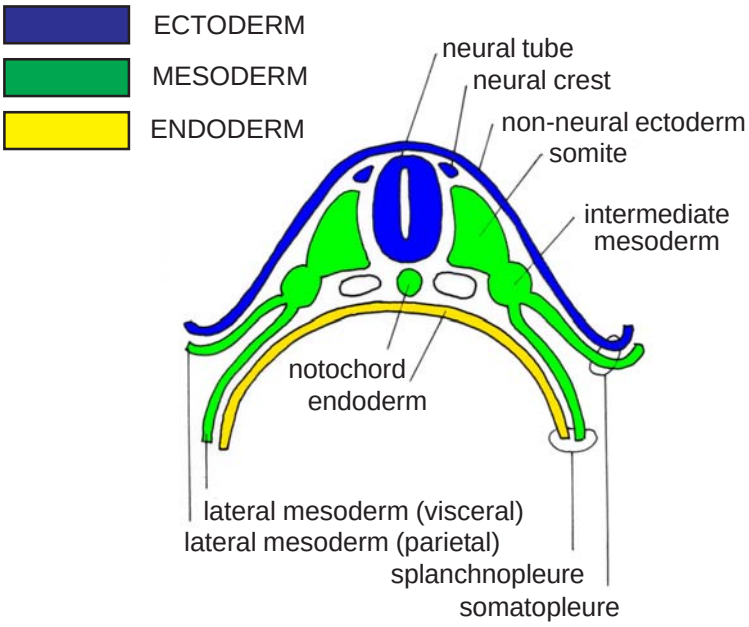


Figure 6. A cross-section cut through the embryo in Figure 5 at mid-trunk level. The drawing shows how colour might be added during a lecture to indicate the germ-layer origin of the tissues. This reveals the unexpected finding that the spinal cord (derived from neural tube) and the outer layer of the skin (from non-neural ectoderm) are closely related in terms of their developmental origin.

Colour-coding is also very useful for demonstrating the complex folding of tubular organs during embryonic development, for example the human heart. I provide line drawings to students as in the example in Figure 7, then colour them in under the document camera during the lecture. I can do this in about the same time it takes to give an unhurried explanation. The finished drawings are shown in Figure 8.

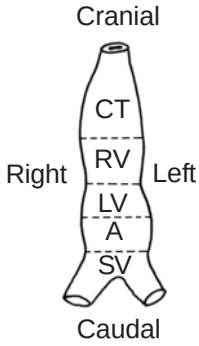


Figure 7. Heart of a 21-day human embryo in dorsal view.

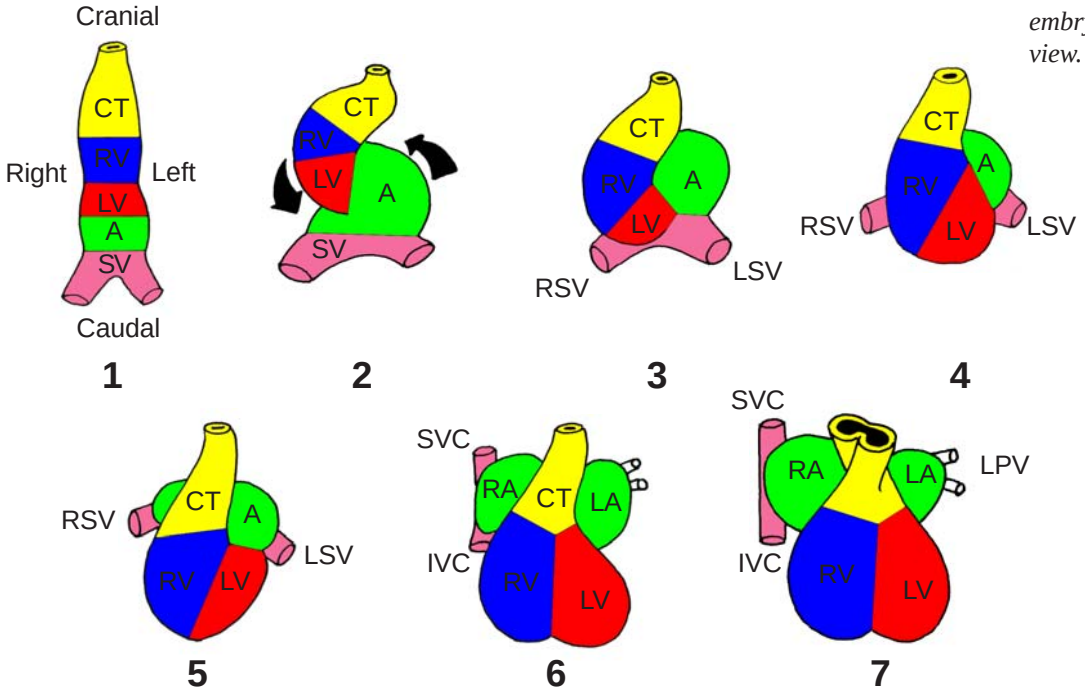
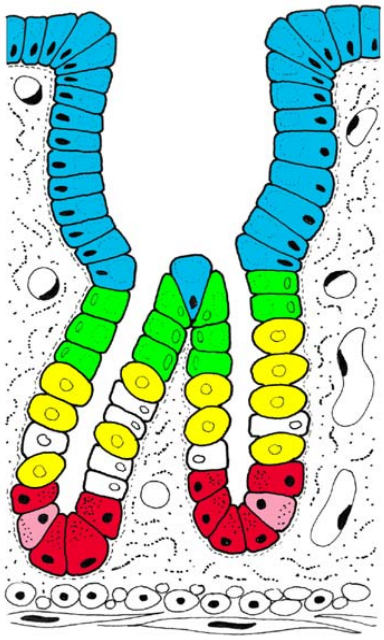


Figure 8. Seven diagrams showing the folding and looping of the human heart during development. The sequence runs from 3 weeks (1) to 6 weeks (7). Colours show the fate of the five regions which make up the primary heart tube (1).

Making my own drawings allows me to emphasise important structures by enlarging or highlighting them at the expense of less important parts. Just as a cartoonist enlarges the head or face of his subjects in order to establish character, so I have no inhibitions about introducing deliberate distortions into my drawings to emphasise important structures (but I always explain the distortion). For example, in studying the microanatomy of the stomach students learn that the single sheet of cells lining it is responsible for most of the stomach's important functions. Therefore, in my cartoon of the stomach these cells are enlarged, and during the lecture I colour-code the castes of cells which occur there. The drawing as it might appear at the end of the lecture is shown in Figure 9.



Note: in this diagram the size of the epithelial cells is exaggerated for clarity, and many small blood vessels and nerves are omitted.

Surface mucous cells
Secrete insoluble alkaline mucus which protects the mucosa from acid and pepsin

Mucous neck cells
Secrete soluble acid mucus at mealtimes

Parietal cells
Secrete HCl which kills microbes and living cells. Also secretes intrinsic factor.

Undifferentiated cells
Stem cells dividing to generate new epithelium

Chief cells
Secrete pepsinogen and gastric lipase. Pepsinogen is converted into the protein-splitting enzyme pepsin by acid in the lumen of the gland

Gastrin cells (enterendocrine)
Gastrin enters blood stream as a hormone, stimulates secretion of acid and pepsinogen, increases muscular contractions of stomach, relaxes pyloric sphincter

Figure 9. A schematic cross-section cut through the lining of the stomach. Stomach contents would occur above the diagram, deeper layers of the stomach wall would occur below. The diagram shows the gastric pits (blue) and tubular glands (two shown) which open into the pits. Colours are used to indicate different cell types.

Student feedback

I have noticed that when students are revising for exams they frequently highlight or colour-in diagrams in their lecture notes, even when that was not intended by the lecturer. There is something about colouring-in which helps to form long-lasting memories. I try to exploit that during my lectures, and students frequently tell me how useful it is. Comments made by students include:

……. I have always found colours help, both in the diagrams and text of the lecture notes. When colouring the text, I can always divide them into various topics using 'coloured' headings and sub-headings, and important keywords or sentences. They also help a lot in diagrams (especially those complicated anatomical diagrams), colour in helps me to group accordingly and easier to remember.

…….i personally find it immensely helpful for anatomy learning. All of my notes, not just diagrams, are coloured in or colour coded and it is the best way i have found of organising information in my head and then finding it again later! I even take all my coloured pens into exams and redraw diagrams using the same colours.

…… i am a huge advocate of using colour when studying!! my most prized possessions are my set of felt tip pens, and i swear that when i am in an exam i can actually remember things through their colour on my page. it beats writing screeds of notes which i would never look at anyway……

From these and other comments I think students gain several benefits from colouring-in during lectures or in personal study:

• Colour is used to **categorise**, to to link related structures (or structures and their labels). Perhaps this is its most important use, since it achieves precisely the goal which teachers most hope for: making logical connections.

• The physical act of colouring-in helps **lay down strong memories**. This explains why students will often devote time to colouring-in "for the sake of it", when there is no obvious necessity or intellectual benefit. They have found that the interaction with the diagram or text helps them remember it. I am sure this is also true of drawing or shaping or cutting or gluing, which links through to the value of model-making.

• From the teacher's point of view, a benefit of colouring and labelling diagrams under the document camera which I did not anticipate, but have come to think is extremely important, is that it **slows the pace** of the lecture. I can only proceed as fast as I can write or colour, which is close to the students' natural pace.

4.3 Extreme dissection

In teaching first-year biomedical students, one of our goals is to make students familiar with general mammalian anatomy. This is valuable for its own sake, but it is especially useful for students progressing in medicine. One could argue that a wide experience of comparative anatomy is the best (and perhaps the only) way to appreciate the special features of human anatomy. The same argument is often used to describe the benefits of travel: it is only by experiencing other countries that one is able to fully appreciate one's homeland, both its unique features and its universal features.

In the days when classes were smaller than they are now, this philosophy led me to scour Auckland for dissection opportunities. I had three requirements: the animals had to be available in large numbers, they had to come at low cost, and they should preferably be dead. Some of these opportunities arose by chance on one occasion only; others could be repeated from year to year once a supply-line was established. Our students never knew quite what to expect in dissection classes. Among the animals they encountered were:

• cats and dogs (which we soon abandoned because, for sentimental reasons, students were reluctant to dissect them);
• opossums (which had some interesting features unique to marsupials, but smell terrible);
• body parts from a range of domestic animals;
• sharks (for generations of biologists, dogfish have been a staple of vertebrate anatomy classes because they illustrate many of the ancestral features of vertebrates, and they have a skeleton of cartilage which is more easily cut with small instruments than is bone);
• hagfish (an unpleasant but fascinating primitive fish. I was lucky to obtain a class set as a one-off bargain);
• snapper (from a trawler which ran out of ice on the way back to port, so that its catch was unsaleable; but not undissectable);
• pigeons and domestic fowls (obtained under circumstances which are better not described here).

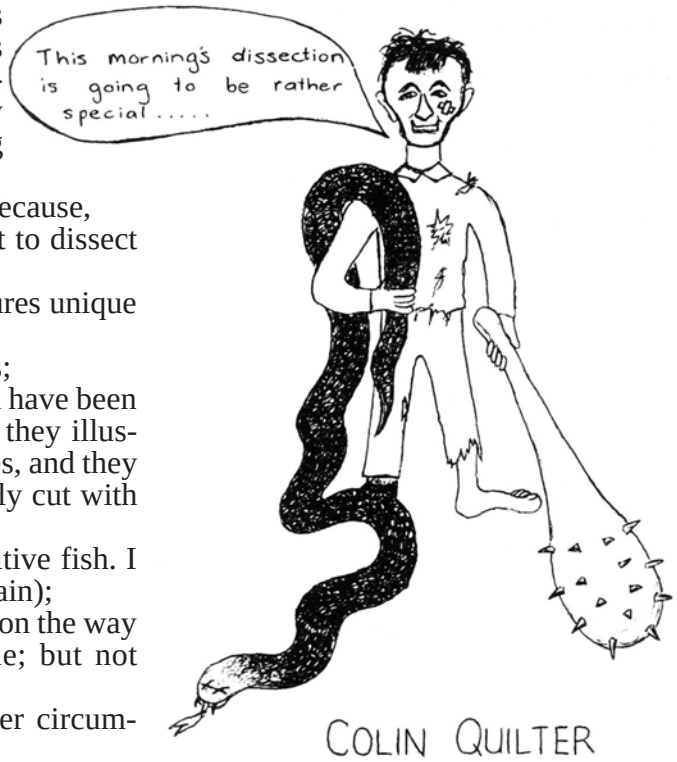


Figure 10. From New Doctor, March 1996

Students looked forward to these classes with a mixture of anticipation and trepidation. However, I know they learned a lot from them, and I believe they appreciated my efforts to obtain specimens for them. The cartoon (Figure 10) on this topic appeared in the medical students' magazine *New Doctor*. I take it to be complimentary.

4.4 Peer review of student essays

The ability to write clearly and concisely in English has always been considered an important part of medical training. For many years, as part of the first-year Biology for Medicine course, I co-ordinated an essay assignment to encourage skills in written English. Students were allowed to choose their own topics from anywhere in the field of biomedical science, and were required to write a 2500-word review. The aim was to help them gain experience in searching the literature, critically examining the information they gathered, and writing a review which was both well-reasoned and written in an interesting fashion.

The quality of the essays was generally good, but many were spoiled by small mistakes which would have been picked up by anybody who had read them. As an experiment I decided to make it a requirement that each student must ask two classmates to read their essay at a draft stage. My instructions to students were:

ASSISTANCE FROM YOUR PEERS. Most people writing for publication find it helpful to ask a colleague to read and criticise their manuscript before it is submitted. Similarly you are required to ask two of your classmates to read a draft of your essay. Each person should write about one paragraph of constructive criticism and suggestions for improvement. You must then decide whether (and how) to change the essay in the light of their comments.
When you submit the essay for marking, attach at the back the two peer reviews plus a brief note explaining whether or not you found your classmates' comments helpful, and what changes you made to the essay as a result.

At the time of this assignment about 40% of the first-year medical class were of Asian ethnicity. Many of them had English as a second language and lacked confidence in essay-writing skills. I made a point of telling that group that they were not to seek reviewers from among their Asian friends, but were instead to approach native English-speakers in the class. Similarly, I told the class that those who had strong English skills and had gained high marks in Bursary English should go out of their way to offer themselves as reviewers to Asian students. When I asked later for feedback about this process, many students spoke warmly about help given and received across ethnic boundaries.

Success of peer review

Students reported that they enjoyed acting as peer reviewers. They said that reading two essays was in itself a valuable learning experience. They were conscientious reviewers, and the comments they wrote seemed to me perceptive and well-intentioned. Those receiving reviews frequently commented on how helpful they found the constructive criticism of their essays to be. There was a marked improvement in the quality of the essays, especially in the reduction of spelling and grammatical errors.

4.5 Misuse of Powerpoint

The rapid adoption of Powerpoint has become a feature of university teaching in recent years. I am not convinced it is always for the good. The problem with Powerpoint, in my view, is that it is too easy to misuse. Powerpoint slides are visually attractive and seductively easy to create, but:

- Too many slides lead to excessive speed and excessive content. Just because a certain quantum can be covered in a lecture does not mean it should be covered. An orchestra which played faster in order to fit more music into the program would not be heard with admiration.

- Powerpoint lectures promote passivity in the audience. Students may abandon the attempt to take

notes within the first two or three slides, overwhelmed in a flood of information. I have heard this described as “Death by Powerpoint”.

- Subtle ideas lose their beauty and complexity when reduced to bullet points.

- Bullet points generally add nothing to the intellectual content of a presentation. But worse than that, they are a distraction. I realised this when watching television evangelists. These men are masters of persuasive teaching, and much can be learned from their technique. I have never seen them use Powerpoint. They know that they can best engage their audience through the power of voice, facial expression and body language. They want the viewer’s full attention to be on them and on nothing else. Why tolerate the distraction of bullet points?

- I suspect that, very often, bullet points are intended to assist the lecturer more than the students. They act as prompts. This would be harmless (although lazy) except that the teacher is then tempted to rush helter-skelter through the lecture, from bullet point to bullet point, instead of developing and elaborating ideas at a gentle pace.

- Diagrams often reproduce poorly on Powerpoint slides. For example when large diagrams which occupy a full or half-page are scanned and inserted into Powerpoint slides, the labels (and much of the detail) are illegible.

This list of problems is not complete. More have been catalogued by Tufte and others[3]. My contribution to this growing literature is the poem which follows, written in September 2004 and published in the October issue of the medical students’ magazine *New Doctor*.

The razzle-dazzle lecturer

He was a grizzled lecturer, another long day done
His class another skirmish in a war that’s never won
He said, “I’m done with chalk and talk, I’m done with OHP
The future’s electronic and it’s Powerpoint for me.
I’ll get a little Memory Stick with megabytes galore
I’ll fill it up with bullet points and pictures by the score
There’ll be a slide or two or three for every small detail
With electronic wizardry the message cannot fail.
A razzle-dazzle teacher, by my students held in awe;
Mesmerized by sound and light and clamouring for more
Their jaws will drop, their eyes will pop, I’ll take their breath away
A razzle-dazzle teacher with a sound and light display!”

Now his office lights are blazing late into the night
As seated at his keyboard he turns lectures into bytes
The body of his teaching is dismembered joint by joint
And takes new life upon the screen in coloured bullet points.

The new term starts, his class awaits, a hush falls over all
They’re dazzled as his Powerpoint lights up the lecture hall.
How smooth the road to learning! How clear the facts will come,
How much they’ll learn if they just write his slides down one by one.

But wait; the first slide’s gone! A new one takes its place;
Silence as a hundred pens attempt to match the pace.
The breeze of information builds, the wind becomes a gale
A storm of information which they must inscribe or fail!

3 Tufte, Edward. *The Cognitive Style of Powerpoint* Graphics Press, Conneticut, 2003.

They hear but cannot listen, they see but cannot think
A hundred minds preoccupied with turning bytes to ink.
Slide after slide, the race is lost, no hope remains but yet.....
Perhaps he'll file his Powerpoints upon the internet?

Now across the far-flung city are burning other lights
In a hundred student bedrooms as they download his bytes
In time and ink and paper the cost might seem absurd,
A forest will be sacrificed to print those precious words.

So many words! So many slides! So many facts indeed!
When all of that is learned by heart what time is left to read?
What time for other sources, for thinking deep and wide?
Their books remain unopened while they memorize his slides.

He was a grizzled lecturer, a sad and wiser man
Saw the measure of his teaching when he marked their last exam;
A hundred scripts, all phrase by phrase with his own words conjoint
A hundred minds conforming to those awful Powerpoints.
Not a trace of reading or of independent thought,
But depressing uniformity, his teaching come to nought.

He sees that Powerpoint's a monster, and bullet points a curse
No gain on older methods but rather something worse.
For faster still and faster the presentation goes
And faster than the brain can think, the information flows
A torrent full of bullet points, a river full of words
And somewhere in the foam and froth the ideas are submerged.
He sees that faster is not better, and Powerpoint's to blame
He vows to cherish thoughts, not bytes or razzle dazzle fame.

Colin Quilter, 2004

Alternatives to Powerpoint

Given the problems of Powerpoint, I now feel that creative use of a document camera is a much more effective medium for the sort of teaching that I do. As mentioned earlier in this portfolio, I provide students with notes and drawings in their Course Guide. The drawings are all prepared at a size and scale suitable for imaging with the document camera, and during lectures I discuss them, ask questions about them, colour them, annotate them, add to them, label them, or highlight important passages of text. Through this process students are encouraged to interact with their own notes and thereby form strong memories. After each topic is covered using the document camera, I often show Powerpoint slides of actual embryos, organs or tissues, sometimes in their living condition. These images "flesh out" or give a realistic impression of material which we have already discussed in diagramatic form. I tell students that my Powerpoint slides will always be purely illustrative, will not be examinable, and will not require them to take any notes. Powerpoint slides used in this way are akin to the colour transparencies which a decade ago we used to project using a slide projector. For me, Powerpoint works best when it is restricted to this specific use.

5. Evaluation of my teaching

I don't believe that there is anyone better qualified to judge the quality of my teaching than the students who depend on it. Each year I ask students to evaluate my teaching in 1-3 different topics, (44 evaluations in 22 years). These evaluations relate just to the block of lectures or laboratory sessions which I contribute; they are not course evaluations. Two examples (from 1986 and 2003) are included in Appendix Three.

When I began work at the university John Jones was the Director of the Higher Education Research Office, (HERO). He was a passionate advocate for teaching, and was very helpful to me. I am proud of the comments which John wrote about an evaluation in 1988:

This is a quite remarkable set of student ratings, and represents one of the most positive student reactions to teaching out of hundreds of evaluations that I have seen over a period of several years. There is no doubt that Dr Quilter's teaching is of the very highest quality.

My philosophy about questionnaires is that they should focus on the most critical aspects of teaching and learning. For example, anyone talking to students soon finds that their most frequent complaint about lectures (and lecturers) is that they are "boring". Therefore, in my view every lecture evaluation should contain a question which gives students the chance to say that. The second most common complaint is about excessive speed and/or too much material, so there should be a question about that. A third issue is how much the students actually learned from the sessions. This cannot be measured as performance in tests or exams, because if students suffer poor teaching they will usually make up the deficit through personal study. By sticking to a few critical issues such as these, the questionnaire can be brief, with time for open-ended comments at the end. The Formative Feedback Questionnaires (FFQ) now used by the Centre for Professional Development at the University of Auckland are of this type.

Reporting back the results of evaluations to students is very important if they are to feel that the exercise is worth their participation. When the evaluation concerns my own teaching then feedback is easy, and I can generally find some humorous comments on the forms to read back to students in the next lecture, which gives me a chance to tell them how much we value their input. I recall one year when some wag wrote that I had "better legs than AB", naming a rather good-looking female colleague. The class was delighted to hear this and it took me a long while to live it down. I wondered whether the story would reach AB, but judging from our continued cordial relationship, it never did.

When feedback concerns other staff teaching in the course which I co-ordinate, I do not report back in detail or identify individuals, but instead explain the broad improvements which have been made to the course since the previous year as a result of receiving input from the students of that year. For example when lecturers join our course they often over-estimate the quantity of information which can be included in a teaching session. Almost all of us make that mistake when we first teach a particular topic. Students are quick to identify excessive content and/or speed in evaluations, and we refine and reduce the content of the session for the next year. When I explain those changes to students I hope it convinces them that although they may not gain any immediate benefit from contributing to course evaluations, their input will benefit those who follow them.

6. Teaching awards

AUMSA Staff Teaching Awards

The Auckland University Medical Students Association has traditionally been very supportive of good teaching in the medical faculty. Each year since 1995 (except 1996 and 1998) they have presented Staff Teaching Awards at a ceremony in the Robb Theatre. Winners are chosen by popular vote among the medical classes. These awards mean a lot to me because they represent the opinion of the people to whom my teaching is directed.

AUMSA awards I have received are:

1995 *Preferred Teacher in BHB I*
1997 *Best Lecturer, BHB I*
Most Supportive Staff Member, BHB I
Most Awards in One Year
Best Lecture, BHB I
Most Memorable Moment, BHB I
1999 *Most Supportive Academic Staff Member, BHB I*
Best Overall Lecturer, BHB I
Best Overall Lecturer, BHB II
2000 *Most Supportive Staff Member, BHB I*
2001 *Best Lecturer of all of BHB*
Most Supportive Academic Staff Member, BHB I
2002 *Most Supportive Academic Staff Member, BHB I*
2003 *Most Supportive Academic Staff Member, BHB I*
Best Lecturer, BHB II

Butland Distinguished Teaching Award, Faculty of Medicine, 1993

I received this award mostly thanks to my colleague Louise Nicholson who nominated me for the award, prodded me to assemble documentation, and asked students and others to support my candidacy. I am lucky to have a colleague like her.

7. Professional development

Auckland University's Centre for Professional Development (CPD) runs numerous short courses on teaching and related issues, and I have benefitted enormously from these over the years. Nowadays they are an accepted part of university life, but twenty years ago attendances at teaching development courses were much smaller. Those of us who attended regularly saw ourselves as an enlightened minority, and we were filled with an almost religious zeal about teaching. In fact when I look back on those sessions they shared many characteristics with the meetings of a minor religious cult. We were a small group united by fellowship and common purpose. In John Jones we had a charismatic leader. After each session we proselytes dispersed to our various faculties keen to spread the word. Now that pedagogy has taken its rightful place in the mainstream of university life, I can't help but feel that some of the fun has gone out of it.

Contributions to Professional Development

1989-93 Invited speaker at annual "Top Teaching" symposia organised by the Higher Education Research Office.

2001 I contributed a session on the use of peer tutoring to improve the quality of student essays at the Centre for Professional Development Symposium "Talking about Teaching".

2002 Presentation on "Teaching Large Classes" at a CPD symposium showcasing educational innovation.

2004 Presentation on "Alternatives to Powerpoint" at the Fourth Annual Teaching and Learning Showcase.

As co-ordinators of HUMANBIO 142, my colleague Peter Riordan and I employ about eight tutors and thirty demonstrators to staff our teaching laboratories, which run in eighteen streams. Peter does the bulk of the organization for these labs (with great efficiency); my part is to run the training sessions for lab topics which I have developed. Selection as a demonstrator or tutor is a significant event for graduate students because they begin to see themselves as contributors to teaching rather than receivers; because it is a chance to learn teaching skills which they value; and because it draws them into a friendly and informal relationship with staff.

Administration and committees

I have been a member of the Medical Faculty Staff-Student Committee for most of the past fifteen years, and a member of the Medical Admissions Committee for many of them. Since 1997, I have also been Year Co-ordinator for BHB I, the first year of the medical prgram. This task has involved the usual mix of class and test scheduling, writing the Year Handbook, advising students on a myriad of issues both academic and personal, assembling exam results, and communicating with students at both ends of the grade distribution about their results, (a pleasant or a melancholy task depending on which end of the curve is in view).

The Year Co-ordinator's job required a large commitment of time, but it was work which brought me into contact with students, and with other staff, in a way which would not have occurred otherwise. Now that selection for medicine is occurring at the end of year one (rather than at the beginning), BHB I has disappeared and with it my job as co-ordinator. I am happy to regain the time, but will miss getting to know students in the way that I once did.

8. Conclusion

I hope this portfolio illustrates a diverse range of approaches to teaching and learning developed over a period of more than twenty years. Diversity is good, for both teachers and students. Recent experience with course HUMANBIO 142 has confirmed this for me.

As noted earlier, for the past few years enrolments in HUMANBIO 142 have been so large that one of the two lecture streams is video-relayed into a second theatre. When other staff are teaching, I attend their lectures in the video theatre in order to have a staff presence there. This has given me the opportunity to watch some excellent teachers at work. I sit among the students, I watch them taking notes, and I listen to their comments. The experience has strengthened my belief that effective teaching takes many forms. The most successful teachers are those who are passionate about their subject, who transmit that enthusiasm to students, and who care about their progress. It seems to me that compared to those qualities, pedagogy is less important.

It is sometimes said that the opposite of a pedagogical approach to teaching is an intuitive one, but I don't think of myself as an intuitive teacher either. That implies teaching by self-generated insight. In learning my trade I have been guided and advised by nearly a generation of medical students who told me what helped them to learn, and what did not. Much of the pleasure I feel about my job comes from a conviction that the advice they gave me was sound, and the satisfaction that I followed it.

Colin Quilter
March 2005

Appendix One: Case-based learning project

During most of the 1990s I ran a case-based learning project on cardiovascular biology. At the time it was the only such project in the first and second years of the medical course, although case-based teaching was much more common during the later clinical years. The "case" was presented in the form of a simulated GP - patient consultation filmed on videotape. The video was scripted by me and filmed at the university's Audiovisual Unit. Staff from the Department of General Practice played the part of the GP; the "patients" were actors. On viewing the video students had to gain what clues they could from the dialogue and from physical signs discovered by the GP. They then worked in groups to research the problem and reach a diagnosis. The student handout relating to the project is reprinted below and overleaf.

THE CARDIORESPIRATORY CASE-BASED LEARNING PROGRAM IN BHB 1, 1995

INTRODUCTION.....

The cardiorespiratory part of the Vertebrates course is made up of three elements:

1) **A case-based learning program requiring independent research. This handout describes your tasks in the case-based program.**
2) Four lectures on the cardiovascular and respiratory systems.
3) Four dissection laboratories ("Heart dissection", "Anterior arteries", "Fetal circulation" and "Lung").

OBJECTIVES OF THE CASE-BASED LEARNING PROGRAM.....

We hope that this program will convince you that a knowledge of normal cardiorespiratory structure and function is essential to the clinical assessment of the cardiovascular and respiratory systems, and also allows an understanding of the consequences of defects, disease or degenerative changes to the heart, blood vessels and lungs.

YOUR TASKS DURING THE PROGRAM.....

The program requires you to work as a member of a group. Your group will need to attend a case presentation, analyse the information presented there, research the case and eventually submit a group report for marking.

1) During the week before the program begins you should choose four other students from **within your laboratory stream** with whom you would like to work. Groups of five should "sign up" on the list posted on the noticeboard outside the Biology lab, (groups of four or six are also acceptable).

2) Attend the **case presentation** in the Lewis Theatre at 0800 on Monday 10 July. This session will present a clinical problem; your job is to recognise as many clues as possible to the nature of the underlying condition. The presentation will take about 25 minutes; after which time your group should meet to **identify key topics which require research, allocate research topics within your group, and arrange a time for a future group meeting to discuss progress.**

3) Your individual task at this point will be to investigate a particular topic related to the case. You will be working alone or with one other group member. **Additional information** about the case will be provided in a bulletin posted on the Biology noticeboard on Thursday 13 July. The information will be in the form of more detailed physical signs, test results and progressive symptoms. Our aim here is to simulate "real life" in which information comes gradually to the physician's hand. This additional information will allow you to rule out some diagnoses and refine others.

Appendix One (continued)

4) During the 3rd week of July your group will have to meet at least once in order to discuss information assembled so far, and to divide up among group members the task of writing your group's report. Everyone should contribute to the report, (say between a half and one A4 page per person, typed or printed so that it will photocopy well, with each member's contribution identified). The report should of course give the **diagnosis**; but more importantly it should explain the **cause of the symptoms and physical signs, why other possible diagnoses are ruled out, what the prognosis is, and the recommended treatment.** The length of the report should not exceed five A4 sides.

5) In past years some groups have discovered the diagnosis by word of mouth from harder-working (or more imaginative) classmates. However, as the notes above make clear, the correct diagnosis will make up only a small part of the report.

6) The **deadline** for handing in your group's report to Dr Colin Quilter is 5pm on Wednesday 26 July. The report will be marked out of 5, the marks contributing to Paper 60.100. All members of the group will receive the same mark, (unless Dr Quilter receives advice to the contrary from a majority of group members).

7) Attend the **wrap-up session** on Friday 28 July at 1200 in the Henley Theatre. Professor Norman Sharpe, Department of Medicine, will discuss aspects of the case. The marks for your Group Reports will be available, and each report plus four photocopies will be returned so that all group members have a copy to take away.

THE CARDIORESPIRATORY PRIZE.....

In addition to the main case-based learning program, groups may take part in an informal competition. The first group to hand in to Dr Quilter a correct one-sentence diagnosis will win the "Biology for Medicine Cardiorespiratory Prize for 1995"* Only one entry per group is permitted.

RESOURCES.....

1) Lectures and laboratories will provide information relevant to the case.

2) **Philson Library resources**. Two introductory texts on cardiology have been placed on Desk Copy; they are:

   Julian 1988 *Cardiology* Bailliere Tindall. 5th edition. WG200 J94
   Zoob 1977 *Cardiology for students* Churchill Livingstone. WG200 Z88

   There are many other texts which may be helpful on the WG100 and WG200 shelves. In order to make these available to all, it is essential that you do not borrow any texts relevant to the case from the Philson Library during the case-based learning program. The library cannot act as a resource for more than 100 students researching the same topic unless you are scrupulous about observing this rule.

3) Dr Quilter will be available to provide guidance, (but not direct answers to questions), about the case.

"I AM NOT LEARNING MUCH FROM THIS....."

If problems arise related to any aspect of the program, or if you would like to suggest improvements in the way the program is run, please advise Dr Quilter. This is not a teaching program; it is a learning program. If there are any impediments to your learning, we need to know about them.

* 5 chocolate fish

Appendix Two: Human embryo model

The index page of the embryo model website is shown below.

THE UNIVERSITY OF AUCKLAND
FACULTY OF MEDICAL AND HEALTH SCIENCES

Modelling a One-Month Human Embryo

This is a fun activity that you can do just as well in your own kitchen as in a classroom or a university lab. Its main purpose is to allow you to use your hands along with your eyes to acquire a good three-dimensional understanding of the structure of the early human embryo. As a spin-off you will get an attractive, permanent, coloured model that you can put on show to intrigue your friends!

The model was developed by Colin Quilter in the Department of Anatomy with Radiology at the University of Auckland. Model-building forms part of the university's first-year course on human development. Students are provided with materials and instructions, and about 3 hours of time. The models which result are often of a high standard. Students comment that they enjoy the model-building exercise, and that it helps them form long-lasting memories about the structure of embryos.

The models are constructed using a readily-available modelling compound which is soft and pliable at room temperature but can be hardened in a domestic oven. The parts of the model are colour-coded to indicate their germ layer of origin, or for blood vessels, the quality of the blood they carry. The model is twenty-times life size.

This project benefited greatly from the help of Dr Jeremy Cook, University College London. Jeremy produces a CD-ROM "The Embryonic Disk" which is an excellent (and low-priced!) resource to support the teaching of embryology. For more information about The Embryonic Disk, go to http://www.ucl.ac.uk/innovations/embryonic

Click here to view colour images of a model under construction

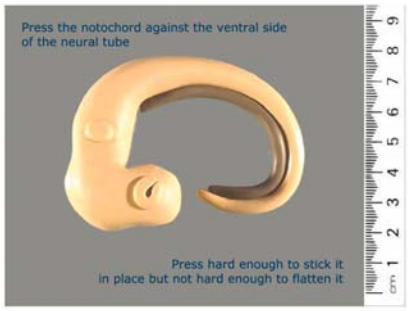
(Each image about 30KB)

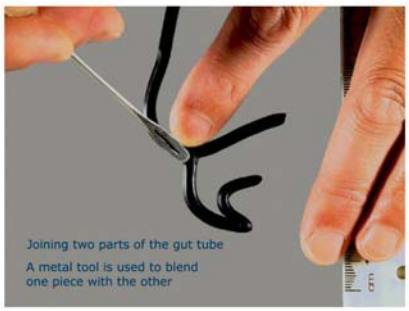
Click here to download a PDF file of plans and instructions which you will need to print if you want to build a model

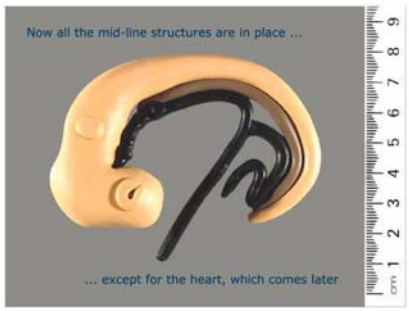
(File size 862KB; may take about 5 minutes to download.)

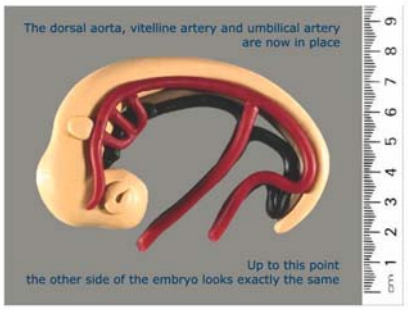
Appendix Two (continued)

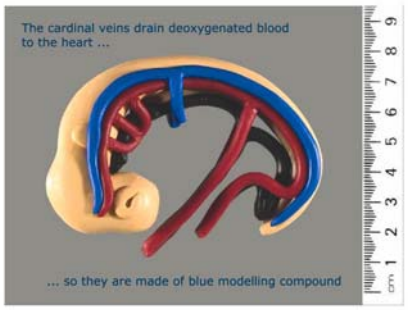
The images below show stages in the construction of an embryo model. They are available as clickable links from the main embryo web page.

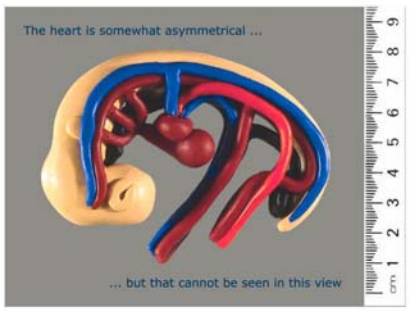


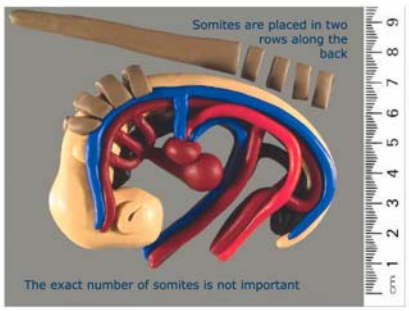


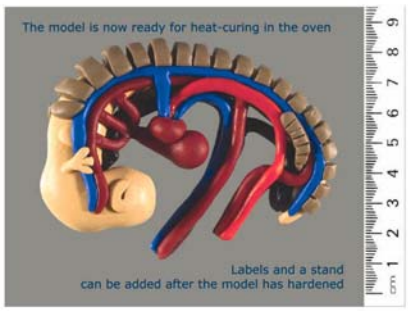












Appendix Three: Student evaluation

This is a report from Dr John Jones, then Director the Higher Education Research Office at the University of Auckland, on student evaluation of my lectures in 1986.

Course/Teaching Evaluation: Dr. C.G. Quilter
Histology/Embryology, 1986

Item	Response							Mean
	1	2	3	4	5	6	7	
1	-	-	-	-	1	22	51	6.71
2	-	-	-	-	6	21	49	6.57
3a	-	-	-	2	6	47	22	6.16
b	-	-	-	-	1	22	54	6.69
c	-	-	-	-	6	34	37	6.40
d	-	-	-	1	4	31	39	6.44
e	-	-	-	-	4	20	50	6.62
f	-	-	-	5	17	21	32	6.07
g	-	-	-	2	4	21	46	6.54

This is a quite remarkable set of student feedback, and is clearly the best set of results of any staff member who has used this form via Higher Education Research Office. So far as the students are concerned, Colin Quilter represents the very best in University teaching.

Open-ended comments from students suggest that they particularly appreciate the following aspects of Dr. Quilter's teaching.

* The structure of his teaching is superb. Students appreciate the clear layout of lectures, with extensive use of headings which makes it easy for them to identify main points. Use of visual aids is excellent in this respect.

* The pace of lectures is good: students do not feel rushed and have time to listen as well as make notes.

* Handouts complement lectures very well, and are much appreciated by students.

* The quality of explanations is outstanding; students report that they are rarely - if ever - confused, and that the use of interesting analogies helps a great deal. This degree of understanding stimulates students to want to learn more.

* Colin Quilter's personal qualities are frequently mentioned by students. They appreciate his enthusiasm for the subject, his sense of humour, his approachability and his obvious concern for students' academic welfare.

Students were unable to make any suggestions as to how Dr. Quilter's teaching might be improved. The most frequent responses were along the lines of "leave it as it is" or "take more lectures."

To repeat, this is a quite outstanding set of student feedback, and Dr. Quilter is to be congratulated upon what is obviously an excellent job of teaching.

25/8/86

Dr. John Jones
Higher Education Research Office

Appendix Three (continued)

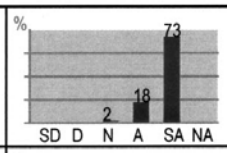
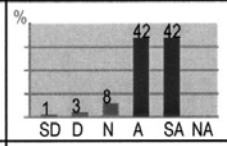
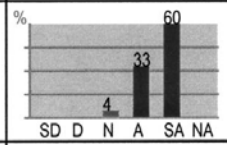
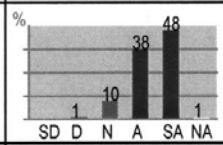
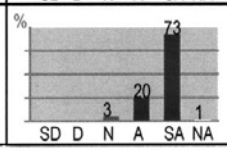
Reprinted below is part of a report from the University of Auckland Centre for Professional Development (CPD) following student evaluation of lectures on the cardiovascular system which I gave to first-year biomedical students in 2003. Questionnaires were handed out at random to about one fifth of the class. In addition to the five questions shown there were two open-ended questions, (see below).

Formative Feedback Questionnaire

Colin Quilter — Survey#: 6349

No. enrolled: 226 — HUMANBIO 142

No. respondents: 226 — Large class — Stage 1 — Print date:2003-09-10

				Mean	Std.Dev	Z-Score
L003 The lecturer was enthusiastic about the subject		A+SA = 91% D+SD = 0% count=11	Survey	9.39	1.20	
			Dept	9.39	1.20	.00
			Faculty	8.89	1.63	.31
L032 The lectures proceeded at a pace that I was able to cope with		A+SA = 84% D+SD = 4% count=7	Survey	8.14	2.04	
			Dept	8.14	2.04	.00
			Faculty	7.07	2.28	.47
S009 Lecturer s explanations were clear		A+SA = 93% D+SD = 0% count=1	Survey	8.94	1.42	
			Dept	8.94	1.42	.00
			Faculty	8.94	1.42	.00
M146 The lecturers notes in the course guide were helpful		A+SA = 86% D+SD = 1% count=1	Survey	8.45	1.75	
			Dept	8.45	1.75	.00
			Faculty	8.45	1.75	.00
L010 Overall, the lecturer was an effective teacher		A+SA = 93% D+SD = 0% count=16	Survey	9.32	1.28	
			Dept	9.32	1.28	.00
			Faculty	7.24	2.70	.77

Among comments written in the open-ended part of the survey were:

- *Course guide notes were extremely comprehensive and of great help..... Colouring in is a very useful learning tool, and so is adding labels and drawing diagrams. Interactive learning is much more effective than just being talked to or throwing up slides with lots of writing.*
- *I wish all the lecturers were able to animate the topics so well. Best lecturer in my whole program.....*
- *The lecturer's enjoyment of the subject was obvious and contagious.*
- *Very enthusiastic and knowledgeable - he has a great manner, conveys what is needed to be known eloquently & with good examples - plus a good sense of fun!*
- *He was enthusiastic and spoke at a level we could understand. Made it really interesting and enjoyable. I wanted to go home and look stuff up in the textbook!*
- *He has his distinct style and ways of teaching. He makes difficult topic so easy to understand and obtain clear ideas and concepts.*
- *Dr Quilter was obviously trying to pass on the information in a way that would be most understandable to students, but also was extremely willing to answer questions and explain things further where needed..... I really enjoyed these lectures.*

Appendix Four: Student comments about my teaching

The Auckland University Medical Students Association publishes a student magazine several times each year. In the robust tradition of student publishing, contributors to the magazine do not mince words when reporting on teaching at the medical school. They can be merciless. Over the years I have accumulated a small pile of clippings from "New Doctor" and "Quack" which mention my teaching. Given the extravagant nature of some of the comments contained there I hesitate to include them in this portfolio; however since the writers were not constrained by considerations of defamation or poor taste, I suppose their favourable remarks are worth more than the average testimonial.

The highlight of Bio would definitely have to be Colin Quilter especially the embryology lectures and labs..... (Quack March 1990)

QUILTER'S POPULARITY PLUNGES!!! A shock survey recently performed by the Higher Education Research Office has shown that the golden run of "Most Popular Lecturer Awards" may be coming to an end for the "dad" of Med School, Dr Colin Quilter. In the latest survey of 200 medical students, only 199 voted for Dr Quilter, breaking the string of dominance of yesteryear..... (New Doctor April 1994)

Louise Nicholson and Colin Quilter: the sign on their door says it all (Students please enter). The Mom and Dad of med school..... Colin and Louise easily won best lecturers of the year 1994 and quite frankly, we're not worthy. These lectures were even attended by the fallout victims of the champagne breakfasts. Buy your tickets soon, they're expected to sell out!!! (Quack 1995)

Colin is the greatest. He is easily the best, most interesting, nicest, lecturer type guy in the whole medical school, in the whole University..... in all of New Zealand... IN THE WORLD! ..... Colin is so fantastic that he can wear sandals and we still think he's cool. He is so good that people actually want to go to his lectures!!! If you don't think that's amazing at the moment, you will in a few weeks time. (Quack 1996)

Colin is the closest thing to a god on earth. He is the best lecturer, the best lab demonstrator and a really good guy. Look out for him and remember to bow or curtsy when he approaches. (Quack 1998)

Colin Quilter on Cardiology is great ..... (New Doctor Feb 2001)