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REPORT OF THE 1984 A.G.M. OF HERDSA

**JULY
1984**

HERDSA's New Honorary Life Member:

Emeritus Professor Peter Karmel



The constitution of the Society provides for election to Honorary Life Membership in recognition of distinguished contributions to the field of higher education research and development or outstanding service to the Society. Since the foundation of the Society three such members have been elected: Kol Star for his work in establishing the Society, Barbara Falk for her contribution to staff development, and Ilma Brewer for her research and development activities in the teaching of science.

At the 1984 conference Peter Karmel was elected to life membership in recognition of his distinguished contribution to Australian tertiary education. Emeritus Professor P.H. Karmel, AC, CBE, was educated at Caulfield Grammar School, the University of Melbourne, and Trinity College Cambridge. He holds a Ph.D. from the University of Cambridge and the University of Adelaide.

He began his career as a Research Officer with the Commonwealth Bureau of Census and Statistics and then taught economics at the universities of Melbourne and Adelaide. In 1966 he became foundation Vice-Chancellor of Flinders University and is currently the Vice-Chancellor of the Australian National University.

Prior to joining the ANU he served as Chairman of the Australian Universities Commission and the Commonwealth Tertiary Education Commission from 1971 to 1982, a period, at least in its latter years, of unprecedented financial difficulty for colleges and universities associated with the national economic recession.

During this time he also chaired a number of major committees concerned with enquiries into medical education, the Schools Commission, the feasibility of an open university, and post-secondary education in Tasmania.

In addition to his contributions to the demographic and economic literature, Peter Karmel has published extensively on topics within the field of tertiary education. These papers reflect the range of his interests which encompass transition to post-secondary education, the economics of education, the aims of education, qualifications and jobs, university-government relations, youth employment and vocational training. This body of work, and his activities in the fields of teaching, administration, and policy-making, have combined to establish a reputation which is without parallel in contemporary Australia.

Deadlines for future issues:

November issue: Special Issue on Research on Student Learning

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Lecturing as an Obsolete Form of Teaching: A New Look at an Old Debate

Lecturing is still the predominant form of teaching in tertiary institutions. Despite many criticisms it is not likely to disappear. If we do have to live with the lecture method then it is important to consider how it can best be used and how it can be modified to suit the variety of demands which are placed on it. Lee Andresen has recently completed a thorough review of lecturing to large groups and here he presents some of his views on how we might lecture less but do it better:

The publication of a new booklet on lecturing* should prompt us to consider a couple of pertinent questions: *why* we want to help people lecture better (as opposed to recommending that they drop the whole idea), and *what sort of help* we ought to be giving them (assuming we think lecturing is worth developing after all). While the most common formula for lecturing development is to work at presentation and explanation skills, both this article and my own booklet to which it refers attempt to promote a rather different (though not incompatible) route to lecturing improvement.

I feel mildly annoyed to hear again and again how Gutenberg's and Caxton's inventions made lecturing redundant; for whereas the claim is pretty obviously true it is only part of the story. It ignores what we know full well, that armies of (presumably) intelligent, well-informed, well-intentioned academics do tenaciously persist in lecturing, and they would not do this without some good countervailing reasons. I think it is obvious they find at least some aspects of lecturing rewarding; and doing things that satisfy us has, mercifully, not yet become an obsolete form of behaviour.

* *Lecturing to large groups: a guide to doing it better but less* (1984, UNSW: Tertiary Education Research Centre, 65 pp, no charge, available from TERC).

Though intended as an introduction to my own booklet, in this article I want to go further than it and take a broader look at the question of lecturing and its satisfactions, speculating on two different routes to enhancing the latter. So when I refer to "better lecturing" you should interpret that to mean "lecturing that is more satisfying"; satisfying for the lecturer, in the first instance, but also of course to the audience.

There are, I think, at least two distinct paths to better lecturing. I suspect that what the printing press did render obsolete was only one primitive species of teaching, namely lecturing-as-dictation-of-information. That is what I shall call "bad lecturing" because it is so clearly inefficient and almost totally unnecessary. I suspect those who persist in it must be either ignorant of print (unlikely) or playing the part of modern-day academic Luddites.

We know only too well, of course, how institutional factors can powerfully contribute to the difficulties experienced by lecturers, hence to their loss of satisfaction: extremely large classes, inadequate facilities and inept timetabling. The point I wish to make here is that notwithstanding this fact — that is, within our own particular circumstance, deplorable though it may be — lecturing can be made more satisfying. And even if the gain is only marginal, it is better than none at all.

I have no hard evidence that people who engage in lecturing-as-dictation-of-information are less satisfied

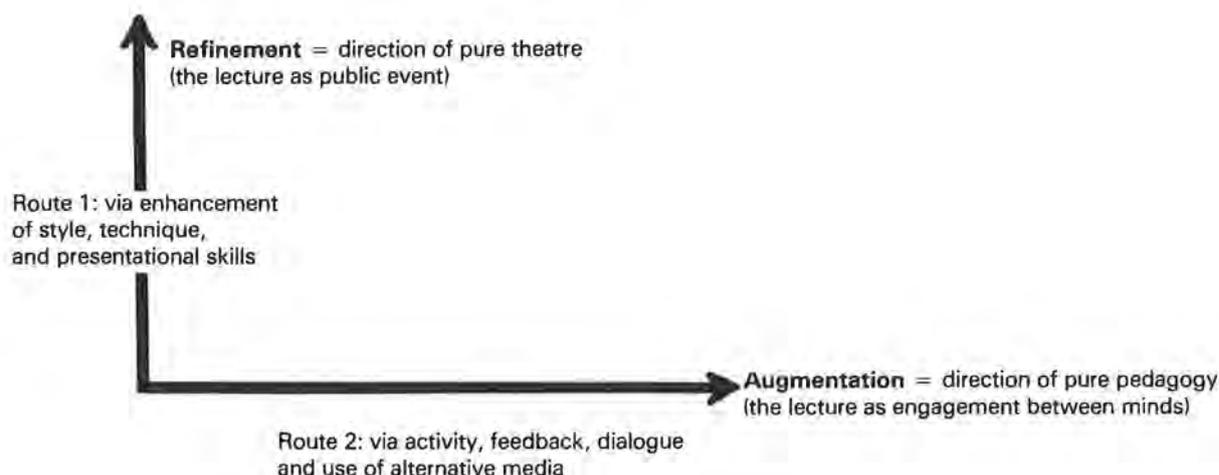


Figure 1: Two routes away from obsolete lecturing

than better informed lecturers, but from class observations and workshop discussions I think a great deal of lecturer dissatisfaction can be plausibly accounted for in terms of a fixation at a primitive pre-Gutenberg view of what lecturing should and could comprise.

Better lecturing might, I submit, be got by two paths, by following either of which we redeem an honourable craft from undeserved obsolescence. They may be followed independently since they are not opposites but complementary alternatives. In empirical science terms we would describe the directions as orthogonal rather than polar. If I am right, enhancing lecturing skill can be worked on in both directions at once. The outcome would be to develop a unique blend, suiting our personality and circumstances, and proving more satisfying than what most of us do at present.

Better lecturing might . . . be got by two paths, by following either of which we redeem an honourable craft from undeserved obsolescence.

Route 1 is towards *refinement of technique*. It is the same as (or analogous to) one route by which the student of acting develops. It appears to draw on theory and practice in the presentational arts. This is the route my booklet is *not* about, so I'll dispense with it quickly. By improving presentation and explanation techniques, visual and oral communication skills, ability to assume a dramatic "role" and so on, we can turn a lecture into a rich, memorable event for an audience, something of far more value to them than merely watching garbled information pass from our heads into theirs via hastily scribbled lecture notes.

I do not want to disparage this route in the least. On the contrary I hope there may be many more memorable lectures, impressive orations, stimulating and lucid presentations. Doing the job with greater refinement of technique is an admirable goal, befitting the professional teacher. Lecturing-as-theatre can be both a delight and compliment to the audience and a source of personal pride and satisfaction to the lecturer. By following this route, lecturing becomes justified by being done with finesse; dare I suggest even lecturing as an art form? There is evidence suggesting that lecturers who may never have been anywhere near the stage can indeed benefit by learning some basic dramatic or theatrical skills, and hence move themselves in this direction.

Route 2 is towards richer *augmentation of strategy*, and this route draws on theory and practice in the sciences of pedagogy and human interaction. In it the (obsolete) function of lecture-as-dictation-of-information is transcended because the lecture is made to perform additional, pedagogically valid functions for which the printed word alone would be patently ineffective. By following this route, we justify lecturing by making it accomplish a host of worthwhile things that reading the printed word cannot efficiently do.

Now this route is what the booklet *is* all about, and I have identified three components in the process by which lecturing can be progressively augmented. These are (i) encouraging student activity, (ii) inviting feedback from students and (iii) engaging in dialogue with students.

In addition to describing these components the booklet contains some implicit messages which I feel are important enough to spell out here. The first is that by incorporating some or more of these three elements into our style we will be lecturing better; better in the sense of no longer engaging in primitive, obsolete behaviour, and better in the sense of getting more satisfaction. (We may also find it to be better in the sense of more effective as teaching, but I doubt whether anyone can at this stage point to hard evidence on that issue.)

Second is the idea that the further we move in this augmentative direction the more we are likely to transcend and leave behind lecturing-as-dictation-of-information. Either we will come to use it in limited amounts only, and with considerable discretion, or else abandon it altogether and transfer our attentions wholesale to some other medium far better suited for information transfer.

Third is the idea that some lecturers who gradually follow this path find themselves doing things that are so remote from primitive lecturing as to be almost unrecognisable. Therein lies a paradox. It seems that if we follow too zealously this route to enhancement of lecturing we may indeed leave lecturing behind us altogether. So what was originally called a path to better lecturing turns out to be a path away from lecturing and it is this paradox suggested in the book's subtitle — "doing it better but less".

I now wish to give you some examples of the sorts of things reported in the booklet which are claimed to represent this route to lecturing augmentation. The text contains brief summaries of a wide range of techniques lecturers have used, based on documented accounts traced in the literature or, in a number of cases, researched on the UNSW campus.

. . . lecturing can be made more satisfying.

Component (i):

Encouraging student activity

● **REDUCED TRANSPARENCY HANDOUTS:** Putting reduced-size photocopies of lecture transparencies onto handouts so that students will not have to copy them down during the lecture but instead cut up the handout afterwards and paste the reduced pictures into their notes at appropriate points.

● **PROBLEM-SOLVING DEMONSTRATIONS:** Teaching how to solve numerical problems in science. Students devise or collect challenging problems and bring these to class where the lecturer tackles them unseen, giving a running commentary on his/her thought processes, while students interrupt and ask questions as they wish.

● **THE BRAINSTORMING BEGINNING:** Which places emphasis on the beginning of the lecture. First state the theme for the day, then brainstorm for key words, etc to develop it, link these ideas on the board to show relationships, then start lecturing using these ideas as a map or reference point as the lecture proceeds.

● **MID-LECTURE DISCUSSION BREAK:** The "feedback lecture" has a mid-lecture discussion period when buzz-group pairs form to discuss application of new ideas previously presented, after which the lecture continues for a further 20 minutes.

Component (ii):

Inviting feedback from students

● **OBJECTIVE QUESTION BANK and FINDING WHAT STUDENTS ALREADY KNOW:** Two ways to use diagnostic testing at the start of a lecture. One uses true-false question handouts placed on the desks as students arrive, then checked before the lecture starts; the other sets a brief test the night before then scores it as soon as students arrive in class. In neither case are scores or grades ever issued but the information gained on the group's overall performance is used to modify the lecture as it proceeds.

● **SETTING THE RIGHT ATMOSPHERE AND ENCOURAGING FEEDBACK:** For establishing an atmosphere in which students will be courageous enough to participate in discussion or supply feedback in a large impersonal lecture theatre, there are appropriate words to use and attitudes to adopt. In this way we can convince students that feedback is genuinely wanted and achieve highest productivity out of any resultant discussion.

● **ESSAY QUESTION BREAK:** Claims startling results from students spending 10 minutes mid-lecture working alone to draft brief outline answers to a few essay-type questions from the board, then comparing and discussing these in "buzz group" pairs for 15 minutes, and finally the lecturer dealing specifically with matters about which students now realise they need to know more.

● **FEEDBACK QUIZ:** A one-hour lecture format starts with informal discussion with class groups as they arrive, moves through 30 minutes of extempore presentation, and closes with 10 minutes of small group work in which a short written quiz is given to test their grasp of the main concepts dealt with.

*... we can turn a lecture into a rich,
memorable event for an audience ...*

Component (iii):

Engaging in dialogue with students

● **WRITE IT DOWN INSTEAD:** Short-circuiting the deafening silence which greets our request for "any questions?" at the end of a lecture; students first write down their own thoughts about a question the lecturer poses, then after three or four minutes are invited to offer these for comment or discussion.

● **DIALOGUE ENCOURAGEMENT:** Guidelines for designing questions at the end of a presentation so as to get the audience involved and interacting, and advice about how to respond to students' questions in a manner that stimulates them to ask more.

● **INDIVIDUAL PROBLEM-SOLVING:** A technique for showing, at the end of a lecture, slides or transparencies containing multiple-choice questions that probe students' understanding of the points presented. After time for thought, correct answers are given, and reasons provided on why the wrong answers were wrong, thus supplying feedback on deficiencies they now realise they have to deal with.

● **HANDOUTS STUDIED IN CLASS:** A class first reads the lecture handouts for the day, then listens to an

extempore presentation highlighting the main points in the new topic, and finally asks questions and engages in dialogue about matters they found particularly interesting or hard to understand.

Component (iv):

Alternatives to lecturing

● **THE FORUM:** A possible solution to the problem of hating lecturing but being required to do it. Of two weekly lecture sessions the first is made the formal lecture, presenting essential points only, with no amplification or discussion. The second becomes the forum, attendance optional, for those interested to find out more and engage in discussion. It informally relates the theoretical work of the lecture to real world situations, cases and events most of which the students themselves suggest.

● **ADVANCE NOTES DISTRIBUTION:** Used in an information-dense course where all information required is printed in note form, distributed in advance, so that all scheduled classes are opened up for explanation and discussion.

● **MICROFICHE FORMAT:** Study materials are transferred inexpensively onto microfiches, the viewers for which are more reliable than slide and filmstrip projectors and far cheaper than video equipment. Individuals or small groups then study these in their own time and at their own pace.

● **TAPED LECTURES:** Used for half of each week's timetabled three hours, prepared in advance and made available in the library. The class meets for only half the scheduled time, to discuss, clarify and elaborate the material already listened to in the library beforehand.

● **SKILLS SESSIONS:** To demonstrate how practitioners apply pure knowledge to professional problems. The full class is presented a typical problem, sub-groups form to consider it for about 30 minutes, reports are presented, then questions follow with teaching staff involved in explaining or making general statements, but not presenting the "right answers".

These are only a few samples from the wide range of over 60 strategies and techniques lecturers themselves have described in the literature; they are claimed to work well for the particular teachers who used them. Will they work for us, too? This is something at which we can only take an intelligent guess by studying their accounts and comparing their circumstances and facilities with ours.

Finally of course we can put them to the test by cautiously trying the techniques ourselves. We may advisedly adopt a gradual approach, augmenting our style with strategies that we find ourselves comfortable with and which our students will accept without too much resistance. But if our present satisfaction level is low, *something* needs to be done before we "burn out" too badly.

Nobody denies that developing or modifying a teaching style is bound to be an unnerving and threatening thing. This booklet suggests ways of approaching it gradually and rationally, in the light of what lecturers like ourselves have actually done and found successful. For those of us who feel our lecturing is dominated by the mechanical ritual of dictating information to mass audiences, the trial may well be worth the time, the effort and the risk.

Lee Andresen,
University of New South Wales.

Transition of Women to Honours

Women are well represented in the undergraduate population, and they do at least as well as men. However, they do not progress to higher degrees in the same numbers. It appears that the crucial point is the decision to do honours. Why is this so? What can be done to increase the numbers of female students at this level? Margaret Buckridge and Ian Barham have recently completed a study of the transition of women to honours at Griffith University. They present the problem and some hypotheses and invite your views on this important subject.

The first report of the CTEC for the 1985-87 triennium shows that while the proportion of women enrolled in higher degree courses in Australian universities has increased steadily in the last decade, the population in 1983 was still only 31.5% (table 6, p. 85, Vol. 1, Part 2). Women graduate with bachelors degrees in much more equal proportions. The CTEC report suggests that "the high attrition rate among women between the completion of an honours degree and the completion of a higher degree is the main contributing factor ... the percentage of females who do not complete their higher degree course is notably higher than that of males" (p. 77, Vol. 1, Part 2).

We believe that the attrition begins earlier. The proportion of women proceeding to honours is considerably smaller than the proportion of men. The honours degree, of course, has traditionally been the first step towards a higher degree, and, for many, an academic career.

Statistics from universities are not easily available in a form in which comparability can be assessed. However, such comparisons as we could make indicate this is a strong trend with only occasional reversals. At Griffith University, where students do not begin honours work until after completing the bachelors degree, the proportion of women who proceed to honours is only about half the proportion of men.

Possible reasons for attrition at this point are numerous. We have attempted, first, to see whether differences appeared in the success of men and women students in the bachelors degree, both within the University as a whole and within each of the four Schools (two Arts, two Science) which have existed long enough for comparisons to be made. We found that the trend in all Schools was for a slightly higher proportion of women than men entrants to graduate with a bachelors degree.

A minimum standard of performance within the bachelors degree is required for entry to the honours degree. We looked at the proportion of men and women who achieved that standard. No significant differences were found. Women did not achieve lower grades than men within the bachelors degree.

It was possible that some attrition might occur within the honours programme. Again, no differences were found.

If honours degrees are regarded as the beginning of fairly long preparation for an academic career, it might be hypothesised that they are likely to be undertaken more by younger students than by older students, and that in particular, younger women are more likely to proceed to honours than mature-aged women. We divided Griffith graduates 1977-82 into two groups: those 23 and under at graduation with a Bachelors degree, and those over 23. Numbers over 23 at time of graduation with bachelors degrees who proceeded to honours degrees were small, but it appeared that differences between the age groups were not significant.

In a preliminary survey of attitudes of prospective

Are there attitudes or practices within the institution which affect the decision of women not to proceed to honours degrees?

students to the honours programme we interviewed thirty-two students (nineteen women, twelve men, some from each School) all of whom were likely to be eligible for entry. Five intended to do honours in the following year, fifteen did not intend to, twelve were uncertain. In the small number of students interviewed, no differences were perceptible between men and women, although some of the factors mentioned have appeared to have gender-related effects in other studies.

It appears, therefore, that there is no factor specific to Griffith University which is affecting the achievement of women within the bachelors degree. (We have assumed that, at entry, men and women were equal in potential.) It is also obvious that there are many factors beyond the control of the University which affect the decision that many women are making to terminate their higher education at the bachelors level. It may be that a number of these factors are of decreasing effect. The change from 1972 to 1983 in the proportion of women undertaking higher degrees has been substantial and consistent from year to year. If that trend continues, women will constitute half the higher degree students in fifteen years' time.

Nevertheless, there are two major questions which a university must ask itself in 1984. The first is this: are there attitudes or practices within the institution which affect the decision of women not to proceed to honours degrees? The second question, which should be answered even if the answer to the first question were negative, is this: is there any action the university can take to assist women to overcome or compensate for the factors, external to the institution, which cause women not to undertake an honours degree?

The first question rests on a distinction between two sorts of achievement. They might be called present and future achievement. We know from research (e.g. Spender, 1982, Deem, 1980) that girls appear to be treated unequally through primary and secondary schooling. This is not contested. What is contested is whether this has effects and what those effects are. On the one hand, it is argued: if women succeed as well to the point where they cease formal education, there is no evidence that there has been any effect. On the other hand, it is argued that there is an injurious effect from the unequal treatment: some may adapt to the treatment and find their own ways of succeeding in the immediate circumstances, but clearly there appears to be a worrying long-term reversal

of this picture. Women do not constitute an equal half of the business, professional and academic worlds; they don't earn half the money; they do fewer than half the higher degrees, and, closer to home, they do fewer than half the Honours degrees.

This reversal must be accounted for. It should be noted here that such an accounting is not unproblematical. The proof of a cause and effect relationship in social science work can rarely be conclusive, and the various social science research paradigms are all contested. Even so, in our view, the research results are strong enough in this area to support further work and indeed interventionist action.

To follow this line of argument, then, the conditions of this reversal appear to be: a conscious lack of confidence on the part of female students that they will do well; a failure to envisage higher goals, a "fear of success" that is grounded both in the inevitability of appearing "different" and in the fear that they are not really as good as their qualifications would seem to indicate, and conscious discomfort within the circumstances of higher education. These conditions throw up certain questions about the treatment of women students which must be asked even though women are succeeding as well as men as far as they go. Those questions are:

- Are there factors in the treatment of women students that would be likely to lower their confidence to proceed to any further study?
- Are there factors that might inhibit any inclination to extend their goals?
- Are there factors, again in their treatment as students, pressuring them towards a less academic, more traditional identity?
- Are there factors which might make them doubt that they deserved the grades they got?
- Are there factors which make the conditions of higher education uncomfortable for them?

Translated into the specifics of the practices and curricula of a particular institution, these questions might go to such matters as:

- 1 Do academic staff both male and female, interact equally with male and female students?
Do they seek to promote equal participation from female students?
Do they seek to subdue gender-differentiated forms of interaction, e.g. interruption?
Do they consciously not provide female students with answers more quickly than male students?
Do they offer female students as much individual time and encouragement as they offer male students?
This may be partly a matter, even, of the content of such interactions, e.g. is there more concentration on personal problems with females, but more on career matters or academic content with males?
Do they facilitate female students' development of a liberated view of themselves, i.e. no comments (e.g. on clothing, appearance, etc) other than would be friendly, acceptable and normal in a conversation with male students?
- 2 Are Honours programmes represented in ways which are likely to intimidate students who lack confidence or to suggest only a very narrow usefulness for an Honours degree?
Are they promulgated in circumstances which make for equal access for male and female students?
- 3 Is the curriculum patriarchal: are women, by default represented as non-achievers by the curriculum?
Is this made a subject for consideration?
Where possible, do assessment options allow for examples from female achievement?
- 4 Is teaching, both lecturing and tutoring, conducted in non-sexist language?

Are university documents, particularly those concerning students, non-sexist?

- 5 Is assessment marked anonymously wherever possible?
Are assessment board interchanges fully non-sexist in reference?
Are staff aware of documented areas of access difficulty for female students, e.g. laboratories, computers, etc?
Are academic staff aware that research literature has suggested differing values are placed on neatness/presentation factors for male and female work?
 - 6 Is staff interchange concerning students non-sexist? (i.e. no references by hair, looks, dress, etc; no stereotyped expectations, e.g. "female students can be very thorough, but only males can be brilliant", "girls are mostly in the middle, but the boys are either very good or very poor", etc).
 - 7 Is counselling, both informal and formal, non-sexist?
Does it positively communicate the same career expectations of women as of men?
 - 8 Do female students have secure, accessible channels for registering sexual harassment complaints?
Has the University or the School indicated that it will take seriously such complaints as:
 - sexist jokes in classes?
 - male staff who come too close, look offensively at women's bodies, etc?
 - male staff who interact predominantly with "attractive" female students and make access difficult for the less "attractive"?
 - 9 A number of these points have depended, for their injuriousness, on the fact that only 17% of senior academic staff at Griffith are female. Accordingly, is there, particularly at the senior level, a commitment to affirmative action in staffing? The role model aspect is important as well as the equalising of numbers for the various sponsor/advocate functions
- These questions are about the negative institutional aspects — the curricula and the practices that might be inhibiting women from proceeding to further study. Perhaps it is even more important to ask the second question: what might the institution be able to do to help correct the situation? Clearly, positive action in relation to the above questions is necessary. But the following points are also worth making.
- 1 It may be helpful to remind staff that female students come to them already conditioned. They may in many cases seem to be "inviting" the unequal treatment they receive — they are quiet, passive, they respond to compliments on appearance, they tend to take interviews in the direction of personal problems, etc. There is no need to rehearse further the vicious circle of practice that results. Staff will be the more able to break this circle the more they are aware of factors which are maintaining it. It is important to recognise that much of this inequality of treatment has its existence (as the earlier questions illustrate) at a level that structural reforms alone will not touch. Ultimately the institution must seek to develop in its staff a conscious responsibility for the equal treatment of all its students and an understanding of what this means in practice.
 - 2 The question of money is central. Our preliminary research would indicate that for many students who decide not to do honours, money is an important factor, i.e. they cannot even think about honours because they cannot see their way clear to a year's genuinely full-time study. These conditions must be investigated further, particularly in the light of the suggestion in Beswick's study that many families are still less willing to offer support to a daughter than to a son.
 - 3 It is important that Honours programmes be reason-

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Green Paper on Affirmative Action: Federal Legislation for the Tertiary Sector

Since the March issue of HERDSA News the Commonwealth Government has released a discussion paper on affirmative action. Browyn Davies and Jane Nicholls provide a postscript to Jane's earlier article to bring us up to date:

The Federal Government's long awaited discussion paper on affirmative action for women was tabled in Parliament on 5 June 1984.

It makes it clear from the outset that the recently enacted Sex Discrimination Act will, on its own, be insufficient to improve women's position in the labour market, to open up a greater range of jobs to women and to ensure that women can compete on equal terms with men for promotion. The Australian Labor Party platform is unequivocal in its commitment "to take all legislative and administrative steps including the introduction of affirmative action programs" to bring about equal employment opportunity for women.

But in these days of Labor Party co-operation and consensus it seems that people are to be persuaded gradually to take women seriously, to regard them as equals.

The paper sets out the major principles and concepts involved in the proposed affirmative action legislation, which will cover universities and colleges of advanced education. It proposes that a working party be established to report on the proposed legislation in 18 months' time. It will be made up of Government Ministers, the Opposition spokesperson on women, Mr Ian Macphie, employer groups, unions and women's organisations.

When it finally appears, it is proposed that the legislation will require higher education institutions, and private sector employers with over 100 employees, to institute affirmative action management plans to overcome discrimination against women in their employment practices. Universities, CAEs and private sector employers will be required to

- appoint a senior officer to oversee development and implementation of the affirmative action programme.
- consult with trade unions and employees, as well as management, to ensure their commitment to the programme
- undertake statistical analysis of the situation of women employed within the institution
- review personnel practices and policies to identify those which discriminate against women
- develop and implement a programme to remedy deficiencies in employment practices and to redress the under-representation of women in areas and at levels identified by the statistical survey
- monitor and evaluate the programme against concrete numerical goals and targets, set in the planning stage, which aim to achieve a better representation of women within the full range of the organisation's operations.

While the broad aims of the proposed legislation resemble the philosophy underlying the New South Wales Anti-Discrimination Act, the Federal plan emphasises flexibility of affirmative action programmes to fit with existing organisational practices. For universities and CAEs in states other than NSW this will mean longer reins and looser controls than are afforded by the NSW requirements. This may mean greater freedom for tertiary

Now that it is illegal, academics are very defensive about whether they might have (even unwittingly) discriminated against women in the past. To admit that discrimination is currently a problem is to confess, by implication, to a history of past sins.

institutions to develop programmes to suit their own peculiarities; on the other hand, it may lead to ambiguity, confusion and, ultimately, ineffectiveness. The Government is primarily concerned here to accommodate the worries of private sector employers, who fear enforced changes which would erode their freedom to hire workers according to their own priorities and policies.

Pilot programmes

Meanwhile, it has been decided to set up 31 pilot affirmative action programmes — 28 in the private sector and three in higher education institutions. Griffith University, the Australian National University and the South Australian College of Advanced Education have all agreed to take part in the voluntary pilot scheme, designed to test the broad parameters of the proposed legislation and to act as showpieces for affirmative action. These institutions will receive assistance from the Office of the Status of Women, which will establish an Affirmative Action Resource Unit for this purpose. A person with relevant experience in tertiary education institutions will be one member of the Resource Unit.

In the private sector, several of Australia's largest employers will take part in the scheme.

Inadequacies

For those who have experience in NSW universities the delay in legislation comes as a serious blow. The NSW Higher Education Board tried encouragement and persuasion, research was undertaken that demonstrated beyond doubt that the women in universities were suffering from systemic discrimination, but the universities, by and large, would not budge.

Sex discrimination is a complex process. Now that it is illegal, academics are very defensive about whether they might have (even unwittingly) discriminated against women in the past. To admit that discrimination is currently a problem is to confess, by implication, to a history of past sins. The analysis of discrimination in a university setting not only requires examination of appointment and promotion procedures (and the particular

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Review Article:

The Impact of Technology on Teaching and Learning in Higher Education

Both administrators and academics are currently facing changes in the information and communications technologies that are affecting, or will affect, the basic teaching and learning processes in higher education. Educational planners are asking questions about the likely impact on staff (academic, administrative and technical), students and resource planning for the tertiary institution of the 1980s.

In an effort to address these issues Professor A.H. Willis has recently published a report under the auspices of the Commonwealth Tertiary Education Commission, Evaluations and Investigations Program, which serves as a chronicle of technological innovations that have appeared over the past few years in universities. His brief was to:

...identify the impact of technological change and innovation, both actual and potential, on the tertiary teaching process and the management and operation of universities, including:

- (a) the application of new technology in the provision of courses more tailored to the needs of individuals;
- (b) research and research training;
- (c) staffing levels, and the balance between academic and technical staff; and
- (d) building and equipment needs. (Willis, 1983, p. 1)

and to examine "the actual and potential effects of technological change on external studies". In an attempt to deal with this broad topic Willis has described selected current applications of new technologies and reported the results of a series of discussions with individuals about possible future applications. His orientation is best summed up by the abstract of the report which appears to rely more on the personal opinion of this tertiary administrator than an evaluator of a complex and important topic:

Technology, particularly electronics-based technology, is transforming the teaching process in institutions of higher education. This report on the subject arises from visits to fourteen universities in Australia, correspondence with the other five, and extensive general reading. It sketches briefly the contribution of computer technology in various kinds of subjects and its relation to educational technology in general. The indispensable partners in teaching — the library and the administration — are also reviewed from the standpoint of the effects of technology. It is shown that, with the exploitation of modern communications, distance education can make a much greater contribution to tertiary and continuing education.

The impact of technology on education is continuous and ever-changing. The institutions providing higher education will benefit from the maximum degree of co-operation in meeting it. (Willis, 1983, p. v).

This abstract follows the general structure of the report. Willis discusses some specific technologies and then proceeds to a discussion of technology in university administration, possible roles and the associated problems. The impact on teaching is considered in subsequent chapters: on computer technology and computer assisted learning in university-level teaching; the role of educa-

tional technology in general; the impact of technology on libraries and finally, technology in distance education. The last three chapters return to administrative issues: provision of computing resources, networking, sharing hardware and software, maintenance and shortages of support personnel.

Technology and the administrator

In a variety of ways, Willis gears his report to the problems faced by the tertiary administrator; half the report deals specifically with administrative concerns, and the discussion of the remaining areas is undertaken with administrative concerns in mind. The report contains several examples of resource sharing; inter-institutional co-operation can reduce the cost of expensive hardware to each participating institution, the most notable being the development of computing centres that service two or three tertiary institutions. The report however, does not deal with any of the new and emerging issues that face the tertiary administrator: the problems of technology replacement, maintenance, adequate provision of support staff, and the development of word processing systems. In fairness to the report these problems are mentioned, but at no time does it deal substantively with any of these issues. Indeed, the last section of the report is not a summary of issues and guidelines, but instead ends with two short paragraphs on the shortage of support staff. The observation is made that support staff seem to be seen as more expendable than academic staff who are then obliged to undertake their own technical work. This whole issue is summed up as a tendency which "must be regretted". Some analysis of this problem would have provided much needed depth to the report.

Tertiary administrators have dealt with the increasing costs of technology in several creative ways.

For the administrator, a discussion on the ergonomics may highlight the important problems of eye strain, posture, appropriate training for operators but it ignores the possible impact of electronic mail and the paperless office. In the same way as a journalist has had to deal with the massive changes in the technology for producing newspapers and books, the academic, who also has as a major responsibility writing of research papers and books, needs to understand and employ the same technology efficiently. The report glosses over the problems of supporting the individual academic's productivity and changing patterns of working when new technology is available. It is interesting that most campuses have large computer networks based on the mainframe com-

puter technology. It is only a small step to use this same network to carry the messages to the desk of each researcher or teacher. Willis deals with the concept, in passing, under a discussion about Computer Assisted Learning in science subjects and, again, in connection with distance education. However he ignores any widespread impact of such technology on administrative processes.

Tertiary administrators have dealt with the increasing costs of technology in several creative ways. In addition to the sharing of hardware resources, Willis chronicles some examples of software sharing in student record administration and library operating systems. While the idea has appeal, the criteria for effective resource sharing are more elusive. As Willis points out the costs of home-grown and shared products are often partly hidden by other operating costs of an organisation, and when compared to the direct costs of turnkey commercial systems, the home-grown system may in fact be considerably more costly for the institution. Tales such as "the original programmer left and nobody knows how to fix it" are unfortunately all too common in the do-it-yourself approach.

Sharing audiovisual resources is another area that might reduce costs and enable the production of professionally produced audiovisual materials. Willis raises the important issue about the general lack of sharing of well-designed materials between institutions. Resource sharing also affects the way in which academic libraries operate. The rising costs of subscriptions and books have forced libraries to devise policies for sharing and delivering resources that meet the demands of their users. Overall, successful resource sharing appears to be more a product of the people who share than perhaps anything else. Unfortunately, Willis doesn't examine the issue of resource sharing as a general concern. The report deals with pieces of the problem as it might affect the individual institution. The discussion hints at changing uses of books and databases but does not work towards an integrated view. If policy guidelines cannot be derived from the cases discussed, then some documentation of the failures might be more instructive to the administrator.

Technology and the teaching process

For many years academic staff have had a variety of audiovisual technologies available on campus for their use in large and small group teaching. From many reviews on the subject, it is clear that the potential of this technology has not always been fully tapped. Last year Robin Moss (1983) reviewed the British scene in his book "Video: The educational challenge". His analysis was not flattering to central television units, but it held out hope that those units that contributed to institutional course preparation and continuing education and applied imagination, energy and resources would reap an advantage over their decaying rivals. Changes in video technology have made it increasingly available to the domestic market, and its potential to demonstrate, illuminate and dramatise the curriculum, especially for distance learning or simply learning off the campus, has never been fully realised. The design and production of good video materials can give some institutions a definite advantage in distance education. Moss points out that the fadish new computer technology is currently overshadowing the expertise and reducing the support for the older video technologies at a time when they could contribute specialist skills.

While Willis highlights several video technologies that may have greater impact on the teaching process in the future (for example, videodisc and the use of satellites) his concern appears to be more with an extension of the current technologies rather than rethinking the process and changing the form of interaction. The use of a computing system with the ability to down-line load

programs to individual students and to receive their completed assignments in return (as has been tried at Deakin University) might greatly improve the quality of learning for an external student. It will certainly affect the teaching styles and methods of the academic staff who operate the system.

In one chapter of 15 pages, Willis covers the specific impact of computer technology on university-level teaching. In this brief survey Willis makes several important points about the problems of courseware development. Most important he begins with the issue that all forms of educational technology require a significant investment in preparation time and good courseware requires professional instructional design expertise, sophisticated computer programming skills in addition to the skills of the academic who is a specialist in the subject area. Even if all these characteristics have been met, the activity of courseware material development is not always looked upon as a scholarly activity by promotion committees. The development of courseware has largely been achieved by enthusiastic amateurs because central units that provide support for software design are rare or the exercise is beyond the budget of the department without a special development grant.

An idea that is embedded in the report is that there should be a centre of excellence in educational technology, not necessarily because we are world leaders but because it is important to develop high quality materials to teach Australian students from an Australian perspective. This idea may get some currency if the idea of an Australian Open University is ever successfully resurrected. Certainly, with heavy investment in satellite technology it becomes more important to develop materials that are worth transmitting and are in sufficient supply to warrant inclusion in regular broadcasts.

*All forms of educational technology
require a significant investment
in preparation time.*

Devising an integrated framework for assessing the impact

In assessing the impact of any change, it is important to outline the structure and function of the innovation. Willis does this by describing the various communications technologies (mainly television and audio), computer and microform technologies. Central to his prognostications is his concern with converging technologies. Interestingly, he discusses the impact of technology combination in the area of printing technology, but largely overlooks other combinations such as the electronic and photographic technologies. The latter combination has given us the videodisc technology which is ignored, until it is mentioned in passing, as a solution to library storage problems and improving the communication to external students.

Defining and describing the innovation is necessary but it is the people who employ the innovation on site who potentially have greater impact. From early classical studies of the innovation process such as Rogers and Shoemaker (1971), we have been continually confronted with the human dimensions of change. Most often the success of implementation is due more to the keen interest expressed by the individual enthusiast than to the eulogised features of the innovation. The examples of applications included in the Willis report provide some insight into

the complex human issue but the analysis does not extend far enough for any worthwhile judgements to be made. By omitting any examination of the specific context of the innovation Willis has failed to provide the administrator with an insight about why the innovation works; to claim that it is working successfully ignores the specific organisational cost-structures and staff personalities involved in a successful implementation. One TAFE college known to the author was involved in a very successful implementation of an individualised self-paced training program. The idea has been tried in similar subject areas in another state but with less successful results. Some of the informal feedback indicated that the implementation decision overlooked that an educational technologist was attached to the original development team full time for two years, and that the original implementation involved time for the teaching staff to agree that the new teaching methods required a team approach. In addition pieces of audiovisual equipment were obtained by a variety of means to get the initial project underway. The processes and people that made the system work in the first instance were not always present in the second implementation.

An issue such as the combination of technologies affects some of the basic processes that an individual or organisation employs for completing a task (see for example, Hawkrige, 1983). Willis adopts an administrative or engineering perspective (i.e. a concern for the type and structure of the hardware) rather than being concerned with short or long term matches between resources and tasks to be undertaken. The chance to examine the impact on thinking and the basic processes of an academic's role is forgone. It is quite likely that many innovations will result in first order changes, such as the provision of microform catalogues in libraries or the replacement of one typist by a word processing workstation; these changes employ new technology but as almost a one for one replacement with the older form. Thus the library can use microfiche instead of cards for its catalogue and this change in technologies does enable some obvious advantages, however the process does not markedly change; a user still has to move him or herself around the records and the structure of them is still determined by the original classification system.

In a similar fashion the word processor operator now uses a more sophisticated typewriter to prepare typed originals, and the obvious advantages are the opportunity for revision and error checking. However, the technologies now employed can be used in even more extensive ways than the first order implementation would indicate; the library may move to terminal interrogation of the database that represents all its holdings, and this when combined with its circulation system can provide a powerful tool for the user when searching for the position and current status of an item. If sufficient terminals can be provided then there is an immediate reduction in the number of professional staff required to handle requests from competent users. Further, the provision of query languages for manipulating the database will make the information presented conform to the requirements of the user, rather than the user conform to librarians' unique forms of organisation.

A second order change in word processing would make the technology directly available to the user. Instead of a typist being asked to type from a hand-written document, the academic or administrator would have immediate access to the technology through his or her own work station. This change removes an intermediary and reduces the work required to cross-check and proofread documents, but at the same time it requires the users to improve their typing skills. In time the roles of writer and typist merge, and the technology then enables the user to proceed to the next step — electronic mail. This

Central large technology units (either audiovisual or computing) may need to be replaced with either shared units between institutions or the development of service units that provide the professional design input and the hardware would be provided in the individual department.

change would remove even more intermediaries and allow each individual work station to be linked in a network. Memos and letters would then not have to be posted after being typed, instead they are delivered electronically to the work station of the addressee, stored, automatically organised and never lost in the files or the mail. The eventual development to a system which replaces existing patterns of working would signify a higher order change where the technology has changed the basic working patterns of the users and the system. While these scenarios might sound rather fanciful they are in existence now. What differs is the degree to which the technology is employed or, if you like, its implementation configuration — the unique combination of personnel, software, equipment, space and organisation (Hedberg, 1983).

Within any organisation, the new technology will change the roles and relationships of groups in tertiary institutions. Educational service groups derive their existence from the technologies they employ: For example, media centres usually produce television and other audiovisual materials, computing centres are well stocked with several types and sizes of computers, and radio stations have a unique if generally uneasy relationship with other elements of the institution. Often in the past the demarcation lines between these groups were clearly drawn on media lines, but the combination of technologies poses difficult questions about the location and access to new and expensive hardware. As a simple example, the equipment required for computer-aided graphics production may be classed as computing equipment or it may be considered a professional tool of the graphics artist in the media centre. Depending upon its classification the hardware will find itself either in the computing centre or amongst the functions of the traditional media centre. In times of austerity it is unlikely that a new graphics designer will be acquired by the computing centre, a more likely scenario would see the two areas of expertise co-operating and sharing the facility. This technological combination also requires the sharing of the computing centre's electronics technician and the media centre's professional graphic designer. If a climate for this co-operation has been encouraged by the appropriate administrators then the move into services based upon new technologies should be less traumatic and hopefully create less antagonism.

The next step

Willis' report has provided a good first step, and like all good reports it has raised a number of questions that require further study. There is an obvious need to develop some guidelines that will help the tertiary administrator develop a policy on resource sharing, equipment provision and equipment replacement. Changes in technology require that write-off time is considerably less than current practice. Issues such as hardware compatibility seem to be less an issue than ensuring that the technology is appropriate for the tasks it is designed to achieve, and

(Continued on page 16)

ABSTRACTS

HERDSA Abstracts are based on a regular survey of relevant literature. They are intended for use by tertiary teachers, research workers, students, administrators and librarians. The abstracts are classified into the same groups used by the Society for Research into Higher Education in their quarterly publication *Research into higher education abstracts*.

The *Abstracts* attempt a coverage of current English language publications in Australia, New Zealand, Papua New Guinea and Indonesia. Publications describing research, teaching, administration, staff and students in higher education are abstracted.

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Note: Authors or editors who would like abstracts of articles, books or monographs to be included are invited to send a copy of their work, together with an abstract, to the *Abstracts* editor.

A GENERAL

Nunan, Ted, *Countering Educational Design*, London, Croom, Helm. 1983. 131 pp.

Designing for education used to be personal, local and adaptive to differing contexts. It was practised, with varying success, by most teachers as an unselfconscious activity bound up with their role, their students and their concept of education. Teachers' very involvement with interpreting the syllabus meant a natural involvement with design.

Today, educational design has changed. Design is now practised by specialist groups who, through their knowledge and practice of certain techniques, hand down the end products of their design activities to be implemented by teachers.

This book argues that this trend is undesirable and based upon assumptions concerning political and social ends. In transforming these ends into educational action dubious theoretical and practical structures have been developed to support the new professional status of educational designers. The values contained within these structures are derived from an intent to manage educational processes to further the professional status of educational designers.

Having analysed ways in which professionals employ a particular conception of educational design *Countering Educational Design* provides theoretical and practical information for teachers and trainee teachers to counter the effect of these core values. Issues such as practical knowledge and practical reasoning are explored by employing the concepts of praxis and tacit integration — in short, the latter chapters seek to provide suggestions of how teachers and trainee teachers might develop self sufficiency in educational design thereby avoiding de-skilling and a loss of control over a vital area of their educational responsibilities.

(Author abstract)

Unwin, D. **The future direction of educational technology.** *Programmed Learning and Educational Technology*, 18, 4, 1981: 271-273.

For all the apparent interest in and development of educational technology during the past 50 years, very little positive progress has been made, that is to say so far as providing a significant augmentation or replacement for traditional modes of instruction is concerned. Attempts so far to provide realistic, adaptive, mechanised teaching have been almost totally limited to main-frame computer systems with results self-evidently lacking in credence or potential. However, today we have within our grasp the means to achieve a realistic and potent technology of education which can at last unfetter learning from its present pedagogic institutionalised straitjacket. The advent of the "friendly" microcomputer, coupled with an exponential boom in information accessibility, will provide a fertile opportunity for lifelong education for the population at large. These benefits are not without concomitant dangers and in particular educational technologists will need to address themselves to two formidable problems: (1) the implications of a severe reduction in choice of available learning schemes both as regards courseware and computer software, and (2) the greatly enhanced capability of mechanised systems for accumulation, retrieval and analysis of individual student variables, with a corresponding serious threat to individual privacy rights.

(SRHE)

B SYSTEMS AND INSTITUTIONS

Craney, J. and O'Donnell, C. **Women in advanced education: Advancement for whom?** *Higher Education Research and Development*, 2, 2, 1983: 129-146.

This article traces the rise and decline of the advanced education sector. It points out that the formation of the sector results in large part from the political efforts of male dominated professional organisations and educational institutions to delineate and enhance their spheres of influence. This partly explains the differing course structures faced by male and female students, and the enrolment patterns of the sexes. There is thus the strong suggestion that the lower pay and inferior labour market position of women is related to their lack of opportunity to organise to pursue their industrial interests both in the work place and in the educational institutions that lead to it.

We argue also that increasing participation rates of women in advanced education do not necessarily lead to enhanced labour market chances. How women will fare in the workforce depends on whether employers base their selection of employees primarily on the applicants' length of education, type of qualifications, or sex. This point is elaborated in our discussion of changing CAE enrolment patterns for women, and has implications for those involved in forming policies aimed at ameliorating the rate of female youth unemployment.

(Journal abstract)

Harman, G. **The erosion of university independence: Recent Australian experience.** *Higher Education*, 12, 5, 1983: 501-518.

This article is concerned with the issue of institutional independence in the Australian university context. It considers why institutional independence is important, maps how independence has been reduced since the late 1960s, discusses factors leading to this erosion of independence, and explores possible university responses. It argues that, while recent cases of government interference give cause for disquiet, there is probably more reason to be troubled about where recent developments might lead and about the ability of universities to withstand and contest further encroachment.

(Journal abstract)

Nicholls, M.G. **A Markovian evaluation of a tertiary education faculty.** *Higher Education*, 12, 6, 1983: 721-730.

A tertiary education faculty is modelled using an absorbing

Markov chain. The model takes account explicitly of full-time and part-time student stocks and flows, and thus facilitates some interesting observations. The evaluation of steady state statistics gives rise to some worrying results, raising the question as to how efficiently resources are being utilised in tertiary (post secondary) education. The above evaluation is performed for undergraduate sections of the Faculty of Business at the Swinburne Institute of Technology, Victoria, Australia.

(Journal abstract)

Noble, C.E. **Anatomy of an unsuccessful innovation.** Higher Education Research and Development, 2, 2, 1983: 197-204.

This article reports on an unsuccessful innovation in interdisciplinary studies. Despite detailed planning, patient negotiations both within and outside the committee structure, and lobbying of decision-makers, the goal of introducing interdisciplinary subjects in Energy Studies at Caulfield (now Chisholm) Institute of Technology was not achieved. Innovation strategies followed in the Energy Studies project are examined in detail and attention is focused on organisational constraints which impeded the implementation of Energy Studies. The underlying message is that a great deal of time and effort can be saved if a realistic assessment of constraints is made before an innovation is attempted. Based on the experience of Energy Studies, suggestions are made for surmounting constraints in a highly departmentalised system.

(Journal abstract)

C TEACHING AND LEARNING

Brumby, M. **Concept mapping: Structure or process?** Research in Science Education, 13, 1983: 9-17.

First-year medical students were required to use a concept map of "In vitro fertilisation and embryo transfer" to explain this concept in their own words. The analysis of their descriptions cast doubts on attempts to use concept maps to quantify or measure the size of links between concepts. However, qualitative concept mapping explicitly shows students the importance of making links between new and existing knowledge.

(GPM)

Channon, L.D. and Walker, W.L. **A note on teaching larger "small" groups.** Studies in Higher Education, 9, 1, 1984: 83-86.

As a means of improving the cost-benefit ratio of staff, the Department of Behavioural Sciences in Medicine at the University of Sydney has been using modified small group teaching techniques for groups of 20-25 students. Evidence gathered from the 21 tutorials given in 1982 suggests a high level of acceptability. The structuring of group activity, careful documentation and adequate staff training are essential in this situation.

(Journal abstract)

Hosie, P.J. **So you want to make a television programme?** Journal of Educational Television, 10, 1, 1984: 39-42.

Producers and educational technologists frequently neglect to explain the essential development phases undergone during programme production to people unfamiliar with television production conventions. An outline is presented here of the practical considerations necessary to ensure that an educational television programme reaches fruition. The outline was originally intended to assist educationalists to initiate and develop programme ideas within a particular organisation and for a specific purpose but it might profitably be applied to other situations.

(Journal abstract)

Marsh, H.W. **Validity of students' evaluations of college teaching: A multitrait-multimethod analysis.** Journal of Educational Psychology, 74, 2, 1982: 264-297.

College instructors in 329 classes evaluated their own teaching effectiveness with the same 35-item rating form that was used by their students. There was student-instructor agreement in courses taught by teaching assistants ($r=.46$), undergraduate courses taught by faculty ($r=.41$), and even graduate level courses ($r=.39$). Separate factor analyses of the student and instructor ratings demonstrated that the same nine evaluation factors underlay both sets of ratings. A multitrait-multimethod analysis provided support for both convergent and divergent validity of these rating factors. Not only were correlations between student and instructor ratings on the same factors statistically significant for each of nine factors (median $r = .45$), but correlations between their ratings on different factors were low (median $r = .02$). These findings demonstrate student-instructor agreement on evaluations of teaching effectiveness, support the validity of student ratings for both graduate and undergraduate courses, and emphasise the importance of using multifactor rating scales that are derived through the application of factor analysis.

(Journal abstract)

Miller, A.H. **The evaluation of university courses.** Studies in Higher Education, 9, 1, 1984: 1-15.

University and college courses are frequently evaluated in order to help lecturers improve the course in subsequent years, but there are also other reasons why courses might be evaluated. After listing these the article describes the system of course evaluations which have been developed in the Australian National University. Suggested sources of data are given, from which lecturers may make informed judgements about changes needed in their courses or teaching. The article also gives examples of questions used for gathering these data.

(Journal abstract)

Newble, D. and Cannon, R. **A Handbook for Clinical Teachers.** Lancaster, England, MTP Press, 1983. 148 pp.

This book for teachers of clinical subjects in the medical and allied health professions, is intended to provide a resource of practical information across a broad range of matters related to teaching and learning. Topics discussed include lecturing, making a presentation at scientific meetings, teaching in small groups, teaching practical and clinical skills, course planning assessment, teaching materials and aids and where to find out more about medical education.

(Author abstract)

Parsons, D.J. **Practical work in the external training of electrical engineering associates in Queensland, Australia.** International Journal of Electrical Engineering Education, 20, 2, 1983: 101-110.

The use of experiments for conduct at home is described together with information about the brief but intensive residential course which is used to train external Engineering Associate students (technicians) in practical matters during a four-year part-time Diploma course. Details of syllabuses for the internal and external modes together with assessment marks are given.

(Journal abstract)

Zuber-Skerritt, O. (editor) **Video in Higher Education.** London, Kogan-Page, 1984, 297 pp.

This edited collection of twenty-three contributed papers examines the uses of video in higher education to improve the processes of teaching and learning, personal behaviour and communication.

(RAC)

D INFORMATION NETWORKS

E STUDENTS

Armstrong, M. and Shanker, V. **The supervision of under-graduate research: Student perceptions of the supervisor role.** *Studies in Higher Education*, 8, 2, 1983: 177-183.

This paper presents the results of a survey of undergraduates' perceptions of their supervision as they undertake their final year as honours research students. Students reported that their supervisors were supportive and sympathetic to their needs. The majority of supervisors adopted the role of resource person, directing students to references and contacts, discussing ideas and work undertaken. Most students had considerable freedom in the conduct of their work. They were given responsibility for many decisions concerning their research: most, for instance, chose their own research topic and supervisor, and most determined the pace at which they worked. They appeared to cope well with the autonomous role of researcher and only a few commented on any difficulties. The non-directive role adopted by supervisors enabled students to develop skills of working on their own. Though the majority of students were given considerable freedom in their research the results of the survey indicated some differences between faculties. Art students had greater responsibility for decision making than Science counterparts.

(Journal abstract)

Bicheno, M. **New start for disabled people.** *Adult Education*, 54, 2, 1981: 140-145.

In an attempt to provide more educational opportunities for the disabled, a 10-week course was run at the University of Auckland which aimed to give them an opportunity to achieve equality with able-bodied students on campus. The course provided individual consideration of their mobility and other problems. It was also combined with the New Start course for able-bodied mature students wanting to return to education. Nine disabled students completed the course, ages 23-67 years. Four have enrolled for BA degrees, three expect to enrol for Continuing Education General Studies courses, one returned to full-time employment, and one has been referred to special remedial classes. The pilot programme proved a useful preparation programme and has provided a model for future development.

(Journal abstract)

Brumby, M. **Medical students' perception of science.** *Research in Science Education*, 12, 1982: 107-114.

This is a study of attempts to solve unfamiliar biological problems by first-year medical students at Monash University. The results showed an absence of scientific reasoning by these students. When confronted by problems which required transfer of concepts learned in one context to different contexts many students could not reach a solution. They appeared to regard science just as an ever increasing stockpile of knowledge. It is suggested that with increasingly crowded curricula students are encouraged to learn facts rather than ask questions.

(GPM)

Clay, R.W. **The academic achievement of under-graduate women in physics.** *Physics Education*, 17, 5, 1982: 232-234.

Women are distinctly in the minority in university physics classes; this might be expected to produce a select sample of women with better average ability than the less highly selected men. However, a slightly smaller percentage of women than men obtain first class honours degrees in physics.

The article investigates the relative performance of men and women in courses given by the Physics Department of the University of Adelaide. Apart from first year work, there seems to be little difference between the performance of men and women, although men tended to perform better in practical work. When it came to examinations the women did better in "Book work" questions, but less well in "problem" type questions.

The author suggests that the answer to increasing the number of women students taking physics degrees might lie in the development of "physics-female" courses whose techniques and

bias reflect more fully the abilities and interests of women.

(SRHE)

de Rome, E. and Lewin, T. **Predicting persistence at university from information obtained at intake.** *Higher Education*, 13, 1, 1984: 49-66.

This study is part of an ongoing project investigating the first stage of the process of student transition to university. The aim of this study was to determine whether information about student approaches to making their course choices could have been used to identify those who subsequently changed or withdrew from their courses. Retrospective studies of discontinuing students have frequently identified factors based on such information as being associated with withdrawal, however there have been few attempts to use such factors in predictive studies. Multivariate analysis indicated that combinations of the information obtained could discriminate between students who persisted and those who withdrew from their studies. As the proportions of variance accounted for by those combinations were small, it was concluded that the information had value in describing types of conditions under which students were likely to be at risk, rather than in making predictions about individual students. The methodology should be of interest to other researchers as it demonstrates ways in which multivariate strategies may be applied to survey data, in this instance to identify stereotypes of students likely to behave in particular ways with regard to their enrolment.

(Journal abstract)

de Rome, E.A. and Wieneke, C.E. **Predicting persistence and withdrawal: an analysis of factors relating to students' choice of course.** *Research and Development Paper*, 59, Sydney, Tertiary Education Research Centre, University of New South Wales, 1982, 20 pp.

Information relating to course choice and commitment, and use of pre-enrolment information and advisory resources, was collected at enrolment from 1375 first year students at the University of New South Wales in 1980. Multivariate analyses were used to determine whether any of this information could have been used to predict students' subsequent decisions to discontinue. The results showed that the information did discriminate between persisting and non-persisting students. However, as the proportions of variance accounted for by the combinations of predictors were small, it was concluded that the information had value in terms of describing the types of conditions under which students were likely to be at risk, rather than as a means of identifying particular students likely to continue. A follow-up survey of 250 students revealed that almost half had not found the content of their courses to be as they expected. Recommendations are made with respect to institutional provision for the pre-enrolment needs of students and that future research should focus on aspects of the institutional environment.

(Paper abstract)

Galbraith, P.L. **The mathematical vitality of secondary mathematics graduates and prospective teachers: a comparative study.** *Educational Studies in Mathematics*, 13, 1, 1982: 89-112.

This article is concerned with the levels of mathematical understanding exhibited by prospective mathematics teachers. The investigation was undertaken at two levels: (i) first year undergraduates, (ii) graduates enrolled on teacher training courses. The main instrument used was an 18-question multiple choice test designed to measure the attributes to be associated with a mathematically aware student — understanding of concepts taking precedence over manipulative skills. The research revealed serious deficiencies in the training of mathematics teachers which were not overcome by additional exposure to conventional mathematics courses.

(SRHE)

Imrie, B.W. **Specifications of a grading system.** *Higher Education Research and Development*, 2, 2, 1983: 182-196.

In considering the specifications of systems used to award grades for student achievement, this paper discusses concepts of assessment and of assessment structure. A two-tier structure of assessment is outlined. Some examples of grading systems are discussed in detail with reference to the implications of objectives and passing grade distributions. The grading systems used by New Zealand universities vary in terms of the number of passing systems used. This is discussed with reference to the work of Mitchelmore (1981) who has demonstrated the relationship between the reliability of assessment and the uncertainty of grade allocation as a rationale for determining the appropriate number of passing grades. A grading system needs clear specification in terms of the issues discussed in this paper, if the grades allocated to students are to be reliable and valid indicators of student quality.

(Journal abstract)

McDonald, R., Knights, S., Everall, B., Quilty, A. and Sansom, D. **Mature age study: Was it worth the effort?** Higher Education Research and Development, 2, 2, 1983: 147-153.

There have been many studies documenting the upsurge in the number of mature age students in universities and colleges, and demonstrating their academic success. It has also been recorded that in returning to study, adults make sacrifices in finances, time, personal relationships and possibly interruption to a career. This paper reports a study which was designed to discover whether, in the view of mature age graduates, the benefits of a degree compensated for the sacrifices. The study involved 266 such graduates. Of those whose decision to enrol was motivated by personal reasons, 90% felt that they had achieved their objectives. Of those who entered university for career-related reasons, 70% said that their degree had helped them in their work. Even though some who had resigned jobs in order to study found themselves unemployed for a period upon graduation, many still felt that they had benefited personally. But the degree of satisfaction is even higher than these figures would suggest. For a number of graduates, their motivation changed from being essentially job related to involving personal growth. By the end of their studies, the satisfaction of having successfully completed a university course came to be valued more than the career advancement that might follow.

(Journal abstract)

Nye, P.A., Crooks, T.J., Powley, M. and Tripp, G. **Student note-taking related to university examination performance.** Higher Education, 13, 1, 1984, 85-97.

Student note-taking is an almost universal activity among university students, yet few naturalistic studies have examined relationships between note-taking practices and subsequent examination performance. Complete sets of notes on an introductory psychology course, involving 75 lectures presented by ten instructors, were obtained from nineteen male and nineteen female students. Notes on ten selected lectures (one per instructor) were analysed, and information derived about class attendance and the quantity, organisation, and presentation of the notes. Variables based on this information were then correlated with performance on two three-hour final examination papers (one multiple-choice, one essay). High correlations were found between the quantity of notes and examination performance. Surprisingly, these correlations increased in subsamples consisting of those students who attended class most diligently. The correlations involving the multiple-choice examination tended to be higher than those involving the essay examination, most probably because of wider sampling of lecture content and a more factual orientation in the multiple-choice examination. The results appear to conflict with the advice given in student study guides, many of which suggest that students should be very selective and concise in their note-taking.

(Journal abstract)

O'Donnell, C. **The relationship between women's education and their allocation to the labour market.** Studies in Higher Education, 9, 1, 1984: 59-72.

This article concerns the relationship between the level and type of education of females and their work-force allocation.

Developments within human capital theory are reviewed from this perspective, and then screening theorists are discussed in terms of how well their formulations explain the situation of women in the education system and labour market. It is argued that the relationship between women's education and their allocation to the work force is not only an economic question but also a political one. In explaining that relationship, historical studies need to be made of the way groups of mostly male workers have struggled to pursue their industrial and professional interests in the work-place and training system.

(Journal abstract)

Rechter, B. **Matters of judgement.** Bulletin of Educational Development and Research, 25, 1983: 3-9.

This paper discusses the range of assessment situations found in higher education, and asserts that at each stage of the assessment process there is a need for subjective judgments. Assessor variables in these judgments are then examined in terms of their validity, reliability and functional usefulness within the assessment/education/certification process. An optimum result will involve judgment by several assessors, and may require the use of a content/process grid to ensure the various assessors are actually each assessing the same things.

(Modified journal abstract)

F STAFF

Cannon, R.A. **The Professional Development of University Teachers.** Armidale, The Institute for Higher Education, 1983. 77 pp.

Teaching is the major professional activity of academic staff in Australian universities. Much disquiet about the quality of this teaching has been expressed by governments, committees of enquiry, students and by academics. There have been several attempts to improve the quality of university teaching, all of which have been considerable acts of faith. The persistence of disquiet, however, suggests that past efforts to improve the quality of university teaching have not been completely successful.

An analysis of universities as organisations, of the characteristics of academic staff, and of the change process in universities leads to a number of conclusions about why past attempts to improve teaching may not have been as successful as hoped.

First, the problem of improving teaching is extraordinarily complex. Complexity is inherent in the organisational character of universities and in the characteristics of academic staff and their work. Second, the attempts made to deal with the teaching problem are novel: the major responses to improving teaching did not come until the early-mid 1970s. Third, there was — and still is — a weak theoretical and knowledge base for action and, finally, the focus on developing individuals may not have been the best focus for teaching improvement strategies.

(Author abstract)

Shears, P. **Staff development approaches — a critical appraisal.** Vocational Aspect of Education, 34, 87, 1982: 11-14.

The writer examines a range of possible approaches to the organisation and implementation of staff development within colleges in order to extract those criteria which might be considered essential ingredients of a successful approach. It is argued that whereas most models fail to achieve a satisfactory balance of institutional against individual needs, an approach based on organisational development is more likely to ensure that the aims and purposes of the institution are translated into effective staff development strategies. It is suggested that since staff development is primarily a process of attitude change it is essential that the chosen approach include both opportunity for reflection and thorough evaluation of the process itself.

(Journal abstract)

ABSTRACTORS

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Abstracts.

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able, realistic entities. Open-ended difficulty levels and consequent low numbers of high results may mollify a small institution's defensiveness, but they are unlikely to result in a betterment of this situation. This is not a call to lower standards, but rather to clarify them, and to plan the curriculum, the teaching and the supervision so as to enable eligible students to succeed on the basis of full-time — but not necessarily more — study. This point is relevant for both male and female students, but it seems likely that female students are more likely than males to be dissuaded by a programme's reputation for difficulty.

- 4 It is important to communicate to female students — and to tell them in first year as well as later — these figures, which they may well fall foul of, and of the university's concern. Not only will they thus become conscious of extended goals, but they may well take some initiatives in instituting more equal bases of participation for themselves.

It is worth making the above interventions. It can be argued that the treatment of female students at an institution feeds into a much larger context of unequal treatment that the institution cannot change: attitudes from earlier schooling, sexist attitudes in families, media

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definitions of merit used as the basis of these decisions) but it also requires an examination of the nature of the knowledge purveyed in universities; that is the very tools of trade of academics will need to be examined for their male biases. That is, of course, a fearful, even unthinkable, challenge.

As a result of the legislation in New South Wales, most higher education institutions have already appointed Directors of Equal Employment Opportunity and begun work on the implementation of EEO (or affirmative action) management plans. If there were a need for "pilot" programmes to test out the concepts of affirmative action in higher education employment, the NSW experience has clearly provided a variety of case studies.

For all its shortcomings, the Green Paper on Affirma-

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with progressive minituration the need for central large technology units (either audiovisual or computing) may need to be replaced with either shared units between institutions or the development of service units that provide the professional design input and the hardware would be provided in the individual department.

Obviously, the teaching use of any new technology will require the development of effective incentives for academic staff involvement and sufficient support staff to assist in the preparation of good software. This has always been a problem, but with changing delivery systems keeping the delivery systems current and the course materials relevant require significant time allocations in addition to the existing preparation time required to update lectures and tutorials. Supporting good development projects will require appropriate equipment and professionals trained in servicing academic needs.

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images of women, economic arguments against women's careers, etc. Although this is, of course, true, it is also the case that for the girl or woman who reaches university, this is a context that she has already formed a somewhat oppositional relation to, even if not explicitly. Given this, it is possible to see the treatment at the institution as quite crucial. Either it can support the further development of this liberated identity or it can prove to be the last straw.

Margaret Buckridge,
Ian Barham,
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tive Action represents an important and informative contribution to public discussion on discrimination.

It sets out the issues clearly, and will allay many of the reservations of employers and others about the proposed legislation.

It contains much useful information, including statistics, on women's participation in the Australian workforce. It will prove a useful resource for those working to end discrimination against women in employment.

Its principles must be supported.

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