Higher education research and development society of Australasia

# herdsa news letter 2/74

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# research

## Inside



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*Our theme this issue is research in colleges of advanced education. Our approach is to share the experiences of people who have been or are engaged in research. In the following three articles we hear from one researcher who has recently finished a major study, one who is "in the thick of it" and a third who is returning to an area of study after a period of four years.*

No doubt many researchers will have contemplated at one time or another making a submission to one of the major research funds, such as the Partridge Committee or the Commission on Advanced Education, in order to conduct a large scale project. Perhaps some readers have made applications or have carried out a major project of this kind. It will be of interest then to hear of suggestions arising from the experience of a researcher who has just finished such a project, James F Dyall, who has spent the last two years completing a major survey entitled **The Demand for Accountants and Related Staff over the Decade 1972-1982,** financed partly by a grant from the CAE. The survey attempts to predict the number of qualified accountants, support staff and data processors who will be required up to 1982. The 350-page report includes 125 tables, 18 figures and a copy of the extensive questionnaire used in the survey, which may be of interest to other researchers. Mr Dyall had this to say about his experience:

## Personal reflections of a researcher

### Time Factor

It is very likely that a project will take far more time to complete than it would appear in the planning stages. My project was planned to last one year, during which

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time I was to have been on half-time with RMIT and half-time on the project. In fact, the scope of the project opened up as it progressed, and despite the fact that I was working up to forteen hours a day in the latter stages and scarcely one weekend off during the last six months, the project took two years to complete.

I also found that, whereas it was satisfactory to plan for the data collection phase on a part-time basis, it is almost essential to plan for full-time release from normal duties during the writing of the project report. Much background research has to be done and the demands of other duties tend to distract one's train of thought during a period when full concentration is required to knit a complex amount of data into a manageable, coherent whole.

### Research assistance

It seems essential to plan for research assistance. I was most fortunate in having the services of a most loyal, conscientious graduate assistant full-time for fifteen months. The amount of clerical work, collation of data, handling of correspondence and liaison with various bodies makes it impossible for the research director to contemplate handling a major project alone or with casual assistance. At the time of advertising for a research assistant, it was apparent that the amount of talent on offer was considerable, there being five or six graduate applicants who, on paper at least, seemed well-qualified to undertake the work.

### Evaluation

The tendency for a single research director to become his own judge and jury is strong and must be strenuously resisted. Discussions with colleagues and any other people one can enveigle into commenting critically on aspects of research, questionnaire design, sampling techniques and the actual text of drafts of the report itself are invaluable. Encouraging people to engage in critical evaluation can uncover blunders and oversights which any researcher, immersed in detail and pre-occupied with day-to-day progress is liable to commit.

### Design of questionnaires

Since many projects are based on data collected from questionnaires, it is worth considering aspects of their design. Objectively-scored items are, of course, much easier to analyse and provided one makes it an absolute rule to confer with computer programmers during this phase, relatively easy to process. On the other hand, open-ended questions are important, even though their encoding can be laborious. Respondents who take the trouble to make comments in open-ended items provide invaluable data which, one can be reasonably sure, is a result of thoughtful consideration. One cannot be so certain that ticked responses to a series of objective questions have been given the same level of consideration.

The report is available from the Australian Society of Accountants, 49 Exhibition Street, Melbourne 3000, price $5.00. It has been reviewed in **The Chartered Accountant,** February and March 1974 issues; **The Australian Accountant,** February, March and April, 1974; **The Financial Review,** 14 March, 1974; **The Herald,** 20 March, 1974; **The Age,** 2 April, 1974.

*James Dyall, Head of the Department of Accountancy Studies, Royal Melbourne Institute of Technology*

# Worth following up?

*Our second article outlines the experiences of a researcher who was co-author of a major study concerning teaching and learning in colleges of advanced education in 1970 and who is now engaged in a follow-up study for the Commission on Advanced Education.*

In recent years increased funding has been available for educational research. This has resulted in projects being undertaken in diverse fields. Many of these studies have involved the collection of vast amounts of data which have tended to be used for the particular purpose, filed away and then forgotten.

How often does one hear the expression "That should be followed up"? Increased funding does not mean that funds for your project will be easily obtained. Your chances of obtaining financial support will be increased if your requirements are moderate.

Collection of raw data can be a time consuming and therefore an expensive part of any research project. In my view, more use could be made of existing data, especially when it surveys a wide field. Students in CAEs is one such field which was surveyed in some depth in the ACER study on learning and teaching in the CAEs.[1] The students concerned were those commencing courses in business studies or engineering throughout Australia in 1969.

Despite its length, the report of this study dealt only with the straightforward analyses of particular questions and particular answers. Dr Radford, in a foreword to the report, stated that "the basic data, however, is available and will be available for use by qualified research workers if required."

Before leaving ACER I spent several weeks arranging this data in archival form. Duplicate sets of the data cards on

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which were punched the questionnaire information were made. It was hoped that these would be borrowed by researchers in the various states. The information was awaiting a researcher interested in follow-up studies.

My particular responsibility was the engineering student. Because I believed it was not possible in an Australia-wide study to do justice to the wealth of information obtained, a separate report[2] for the Victorian students relating student characteristics to performance was published. In 1973 I decided it would be of interest to follow-up this particular study and see how the student characteristics obtained earlier related to performance over the entire course and not merely the one year reported upon previously.

Funds for this additional study were sought and obtained from the Commission on Advanced Education. The particular project would have required some three months full time activity. Due to existing commitments it was easier to spread this activity over the whole year. Three-quarters of the research grant was to be used to employ part-time assistance with the Gordon's Educational Research and Student Services Unit to enable me to devote time to the project. This approach is working well but it is essential to divorce oneself physically from the office to avoid the inevitable involvement in the day-to-day activities.

It was necessary to visit each of the Victorian colleges and these visits were made earlier this year. The student's individual records were examined and their academic performance over the course codified. This additional information has been added to the original punch cards and some computer analyses have been produced. I am now at the stage of tabulating the material and have commenced drafting the report. By working at home for half-day periods it has been possible to keep the research progressing without unduly neglecting my other commitments.

This part-time activity has much to recommend it. Depending on the nature of your normal work activity, it is usually easier to obtain some part-time assistance to lighten the burden than it is to find a full-time replacement for a short period. The dual role also enables the researcher to keep in touch with his normal work – an important consideration in these times of rapid change.

To those wishing to undertake research and finding themselves for many reasons unable to get started might I suggest the small follow-up study. Where funding authorities have already financed the collection of data, my experience has been that they are sympathetic to modest approaches for funds to allow further study of this material.

The business studies aspect of the ACER study still awaits follow-up. I would be willing to assist any researcher wishing to make use of this material. In my view a follow-up study is a very worthwhile activity.


1. Horne, B.C., and Wise, B., **Learning and Teaching in the C A E 's 1969.** Melbourne, ACER, 1970, 3 Vol.

2. Horne, B.C., **Characteristics and Performance of Second-year Engineering Students in Victorian Colleges of Advanced Education 1969.** Melbourne, ACER, 1970.



*Bruce Horne, Senior Educational Officer, Gordon Institute of Technology*


# In the thick of it A researcher's recriminations

*Our third article is from a researcher who is at present involved in a project funded from the Commission on Advanced Education, looking at the costs and benefits of various types of catalogues which may be produced from computer-based files. The possibilities include cards, page printouts, computer type-set books, computer type-set microforms (fiche or film) and so on.*

Half way through the year, the project, and the money, it is too soon to evaluate, too late to pull out, perhaps an appropriate time, though, to record some reactions.

One is lured into applying for an educational research grant because one secretly desires to introduce an untested service (let's call it the independent variable) into the library (let's call that the constant environment) on a trial basis and see what happens. However, one does not want to be committed to the continuance of this service or being compelled tongue-in-cheek to justify to the dispensers of recurrent funds the need for and performance of this as yet unevaluated service. One can go altruistically further and want to assist colleagues in similar situations by giving some general validity to one's observations and thereby enabling others to avoid one's mistakes and profit from one's successes.

What I didn't think of when considering an application is how one will continue to operate as a librarian with on-going responsibilities and as project director. When applied research has direct occupational relevance, as in my case, the roles of investigator and librarian are closely linked but they still require the time and energy of two people, and I haven't yet managed parthogenesis. If I were a research applicant now I should wish to include in my costing submission an allocation for personnel to carry out at least part of my normal duties.

One can also slide over the fact that a research team needs space and furniture

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"If I were a research applicant now I should wish to include in my costing submission an allocation for personnel to carry out at least part of my normal duties."

– the application forms don't help as they omit mention of these commodities: it is assumed that employing institutions will provide. In the RMIT Central Library research assistants are prevented from squatting with their paraphernalia in the reading areas only by a maximum utilization of staff conference facilities and a partial intrusion into office areas occupied by co-operative senior colleagues.

Though lack of time and space have been problems, people haven't. Full employment notwithstanding, it has been easy to recruit suitable assistants through normal advertising channels. Non-routine, part-time work can attract gifted people. My chief research assistant is a valuable source of intellectual support, as are three final-year degree students of the Department of Librarianship, who are, under my direction, taking modules of the project to fulfil final year major assignment requirements. The mutual benefit to the students and to me of their being involved in 'real' work is very great, and potential researchers may wish to consider such sources of support when drafting research proposals.

The assistance of a randomly selected group of student users of library catalogues will also be sought, to carry out retrieval time and accuracy tests and to provide data on attitudes. For this participation they will receive a small payment, in the hope they'll be as motivated to perform as were they to receive course credits for so doing.

Current library staff are a major source of personnel. They are assisting the observation and measurement of use of the computer output microfilm (COM) catalogues which are being provided for a three month trial period. They are helping with the mass distribution of 'before/after' questionnaires, with monitoring traffic volume and flow, through the library, with the instruction of catalogue users confused by the innovation, and, most significantly, with systematic recording of the pattern of catalogue use. The last aspect is a technique devised as part of the project and is itself on trial. It involves making objective observations of catalogue user behaviour at randomly selected intervals averaging out at half-hourly, throughout the entire trial period. Application of this observation technique has generated enthusiasm and co-operation amongst the library staff so far, and has only been onerous for those organising rosters and schedules.

At this stage, as the returns come in, I feel like a trainee electoral officer, hoping the electorate, not to speak of the nation, will wait while I count and recount, and am scarcely able to look ahead to the declaration of the polls, let alone to the worth of the outcome.

*Elizabeth Stecher*
*Senior Librarian, Central Library, RMIT*

# Television in universities

A recent project in this field, supported in part by a grant from the Australian Vice-Chancellors' Sub-Committee on Education Research and Development, surveyed in 1972 the use of videotape in Australian universities. The final report, **The Use of Videotape in the Teaching Program of Australian Universities,** prepared by Professors J C Clift and F M Katz, and Dr D V Connor, provides information on the extent and use of videotape in current teaching programs, problems arising from its use, factors affecting the preparation of suitable programs, the adequacy of support facilities, users' assessments of the effectiveness of videotape as an aid in their teaching programs and their prediction about the future role of videotape in the learning process.

The project came to the following conclusions:

1. Relatively little use is made of television in the instructional process in Australian universities. This is attested to by the small number of users identified.
2. In those universities in which a closed-circuit television system (CCTV) was developed, the use of television for transmission of lectures is declining.
3. As the use of television in presenting lectures is declining, its application to other aspects of the instructional programs is increasing.

There is now quite a diversity of application. Increasingly, the equipment is used to provide enrichment of educational experiences. It is being used:

1. to enrich the communication process by bringing the outside into the classroom;
2. to illustrate concepts by presentation of real-life happenings;
3. to assemble a variety of material, by combining slides, films, and other media;
4. to magnify material for presentation to large classes;
5. to provide opportunity for students to see their own performance practising skills or techniques;
6. to provide opportunity for individual study by making videotapes available for students on demand. (Such opportunities are often made available in the university library).

The views of users and the applications

of the medium outlined above have a number of implications.

It would seem that CCTV should not be used in recording lectures, but rather to provide a variety of services to lecturers who can use recording equipment in their own schools or departments.

Because small, portable equipment is not only cheaper, but lends itself more easily to the various uses identified, it is likely to increasingly supplement or displace the expensive, superior, but also necessarily centralised, CCTV service.

There will be a need for a maintenance service, ancillary assistance, production advisory programs and a special technical service such as graphics and photographic assistance. These might best be made available through a centralised service linked with educational development and research centres so that new uses are not only constantly developed, but also evaluated.

A limited number of copies of this report are available on request from the Australian Vice-Chancellors' Committee, P O Box 1142, Canberra City, ACT, 2601.

*John Clift, Director, University Teaching and Research Centre, Victoria University, New Zealand.*

# University news

Following on from our review of sources of information about overseas trends in issue 2/73, we wish to draw attention to another useful publication, the Association of Commonwealth Universities **Bulletin of Current Documentation** (known as ABCD). The main purpose of ABCD is to provide the member universities of the Association of Commonwealth Universities, and particularly those in them who are concerned with general aspects of policy-making, with factual information in the form of notes about some of the more important books, reports and other documents that have recently been issued on matters affecting universities and that are of more than local interest. The emphasis is on publications issued in Commonwealth countries but some international and foreign documentation is also described. The source of each item is given so that readers can, if they wish, obtain the full text.

Some notes on 'ACU Affairs' appear in each issue to keep universities in touch with the services provided by the Association.

ABCD is edited by Sir Hugh W Springer, Secretary-General of the ACU, and Tom Craig, the head of the ACU publications and information department. It derives from a recommendation made to the ACU Council by a committee on the future policy of the Association which had a membership of university vice-chancellors and presidents drawn from the different areas of the Commonwealth.

ABCD comes out five times a year and each issue contains 32 pages. Among the subjects on which documentation was described in the first nine issues are:
Travel grants for Commonwealth university teachers and administrators;
The University Grants Committee, Hong Kong;
Correspondence education in India;
The Commonwealth Fund for Technical Co-operation;
The Australian-Asian universities co-operation scheme;
The Canada Students' Loan Plan;
The British UGC system;
The work of the Commonwealth Foundation;
The training of academic administrators in America, Britain, Australia, Southeast Asia and India;
A new academic salary review procedure in New Zealand;
Community colleges in Canada;
The Trimester system at Simon Fraser University;
A new grading structure for 15,000 British university technicians;
The work of the (US) Carnegie Commission on Higher Education;
A joint admissions procedure set up in an Australian state by universities and non-university institutions;
Scholarships for Rhodesian refugees;
Britain's Open University;
Staffing Nigerian universities;
A research strategy for Canadian universities: the Bonneau-Corry report;
Canadian-West India co-operation;
British higher degrees examined;
Integrating part-time and full-time studies at Canadian universities.

Biographical notes on recently appointed university vice-chancellors and presidents are given in each issue, and notes on new universities appear from time to time.

*ABCD is available from The Secretary-General, ACU, 36 Gordon Square, London, England WC1 H 0PF at UK1.70 per year, including second class airmail overseas.*

# ASA education seminar

Student unions from twelve Asian countries participated in a lively four day Conference on Asian higher education in Hong Kong in March. Four delegates from AUS represented Australian students at the Conference.

## Issues

Four main issues were considered:
1. *Role of Higher Education in Contemporary Asia:* in respect to economic and socio-cultural development; significance of academic freedom; political role.
2. *Universities and Colleges as Educational Institutions:* structure of the university and college establishment; curriculum; student self-government and welfare.
3. *Role of Students:* in higher education in Asia; at the national level in Asia; at the international level.
4. *Ways to Achieve Co-operation Among National Student Bodies in Asia:* improvement or reform of content of higher education; role of higher education, society and in Asia.

Guest speakers from UNESCO, ECAFE etc. participated and a particularly interesting talk on "Similarities and Differences in higher education between China and the West "was given by the Director of the College of Education at the Chinese University of Hong Kong.

## Communique

At the conclusion of the Conference, a communique was issued. Major points included:
1. Recognition that reform of the education system cannot be separated from the economic, social, cultural and political structures of society.
2. A call for academic freedom and independence of institutions from government and big business.
3. A call for change in the out-dated, irrelevant and often colonialist curriculum of Asian institutions and its replacement by education relevant to the social problems of Asia. Delegates wanted the western bias in curriculum replaced by studies of culture, language and development of Asia, Africa and Central and South America.
4. Recognition that students must work within their own societies to fight economic exploitation, political suppression and social injustice and also internationally to try and alleviate problems of people throughout the world.

## Assessment

Perhaps the most important result was that students from all over Asia were able to sit down together, discuss harmoniously their common problems and agree unanimously to the communique. Despite diverse race, nationality, religion, politics etc. we all recognised the indivisibility of educational change from change in society at large.

The most concrete result was the setting up of SECA (Student Education Commission of Asia) to be run by AUS under the auspices of ASA. The object of SECA is to provide information and assistance to student unions of Asia to help them to carry out the resolutions of the education seminar and also to provide resources, material and help with educational matters.

Any HERDSA members interested can write to SECA, C/- Education Vice-President, AUS, 97 Drummond Street, Carlton Vic 3053, from whom copies of the Conference communique and resolutions can also be obtained.

*Tom Tescher, AUS Chief Delegate to Higher Education Conference.*

# Notes

An aspect of medical education into which relatively little research has been undertaken is that of reactions to stress (other than examinations) encountered during a medical course. As an essential part of their training, medical students experience situations which are likely to arouse negative emotional reactions such as feelings of distaste, revulsion, annoyance, irration, dislike, anxiety, apprehension or distress and some information about the degree of stress experienced and ways of coping with it is likely to be valuable to those planning medical courses.

A survey concerned with this problem was carried out by The Centre for the Study of Higher Education, Melbourne University, on behalf of the Standing Committee on Student Health of the Australasian Medical Student Association in association with the Project Director of the Committee, Dr R H Hall. In 1972 a questionnaire was sent to all 5th year medical students at the eight Australian Medical Schools, Otago, New Zealand and New Guinea. It included sections covering the degree of stress experienced in a range of situations encountered during medical training, particular ways in which students coped with potentially stressful situations and some personal details. A report on the results of this survey is in the final stages.

*Barbara Falk, Reader in charge, Centre for the Study of Higher Education, University of Melbourne.*

# ANZSSA conference

*The Australia New Zealand Student Services Association held a one-day conference on 22 June, 1974 at La Trobe University, Melbourne.*

*Here our correspondent gives her impressions of the conference.*

*(Further information about ANZSSA is available from Dr Ken Crafter, Student Health Service, Flinders University.)*

The conference was intended to assemble a group which would include students, professional groups within the student services (for example, counsellors, housing officers and careers and appointments people, doctors, chaplains), academics, members of the administration of universities, CAEs, teachers' colleges and similar institutions, and representatives of state and federal government.

The conference aimed to cover two broad areas which overlapped to some extent. The first area was a stock-taking exercise, both in terms of material resources available for student services in the different types of tertiary institution, and in terms of the prevailing beliefs about what students "should" have which determine how these resources are allocated. It soon became clear that the various services offered at CAEs and universities had appeared as an *ad hoc* response to some immediate need. Mr Priestley quoted the founding of the Appointments Board "to find jobs for graduates during the Depression" as an example of this. Not only did the range of services just grow like Topsy but, particularly at CAEs, they were seen as less worthy of funds than the academic side of the institution. This stock-taking may lead to the abandonment of the "band-aid" model of student services in favour of one in which the well being of students is seen as intimately related to their academic work.

The type of student services model adopted by those who plan or extend such facilities has important consequences for the sorts of services which ultimately appear and for the conflicts planning committees have to resolve. In order to avoid an academic chalk and talk approach to these problems, a simulation game was set up. Groups of ten or so people were formed into "planning committees" and each participant was assigned a role very different to that (s)he usually held. The task was to plan student services for an hypothetical CAE "in the heart of the dairy country". This exercise had its hilarious side as SRC presidents strove to play businessmen and registrars were metamorphosed into radical students. Most of the "planning committees" were unable to decide on anything beyond the provision of transport services. While this session was quite enjoyable for those taking part, it was hoped that it would also stimulate thought. Even a brief experience of a different role may give an insight into the viewpoints of others and into the difficulties in reconciling these views into a workable plan for an integrated set of student services.

Such a seminar is an interesting reflection of current thinking in higher education about accountability, delivery of services and the need for good management of resources. Student services now comprise a sufficiently substantial part of most institutions to justify a self-scrutiny such as this seminar undertook.

*Felicity Beighton Research Fellow, Centre for the Study of Higher Education, University of Melbourne.*

# Review

**A Computer-Based Simulation Exercise in Biochemistry;** McDougall, A , Sawyer, W H , Ciesielski, V , Technical Report No 1 Computers in Education Research Group, University of Melbourne, May 1974.

This work is part of an exploratory project instigated by the University of Melbourne to investigate educational applications of computers, and thus is an initial enquiry into a potentially vast field of study. The formation of the Computers in Education Research Group marks an important organisational step towards a serious and professional approach to computer applications at the tertiary level.

Simulation for educational purposes is carried out for a number of reasons. The main ones are as follows. Firstly, the experimental apparatus or system under study may be too costly, big or dangerous to be used in a laboratory by inexperienced students (for example, an atomic pile). Or, if the system can be studied in the laboratory, it may take an inconvenient amount of time (for example 3 usec or 7 hours), as in the case at hand. The system may be hypothetical, such as in a proposed freeway or an ecological system.

The paper discusses the use and evaluation of two simulation programs in second year biochemistry over a three week period during 1973. The programs simulated the binding of oxygen to haemoglobin and the Michaelis-Menten mechanism. Each student was involved in a one-hour session with the programs via a remote teletype. An optional lecture unit on theory relevant to the experiment was made available to the students. The 40 students were split into two groups of approximately equal ability as determined by earlier term tests. In

case the pre-test itself improved the post-test performance, only one group was given the pre-test.

However, the conclusions that are drawn from the exercise appear questionable. The paper states *"Firstly, it is evident from the achievement test results that the computer programs provided an effective learning experience for the students."*

While the post-test certainly shows a significant improvement in achievement from the pre-test, it has not been shown that the simulation section of the course was the basis of the learning experience. It would be necessary to set up two groups such that the control group performed an equivalent non-computer session. The groups would then be given two tests: one for the computer simulation part of the course and the other for the rest of the course, which consisted of a preliminary talk, lecture unit and concluding discussion. Only then would it be possible to see whether the computer simulation created an effective learning experience. The paper did state however that, *"It was decided that no students in the class should be deprived of the experience with the computer, so an experimental situation with both treated and control groups was not feasible."*

The paper continues, *". . .students who had previously attended a lecture series . . . benefited more . . . than did those who had not attended the lectures."* But, as the lectures were optional, this leads to a possible in-built bias, namely that the students most likely to attend the lectures are among the more interested and intelligent group and are thus likely to have an expected higher performance on the post-test.

The paper then concludes, *"This result indicates that simulation programs should not be presented as isolated computer-based exercises, but should be used to emphasise, complement or extend material from the course as a whole."*

However, this conclusion depends on the simulation exercise being established as an effective learning experience, and this is not proved.

Although the students showed a favourable response to the simulation exercise, no distinction was made between a response to the use of a computer terminal and a response to the study of biochemical systems by simulation via a terminal, namely an investigation of the possibility that working with an interactive terminal has a unique fascination.

It is important to justify the use of a computer in an educational application because of the cost of the system and the time involved in program and operational preparation. Either improved performance by the students and/or increased motivation of the students would justify the exercise.

Overseas studies indicate that both of these effects usually occur, with no fall-off of interest over an extended period.

For example, one of the references cited in the paper (Castleberry, S J , Montague, E J and Lagowski, J J , ("Computer-Based Teaching Techniques in General Chemistry") **Journal of Research in Science Teaching,** vol 7, pp 197-208 (1970), the results showed that the computer-assisted group scored significantly higher than the control group working on an equivalent non-computer-assisted course, but that there was no significant difference between the two groups when they both worked on a non-computer-assisted part of the course. The sessions involved both simulation and tutorial type work. The results were obtained by laying down behavioural objectives for each topic, designing pre- and post-tests around these objectives, then constructing hypotheses and testing them by means of mathematical models and regression analysis.

To sum up, although the conclusions drawn in this paper seem in some doubt, the systematic approach to the investigation of the role of the computer in tertiary education by the University of Melbourne Research Group is a long awaited one which appears to mark the start of a much needed serious approach to the field within Australia.

*Rod Dorin, Programmer, Computer Centre, Royal Melbourne Institute of Technology.*

## Contributors to this issue

James Dyall, Bruce Horne, Elizabeth Stecher, John Clift, Tom Tescher, Barbara Falk, Felicity Beighton, Rod Dorin and Dean Daniel.

## **Herdsa** Application form

*Mr. A.J. Lonsdale, Hon. Treasurer, HERDSA, c/- Educational Development Unit, Western Australian Institute of Technology, Hayman Rd., Bentley, W.A., 6102.* I wish to join HERDSA as a Member ($5)/Student Member ($1)* and have enclosed the appropriate joining fee. Please send me HERDSA publications and details of forthcoming activities.

*Delete where inapplicable

Title Name

Position Institution

Address for correspondence

Areas of special interest