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FEATURES

- LEARNING PARTNERSHIPS Sharon Saberton Page 3
- VALE: M.L. Johnson Abercrombie Page 5
- THE ROLE OF THE ANNUAL HERDSA CONFERENCE:
- Conference Comment:
An Organiser's Perspective Jackie Lublin Page 15
- The Annual Conference: How Might it be
Made More Effective? Lee Andresen Page 17

REGULAR ITEMS

- CONFERENCES Page 2
- HERDSA ABSTRACTS Page 20

RESEARCH ON STUDENT LEARNING —PART 2

- APPLICATION OF ADVANCES IN LEARNING THEORY
AND PHILOSOPHY OF SCIENCE TO THE IMPROVEMENT
OF HIGHER EDUCATION Joseph Novak Page 7

MARCH 1985

Editorial

It was with great sadness that I learned of the death late last year of Jane Abercrombie. Jane was one of the pioneers of research on teaching methods and contributed enormously to our understanding of small group teaching. In this issue Ilma Brewer, a friend and fellow researcher on teaching methods, pays tribute to her. Jane was also for a while a consultant to a project that I was conducting in Scotland. Her counsel and enthusiastic support for what I was doing made a great impact on me. I can recall well how her optimism and clear-sightedness made a difficult project more bearable. She will be fondly remembered by all those with whom she came in contact.

There is a North American flavour to this issue of HERDSA News, partly due to your editor having spent two months in Canada. Because of similarities between Canadian and Australian/New Zealand sensibilities, Canadian innovations can often be more easily assimilated here than those of its (overpowering?) southern neighbour. One example of such an innovation is that of learning partnerships. I came across them in the Department of Adult Education at the Ontario Institute for Studies in Education where I was teaching. The idea had had a major impact on many of the courses in the department and students were, in turn, applying the idea in courses they were teaching in many different disciplines. Sharon Saberton has experienced learning partnerships both as a learner and as a teacher and she describes how this important form of peer learning and support can be used.

Spilling over from the special November issue on Research on Student Learning is an important article from Joe Novak of Cornell University, one of the major

figures in research on science education. Elizabeth Hegarty and Mike Prosser, the guest editors, commissioned him to write about some of the exciting work he has been associated with on applying learning theory to science teaching in higher education. He presents here a challenging article which is of great importance not only to those involved in science and engineering courses, but in any discipline with a well-ordered and systematic body of knowledge. He demonstrates that both learning theory and considerations of the philosophy of science can be useful to the classroom teacher.

In this issue we open up debate on the role and function of HERDSA's annual conference. Does it meet the needs of the membership? Does the purpose need to be rethought? Last year's conference convenor, Jackie Lublin, and one of the participants, Lee Andresen, reflect on what can be done. Your correspondence on how you experience the conference and what you would like to see changed is particularly welcomed.

Finally, we welcome our new editor of HERDSA Abstracts, Hugh Guthrie of the Royal Melbourne Institute of Technology, and thank Bob Cannon who has sustained the Abstracts for more years than I have been Editor of HERDSA News. Bob managed unfailingly to produce the Abstracts on time year after year during periods when support from the membership was not great: he has been one of the unsung heroes of the Society. I hope that all members will actively support his successor Hugh Guthrie, providing him with the necessary information to benefit us all.

Dave Boud

Conferences

Eleventh International Conference on Improving University Teaching

Theme The quality of teaching and learning in higher education

Place Utrecht, The Netherlands

Dates 2 — 5 July 1985

Information Improving University Teaching, The University of Maryland University College, University Boulevard at Adelphi Road, College Park, Maryland 20742, USA

Fifth Annual Conference on Teaching and Learning in Higher Education

Place University of Ottawa

Dates 16 — 19 June 1985

Information Conference Secretariat, C/- Patrick Babin, 621 King Edward Drive, Ottawa, Ontario, K1N 6N5, Canada

Evaluation '85: Canadian Evaluation Society/Evaluation Network/Evaluation Research Society

Theme Exploring the contributions of evaluation

Place Toronto

Dates 17 — 19 October 1985

Information Professor Robert B. Ingle, 719 Enderis Hall, University of Wisconsin-Milwaukee, PO Box 413, Milwaukee, WI 53201, USA

Deadlines for future issues:

July issue: 1st June 1985

November issue: Special Issue on The Development of Student Writing Skills

Deadline: 1st August 1985

Learning Partnerships

This article describes a very simple but important device to aid learning. To learn effectively it is often useful to talk with and gain the support of those who are in similar circumstances. Sharon Saberton, with fellow students and staff at the Ontario Institute for Studies in Education in Toronto, has been using learning partnerships as part of normal courses. This idea has great potential for use in many contexts in tertiary and continuing education:

Learning partnerships can facilitate learning in training programs. Drawing on my experience, first as a learner and later as a teacher, I will discuss factors that affect the learning process, some of the advantages and disadvantages and some recommendations to others who wish to use learning partnerships in training programs. Since the concept of learning partners has not been much researched or written about, some preliminary clarification and definition is in order. For the purpose of this paper, a learning partnership is a peer relationship between two people, for whom the main objective is learning.

My experience as a learning partner

Joan and I met in the Fall of 1982 in a course called "Basic Processes in Facilitating Adult Learning". At the beginning of the course our professor suggested that we might benefit from having a learning partner. A number of professors in adult education had found this concept beneficial to mature learners. Our professor described a learning partner as being someone who could be used to talk to and make sense of things happening in the course. Subsequent to this suggestion seven people all interested in learning partnerships formed a learning group. As members of the group Joan and I quickly became aware that we liked one another and had similar interests. Very early in the course we formed a learning partnership. An important process in the development of our learning partnership occurred at the very beginning when we shared histories and found joint experiences which created trust in our relationship. Joan and I became learning partners in order to share learning experiences and to clarify insights and new understandings. However, even more important, we wanted to complete a task effectively.

Throughout the Fall of 1982 Joan and I met once every two weeks, but we made contact by phone at least once a week. From the beginning of our partnership we have always had an agenda for our meetings. Because Joan and I are extremely task oriented and have busy schedules, agendas are important to us to maintain order in our lives. Our meetings took place at the university over a light supper, and we always started meetings with a discussion of our week's experience. When we both felt comfortable and the level of trust and mutuality had been confirmed we moved to the first order of business on the agenda. As we proceeded with the task we both experienced high levels of energy. It was often very difficult for me to stop working and go to sleep following our meetings.

From the beginning our mutual hopes and expectations included a desire to share ideas and help one another deal with the orientation or the muddling phase experienced in the learning process. Since we are both high achievers, our expectations also included completing a task effectively. We found that the learning process was much less painful and stressful when shared with a learning partner. It was easy for us to identify the strengths of learning with a partner. We agreed that our partnership promoted creative

learning, provided mutual support through encouragement, increased our energy levels and ensured that the task was successfully accomplished. We were able to identify only one weakness. We agreed that the time involved in developing and maintaining a partnership was a barrier. From October to December 1982 Joan and I had spent twenty hours in meetings and had held countless telephone conversations. Although we felt that the time commitment was an inhibiting factor we felt that participating in the learning partnership was an important and beneficial contribution to our learning experience. A real bonus for both of us was that Joan and I became friends.

*The most important learnings in my life
have been in a shared learning experience.*

After the course ended we were reluctant to give up our learning partnership. In January 1983 Joan and I enrolled in different courses; however, we continued to meet as learning partners because we had a working history of good experiences and we looked forward to the support that we could give to one another.

Our agendas altered from high task to loose. They now consisted of one general heading with lots of sub-headings. I wanted Joan to help me deal with a course where the rest of the group did not share my learning expectations. Joan wanted me to work with her in thematic processing and to act as an anchor point in grounding her learning. Although the pattern of our meeting schedules did not change during this time, the kind of support that we found most useful from one another did. Because of the high level of trust in the partnership we now risked challenging one another's assumptions, goals and accomplishments. Although I rarely have difficulty in completing a task, the learning partnership helps me eliminate blocks. Joan has a tendency to converge quickly and needs the energy of the partnership to help her in her search for clarification to avoid floundering. The task that keeps our partnership alive and healthy is learning.

The learning partnership as a component in the learning process

The most important learnings in my life have been in a shared learning experience: mutual learning between me and others, sometimes a teacher, sometimes fellow classmates, sometimes my students. However, I'm always aware that the ultimate responsibility for learning is mine.

There are various stages and conditions that people go through in the actual process of learning. These have been discussed in educational literature. However, I will refer to one set of stages and conditions developed by a Canadian scholar, Marilyn Taylor. Marilyn Taylor (1981) describes four phases of the learning process: Detachment, Divergence, Engagement and Convergence. In the "Detachment phase" Taylor describes the learner as being in an observing stance. During this phase the learner-related experience is primarily through preconceived notions. Taylor describes the learner in the "Divergence phase" as veering away from existing conceptual frameworks and experiencing discomfort. In the "Engagement phase" the learner bounces ideas around and is able to relax without having a solution. This is an exciting time in the learning process. Finally, in the "Convergence phase" there is an emergence of a major insight or a new understanding. This is the time that a paper may be published or a workshop positively evaluated or an examination successfully passed.

Based on my experience I believe that learning partnerships can assist individuals proceed through these stages of learning. In the "Detachment phase" learning partners can work together to explore applications in order to find relevance in the course content. Here learning partners can help one another by sharing past experiences to find familiar frameworks to build upon. In the "Divergence phase" where the learner feels muddled and experiences discomfort a learning partner can help ease the discomfort by listening and helping to clarify goals and sharing relevant resources. It is important that learning partners legitimise the feeling of discomfort in order to reduce feelings of isolation. Often in the Divergence phase of the learning process people will feel such discomfort and isolation that they will give up. In this stage a learning partner can provide encouragement and support. With the transition to the engagement stage, the stage of exploration, a learning partner can assist in problem-solving, asking for clarification, exploring new applications and assessing significant insights. In the convergence stage the individual is ultimately responsible for recognising and assessing their own learning. A learning partner may have assisted in clarifying the learning, but the responsibility for declaring the learning is personal. For example, only the learner can pass an exam or write a paper. However, a learning partner can give support and provide critical feedback at this stage.

Learning partnerships provide a safe place to ask "dumb questions".

Applying the concept of learning partnership in training programs

Based on my positive experience as a learning partner I introduced the concept into two training programs. One is called "Teaching Techniques". This course is designed for instructors and clinical instructors of allied health programs and develops teaching skills in the learners. The other program is called Diagnostic Radiography and this program trains students to work in Departments of Radiology as medical radiation technologists. Although the content of the two programs is very different the learning process is the same. For the purposes of this paper I will refer primarily to my experience in applying this concept to the training program for diagnostic medical radiation technologists.

Over the past two years I have observed learning partnerships that have flourished and I have also witnessed partnerships that floundered and dissolved. Those that flourished were described in interviews as positive learning experiences in terms of what the partners were able to give and get from one another. In interviewing learning partners whose partnership floundered and dissolved it was evident that the partnership was based on friendship not learning.

In order to assist other instructors introduce and facilitate learning partnerships in training programs I have described my partnership with Joan, and recommend that it be used as a model in introducing the concept. In addition, based on my own experience as a facilitator in a Diagnostic Radiography training program I have compiled a number of questions and answers that I have found useful in introducing the notion of learning partners.

Some questions and answers often asked

● How do learning partnerships affect interaction with other class members and the instructors?

Learning partnerships help individuals clarify what has gone on in class. A partnership allows students to prepare advanced questions for class discussion and develop new ideas. In terms of the instructor a learning partnership will give students a forum to develop specific questions related to the course. Learning partnerships provide a safe place to ask "dumb questions".

● How are learning partnerships formed?

Learning partnerships may be formed intuitively, administratively or because two learners share a common goal. Many learning partnerships are formed because of a mutual interest or need.

● What are the "nitty-gritties" or conditions that are important to consider in setting up a learning partnership?

The following checklist may be useful in determining boundaries in the learning partnership.

- 1 Equal commitment and responsibility must be negotiated in terms of workload, time and energy given to the partnership. For example, learning partners in the Radiography program working on a project related to comparison of various types of film screen combinations may agree to divide the work load in half. Each partner may agree to research three film screen combinations and then share the results with their learning partner. This would provide a basis for learning.
- 2 The partners must agree to talk about the learning process. This includes talking about feelings, positive or negative and sharing experiences. Learning partners in the Radiography training program found this agreement helpful in relating ethics to patient care in the clinical setting.
- 3 Agendas should be either formal or loose for meetings. Agendas save time and provide a focus for learning. For example, if learning partners come together to study a specific subject it is important to know prior to a meeting exactly which areas are going to be covered at the meeting.
- 4 Goals and expectations must be mutually established early in the partnership. It is important that learning partners are very clear about what they hope to achieve as a result of working together. Some learning partners in the Radiography training program worked together to achieve an A average and others chose to work together only to improve their radiographic positioning skills.
- 5 Trust is an integral component in the partnership. Trust is built over time and is based on shared values and experiences.
- 6 Time, place and length of meetings need to be deter-

mined. For example, one learning partnership in the Radiography program arranged to meet every morning between 8.00 a.m. and 9.00 a.m. in the cafeteria. Another devoted their lunch time to the partnership.

● **What can I get out of a learning partnership?**

The pay-off from a learning partnership will be directly related to each learner's requirements.

Some needs include:

- 1 Connecting with a peer engaged in a similar task.
- 2 Someone with whom to address feelings of discomfort and alienation.
- 3 A support system that provides understanding and encouragement.
- 4 A space to explore new ideas.
- 5 A method of maintaining self-esteem and gaining confidence.
- 6 Someone with whom to reflect on past and present experiences.
- 7 Someone to help make learning fun.
- 8 Ensuring that energy and motivation are maintained through creative learning.

● **What can I give a learning partnership?**

The following roles are important ones to give to a partnership.

- 1 Be a source of new skills and information.
- 2 Be a sounding board for clarifying new ideas.
- 3 Give useful feedback.
- 4 Share in tasks and experiences.
- 5 Stimulate new insights.
- 6 Help generate energy.
- 7 Ask questions, be a challenger and criticise.
- 8 Share mutual respect and tolerance.

● **What things damage learning partnerships?**

In my experience I have observed a number of damaging factors in learning partnerships. They are:

- 1 Different levels of learning.
- 2 Lack of trust.
- 3 Competitiveness.
- 4 Unequal commitment to workload.
- 5 Dependency.
- 6 No agendas or ground rules.

The pay-off from a learning partnership will be directly related to each learner's requirement.

● **What is the difference between a friendship and a learning partnership?**

A Learning Partner is a facilitator of learning. Being a learning partner is an experience which forces individuals to question attitudes, values and assumptions.

There is no challenge in friendship. Friends reinforce attitudes, behaviours and values that individuals already have. Friendship does not necessarily facilitate learning beyond the first stage as described in Marilyn Taylor's model.

● **What is the difference between a learning partnership and a mentorship?**

In a learning partnership the levels of learning are similar and the learning is shared.

In a mentorship there is a variance in the level of learning and one partner acts as the tutor or coach.

● **What are some direct applications of learning partnerships?**

Some direct applications related to training medical radiation technologists where the concept has been successfully introduced include radiographic positioning labs, CPR practical labs, projects such as developing a technique chart, problem solving in physics, critical review of radiographs and question and response in anatomy.

Sharon Saberton,
Toronto Institute of Medical Technology.

Reference

Taylor, Marilyn (1981). *The Social Dimensions of Adult Learning*, in Salter, L. (ed.) *Communication Studies in Canada*, Toronto: Butterworths, 133-146.

VALE: M. L. JOHNSON ABERCROMBIE

Deeply mourned by her many friends, colleagues and admirers, the sudden and untimely death of Jane Abercrombie is also a great loss to the world of higher education, where she was renowned for her pioneering work in developing and refining techniques of teaching and learning in small groups.

Her main interests were in finding ways of making information about human behaviour, especially perception, communication and group interaction, available to people so that they could learn to see and think more clearly, with the aim of improving their skills of judgement in a variety of situations.

M.L. Johnson, Ph.D. ("Jane" to her friends) began her academic career as a zoologist teaching at Birmingham University where she met and married Michael Abercrombie, when he was a lecturer in embryology. Dr Abercrombie, F.R.S., became an eminent cell biologist, Director of Strangeways Research Laboratory in Cambridge (1970-1979) and sometime Professor of Embryology and then of

Zoology at University College, London.

The Abercrombies' first exciting joint venture in a life-long partnership was as co-editors of thirty-one issues of *New Biology*, a Penguin Series, between 1945 and 1960. As co-authors with C.J. Hickman, they also compiled the *Penguin Dictionary of Biology*, first published in 1951. The seventh edition (1980) was revised by Jane and Michael at their home in Little Shelford during Michael's final illness which led to his tragic death in 1979, to which Jane never became reconciled.

With the move from Birmingham to London, Jane Abercrombie embarked on a different career, at the Anatomy Department, University College, in the field of selection and training of medical students. Impressed by individual differences between her students' responses to the same stimulus (e.g. a radiograph or report of an experiment), Jane began her ten-year investigation into the processes of perception and reasoning. *The Anatomy of Judgement* (1960) — reprinted in Penguin in 1969 — resulted from her study of the factors that influence the

making of judgements, and particularly judgements in science. Research into the problems of teaching students to be "scientific" — to obtain information of good predictive value from a given situation — led her along diverse paths away from science.

When Jane began to teach through discussion among small groups of students, she became aware of the mixture of beneficial and adverse effects of the authority-dependency relationships in learning.

She introduced a different type of relationship between teacher and student and between student and student; but unfamiliarity with this type of University teaching often led to bewilderment, opposition and even open hostility. In attempting to apply peer-group methods to training these medical students in scientific ways of thinking, she became interested in group analysis. She learnt first as a participant in therapeutic groups conducted by Dr S. H. Foulkes, and later as a co-therapist, also from discussions on group analytic psychotherapy with Foulkes and his associates. Jane attributed some of the skills she employed in conducting her "free group discussions" to this experience.

Jane regarded listening as the most important of these teaching skills, and secondly, tolerating the expression of hostility customarily suppressed in these situations. As a founder member of the Group Analytic Society (London), and its President from 1980 to 1983, she retained her interest in this field.

A subsequent research project on perceptual disorders of cerebral palsied children at Guy's Hospital (published as *Perceptual and Visuomotor Disorders in Cerebral Palsy*) intervened before her return to University College as Reader, and subsequently as Director of the Research Unit in Architectural Education at the Bartlett School. Here she continued her work on improving methods of teaching and learning in small groups, and in refining her own techniques as a facilitator in group discussions.

Jane Abercrombie's most widely read books, *The Anatomy of Judgement* and *Aims and Techniques of Group Teaching* (1970), now in its fourth edition, inspired many teachers to change their methods of teaching. The three projects with which Jane was most involved in developing her influential group methods were: with preclinical medical students, in the fifties, then with students of architecture in the sixties, and finally, in the seventies, with university teachers who wished to improve their use of small group methods. They were different not only in specific teaching aims but also in the particular institutional circumstances.

The ten-year project with medical students was in a medical faculty preoccupied with research and little concerned with students as persons. Here the aim was to help students to be objective and scientific in their tasks of diagnosing and treating patients. In the School of Architecture, the aim was to help students to prepare themselves for team work not only with other architects, in the design process, but with builders, engineers, quantity surveyors and clients. This project was carried out in a different educational climate with a very innovative Head of School. Here, students were less biddable than their predecessors and in the late sixties exploded, all over the globe, into active rebellion. Mrs Abercrombie set herself "the task of trying to engage the teachers in developing a climate of adapting to change and in particular to encouraging autonomous learning". The third project began in 1972, with Paul Terry, a clinical psychologist as collaborator. By this time, many teachers had realised the importance of their highly personal contribution to the teacher/student relationship, in addition to curriculum development and the application of educational technology. As yet, few had become aware

of the importance of student relationships and peer learning.

It is fascinating that Jane perceived that the similarity of these projects was in "setting up the means by which participants could talk freely about their current behaviour in relation to the specific educational task, in such a way that their relevant basic assumptions, or expectations, or attitudes, of which they were not aware, could become clear to them by comparison and contrast with those of other participants". *Talking To Learn* (1978), her second book in the SRHE monograph series on Research into Higher Education, vividly demonstrates and interprets what can be achieved by free or associative group discussion.

The variety of subjects covered in Jane Abercrombie's published papers reflect the many interests and aspects of her research: selection and performance of architecture students; human relations and groups; students' attitudes to professionalism; the difficulties of changing; reactions to change in the authority-dependence relationship; perception, communication and drawing, among others related to cerebral palsy in children.

In demonstrating some of the factors that affect our learning, without our being conscious of them, and to illustrate how we select information from our personal store, and the context of the stimulus pattern, Jane used her famous rotating trapezoid. Most people perceived this apparatus as a window swinging continually from right to left and back, as though on a hinge, thus equating trapezoidal images on our retinas with rectangles in the real world, without our being aware of the assumption being used.

To appreciate Jane's unique qualities and effective techniques one had to observe her in action, which I was privileged to do with architecture students, and in the discussion groups for teachers. It was fascinating to watch the way she conducted preliminary sessions with students on "getting to know one another". A series of interesting and creative "games", requiring co-operation in sub-groups, broke the ice and led to students discussing and sharing these experiences and feelings which they could comfortably talk about. Typically, she abhorred the title of Doctor, preferring Mrs Abercrombie or Jane. Her gentle but firm discipline, gracious manner in creating the relaxed climate in discussion groups, spontaneous yet restrained participation, refusal to "leap in to repair any silence", and her delightful sense of humour were some of the qualities most readily remembered by those of us who knew her.

For the last few years, Jane was involved in research at the Radiology Department at Addenbrooks Hospital in Cambridge; she was also active at the Cambridge Institute of Education, and with Cambridge Group Work. In between these commitments, Jane was a Visiting Professor at a number of overseas universities, including McMaster at Hamilton, Ontario, and Wittwatersrand in Johannesburg.

It is with deep regret that we can no longer anticipate her planned visit to Australia in April 1985, to the Medical Faculty at Newcastle and other universities in Brisbane and Sydney. But we can recall with pleasure, her two-month visit to Sydney in 1973, when she graciously shared with many of us her many skills and experience.

Friends, colleagues and those who knew Jane Abercrombie only through her books, grieve at her passing. Our loss is mitigated only by the memory of her remarkable and dynamic personality and the rich legacy of her writings, which will continue to exert a wide influence on the world of Higher Education.

Ilma Brewer

Application of Advances in Learning Theory and Philosophy of Science to the Improvement of Higher Education

A philosophical foundation for learning

For more than three hundred years, the dominant philosophical position regarding the nature of science was that established by Francis Bacon in his *Novum Organum*. Bacon took a proper stand against the then prevalent "natural philosophy" that stressed study of Greek and Roman writers and logical argument, favouring instead the necessity of careful *observation*. Bacon held that our understanding of the universe would be best advanced if we observed events or objects in the world while scrupulously avoiding constraining preconceived notions or philosophical views. Gradually Bacon's views became dominant in science and these views were reinforced in the writings of Karl Pearson as we entered the twentieth century. With the growth of science textbooks in secondary schools and universities in the late 1800s, science textbooks stressed that science is based on unbiased observation and that science research in time leads to *truth* about nature. This mythical view of science remains dominant today in many textbooks and in the general population contributing in part to the public misunderstanding of science.

By 1947, however, distinguished scientists such as James Conant were presenting views that departed significantly from those of Bacon, Pearson or the Logical Positivists of the early twentieth century. In his *On Understanding Science*, Conant, who made his reputation as a research chemist, was arguing that scientists invent and use "conceptual schemes" and that these conceptual schemes are modified over time and occasionally discarded. Conant's protégé, Thomas Kuhn, further expanded this idea in his 1962 book, *The Structure of Scientific Revolutions*, and Stephen Toulmin (1972) elaborated the evolutionary nature of concepts and the role that concepts play in human understanding. This has led to almost a new orthodoxy, where science is now seen as the constant modification and refinement of conceptual models and associated research methodologies (Lakatos, 1976; Brown, 1979).

More recently, my colleague Bob Gowin has developed a heuristic device that we have found to be especially helpful for both staff and students to represent the interplay of concepts, principles, and theories with observation of events or objects and procedural aspects of record making, record transformation and construction

of knowledge and value claims. Figure 1 shows the general form of Gowin's Vee heuristic as it has evolved in our work. The Vee schema is consistent with Baconian and Pearsonian stress on observation, for at the "point" of the Vee he has placed those things scientists observe. However, the Vee also lays stress on the role of concepts, in that our concepts not only help us to select objects or events for observation, but also guide the kind of records and record transformations we make. Principles and theories represent relationships between concepts which have their origins at least in part in the regularities observed in objects and/or events. Thus the Vee also incorporates key ideas from modern philosophical views of science that stress the active interplay between what we observe or do in science and the evolving concepts, principles and theories that guide scientific inquiry.

If we instruct students or teachers in the nomenclature of the Vee, we have found the Vee to be a powerful heuristic for conceptualising laboratory work. We have used this device successfully with students in secondary schools and universities, and will discuss this work further in a later section.

"*... science is now seen as the constant modification and refinement of conceptual models and associated research methodologies.*"

Concept learning as the focal element in learning

Given a developing philosophical view that placed concepts at the source of human understanding, it was natural that we should seek a learning theory that centred on the nature of concepts and concept learning in school settings. No such theory existed before 1963, so we used Weiner's "cybernetic" model in our early research until we became familiar with Ausubel's (1963) *Psychology*

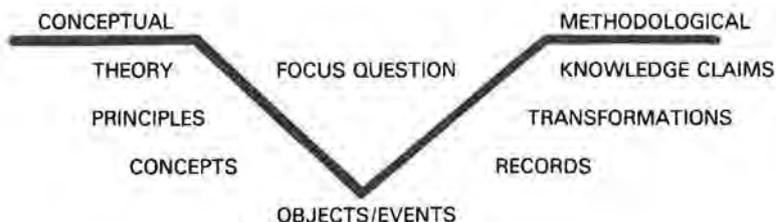


Figure 1: The Vee heuristic showing key elements in the structure of knowledge and knowledge production (epistemology). Elements on the "left" actively interplay with elements on the "right" in production or interpretation of knowledge about events or objects.

of *Meaningful Verbal Learning* and later (1968), his *Educational Psychology: A Cognitive View*. Behavioural psychology had so dominated universities in the 1950s and 1960s in North America that few American educators have been trained in a learning psychology that stresses the role that concepts play in acquisition, retention and application of knowledge in classroom settings. Although Piagetian developmental psychology became popular in education circles in the USA after 1960, his theory of cognitive development has only limited relevance to learning in school settings (Novak, 1977b). Over the past decade and a half, we have found Ausubel's cognitive learning theory to be the most useful in guiding the learning events we have constructed either for research purposes or in our efforts to improve science instruction. His work also provided the psychological foundation concepts for a first effort to construct a theory of education (Novak, 1977a).

Ausubel's assimilation theory of learning has appealed to us both for its simplicity in the kind and number of key concepts and its comprehensiveness in terms of the school learning events to which it is relevant. With respect to knowledge acquisition, the theory meets the criterion of parsimony; it also has significant implications for skill or motor learning and the acquisition of positive feelings or "affect". Seven key concepts in Ausubel's theory function to guide research and teaching. Each of these will be discussed with examples from teaching in the physical sciences.

1. Meaningful learning: The central idea in Ausubel's theory is that of meaningful learning, which he defines as "non-arbitrary, substantive, non-verbatim incorporation of new knowledge into cognitive structure". Cognitive structure is the framework of knowledge stored in our minds that grows and develops from childhood to senescence. By non-arbitrary incorporation of knowledge, Ausubel means that the learner must make a conscious effort to relate new knowledge to knowledge s/he already has. For example, a student learning new information on reactions of sodium with non-metals would consciously relate this knowledge to what s/he already knows about chemical reactions in general and, more specifically, reactions of metals and non-metals. Substantive learning occurs when the learner makes a conscious effort to identify the key concepts in new knowledge and to relate these concepts to other concepts s/he possesses, as when sodium is recognised as an active metal and chlorine is recognised as a unit which reacts with an active metal. Non-arbitrary and substantive learning go hand in hand; both require a deliberate effort on the part of the learner. Non-verbatim learning is simply the product of non-arbitrary, substantive learning, since the latter active learning processes necessarily alter the meaning of the new knowledge learned. If a student simply memorises verbatim that "an acid plus a base form a salt" without consciously thinking about "what is an acid?" or "what is a base?", then verbatim, arbitrary and non-substantive learning has occurred. It can lead to success in exams that require verbatim recall of definitions, but such learning has little practical value and may interfere with later learning.

2. Rote learning: This is at the opposite pole from meaningful learning and results when students incorporate new information into cognitive structure in an arbitrary, verbatim, non-substantive way. In practice, it is improbable that any student learns any subject matter in a completely rote manner, and hence Ausubel stresses that the rote-meaningful distinction is not a dichotomy but a continuum. Unfortunately, most students in secondary schools (and in university introductory courses) learn most of their subject matter in a nearly rote manner, with only very limited efforts to relate new material to prior learning

and specific concepts previously learned.

3. Subsumption: This is the concept label Ausubel uses to represent the idiosyncratic nature of meaningful learning and the fact that new knowledge is usually incorporated (subsumed) into more general, more inclusive concepts.* Each person's cognitive structure is unique, and hence subsumption of new knowledge produces a cognitive "interaction product" that is dependent both on what concepts the learner already has (or misconceptions s/he has) and the material presented. Essay exam questions, when they require more than verbatim recall of information, often show the idiosyncratic nature of subsumptive learning. For example, students often confuse concepts of weight and density and hence will claim that a small quantity of a dense substance will weigh more than a proportionately larger quantity of a less dense substance. Or they may confuse heat and temperature and claim that a small quantity of hot water has more heat energy than a much larger quantity of cool water. In both cases, pre-existing "common sense" concepts are subsuming (and distorting) new knowledge acquired regarding density and/or heat energy.

4. Progressive differentiation: From early childhood onward, concepts we hold are being constantly modified, elaborated, made more precise and both more exclusive and more inclusive; this is what Ausubel means by progressive differentiation of concepts. For example, to a young child, eating gives you energy, but so does sleeping. Later, children come to recognise that although you may feel more energetic in the morning, only oxidisable foods provide energy. Progressive differentiation of concepts is never complete, for even scientists working at a research frontier are still differentiating their concepts. At this point, our psychology of learning merges with an epistemology that holds that concepts in a discipline are, to at least some degree, constantly evolving.

5. Superordinate learning: Most meaningful learning involves subsumption, but occasionally new, more general, more inclusive concepts are learned that also provide meaningful relationships between two or more existing concepts. For example, when students acquire the concept of a mole, they relate atomic-molecular properties of matter to volume, weight, mass and density concepts of substances and to Avogadro's number. If they are successful in this superordinate learning (that is, they do more than memorise verbatim the definition of a mole), subsumed concepts take on new meaning and new relationships to one another. Since we usually sequence subject matter to present more general concepts first, subsumptive learning more commonly occurs. Furthermore, one could argue that even concepts such as mole are subsumed under relevant prior more general concepts such as "substance" or "matter".

6. Integrative reconciliation: When two or more concepts are seen to be relatable to each other in a new way, perhaps to describe a new perceived regularity, integrative reconciliation of concepts has occurred. Weight, mass, volume, density and gravity are some of the concepts whose meanings may seem to be at first unrelated or contradictory, but which are later integratively reconciled into a more powerful cognitive framework. Superordinate learning always results in some new integrative reconciliation, and both this and

* Subsumption is somewhat related to Piaget's concepts of *assimilation* and *accommodation*, except that Ausubel's subsumption relates to *specific* concepts in cognitive structure and always involves both some new information being incorporated (assimilated) and some change in the existing concept(s) (accommodations).

subsumption result in additional progressive differentiation of concepts.

7. **Advance organiser:** In order to facilitate incorporation of new knowledge into cognitive structure in a substantive, non-arbitrary manner, Ausubel has proposed a pedagogical strategy of using advance organisers. An advance organiser is a small learning episode that is more general and more inclusive than the learning material that follows, and that is perceived by the learner to serve as a "cognitive bridge" between what s/he already knows and what is to be learned.

There is more to Ausubel's theory than I have presented here; these seven concepts, however, are the key ideas that can be applied to the design of instruction and research in education in subject matter. It is also important to distinguish between learning approach and instructional approach. This is another area in which Ausubel has made an important contribution. Figure 2 shows that learning can vary from essentially rote to highly meaningful *independently* of the kind of instructional strategy employed. One of the mistakes made during the "curriculum reform movement" in the USA in the 1950s and 1960s was a failure to distinguish between teaching approach and learning approach (Novak, 1969). If there is a new series of science curriculum improvement efforts, we trust that these will profit from new insights into human learning.

"An advance organiser is a small learning episode that is more general and more inclusive than the learning material that follows..."

Concept mapping

In our research based on Ausubel's learning theory, we have struggled with the problem of assessing changes in cognitive structure as the result of meaningful learning.

Referring to Gowin's Vee (Figure 1), our problem has been to devise new record making procedures and record transforming procedures that could be used to make valid claims regarding meaningful learning events designed especially to encourage concept learning and integration of concepts into hierarchically organised segments of cognitive structure. Modified Piagetian clinical interviews (Pines, et al, 1978) were useful, but individual interviews with students were time consuming and the tape recorded records were also time consuming to analyse. A decade of testing alternative evaluation strategies led to a technique we call concept mapping. Figure 3 shows an example of a concept map constructed to represent the key concepts and propositions discussed in this paper. Figure 4 shows a more recent map constructed to represent the key concepts involved in a university course on meat science.

"... when students begin to construct a map and to identify relationships between concepts as they seek to label the lines, they soon recognise that their understanding of even 'familiar' concepts is inadequate..."

In our early maps, we assumed that the linkages between concepts were more or less self-evident and we did not "label the lines". This was still a useful procedure when we were trying to illustrate what we believed were the concept relationships in a segment of subject matter, or to represent the concept framework as we interpreted it from the analysis of a clinical interview. However, when we began to instruct students in concept mapping, we found it crucially important to emphasise an hierarchical structure and careful labelling of the lines if the maps were to augment student learning. Concept mapping serves several useful purposes in encouraging meaningful learning. Concept mapping requires that students explicitly identify key concepts in a segment of learning material.

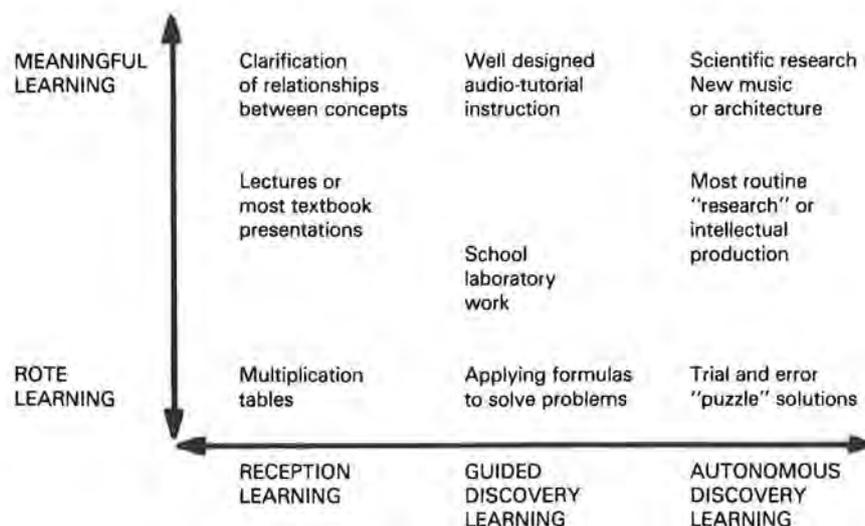


Figure 2: Schema to show the differences between the learning continuum (rote to meaningful) and the instructional continuum (reception to autonomous discovery) as well as relationships between these continua.

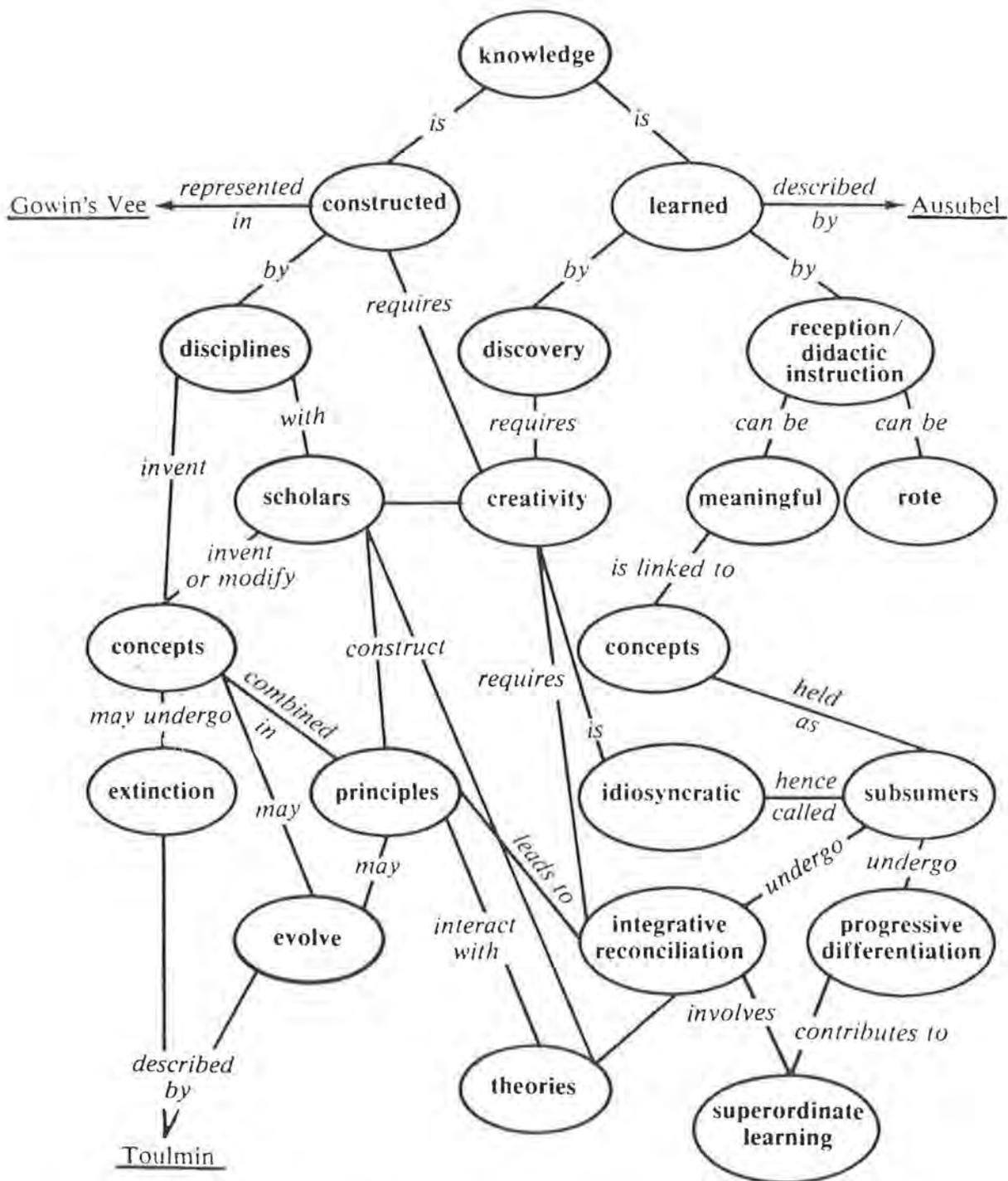


Figure 3: A concept map representing the key concepts (in ovals) and principles presented in this paper. Ausubel, Toulmin and Gowin's Vee are specific cases of theories.

This always leads to recognition that a few key concepts are already somewhat familiar to them. However, when students begin to construct a map and to identify relationships between concepts as they seek to label the lines, they soon recognise that their understanding of even "familiar" concepts is inadequate, i.e. not sufficiently differentiated. The result is that they have difficulty forming linkages between concepts.

A good hierarchical organisation of concepts for a given topic of study might be structured in a variety of ways, but all of these organisations should reflect that more specific, less general concept meanings can be subsumed under more general, more inclusive concepts.

To organise a concept map hierarchically, a student must make a conscious effort to ascertain "what is the most inclusive, most general concept for this topic?", and this requires an active process on the part of the learner to reassess what s/he knows that is relevant and what s/he is unclear about for each of the key concepts.

As we move from topic to topic, some of the same concepts will reappear on concept maps, but perhaps in substantially different locations on the map hierarchies. This reflects, in part, that as we consider different events or objects in our studies, alternative conceptual hierarchies may confer greater explanatory power. Viewed from the perspective of Gowin's Vee, new events or objects can

have different conceptual frameworks "laid upon them", and thus we can enrich and expand the claims that validly follow. The remarkable property of human cognitive structure is that it is somewhat like a crystal and the image (map) we see depends upon the orientation from which the crystal is viewed. Pribram (in press) and others have suggested that humans construct images of their knowledge "holographically". While the neurobiology remains obscure, concept maps appear to have psychological validity as well as pedagogical value.

We have devised a variety of scoring keys for concept

maps; a more recent key is shown in Figure 5. We also have found it useful to provide students with copies of the key to help explain to them how they should proceed to construct better (more meaningful) concept maps. The scoring key was designed to incorporate Ausubelian learning principles. Relationships between concepts are propositions and these reflect the degree of differentiation of the component concepts. The number of "levels" in the hierarchy of a concept map and the number of cross-links between sections of the map indicate the relative degree of differentiation and integrative reconciliation of concepts

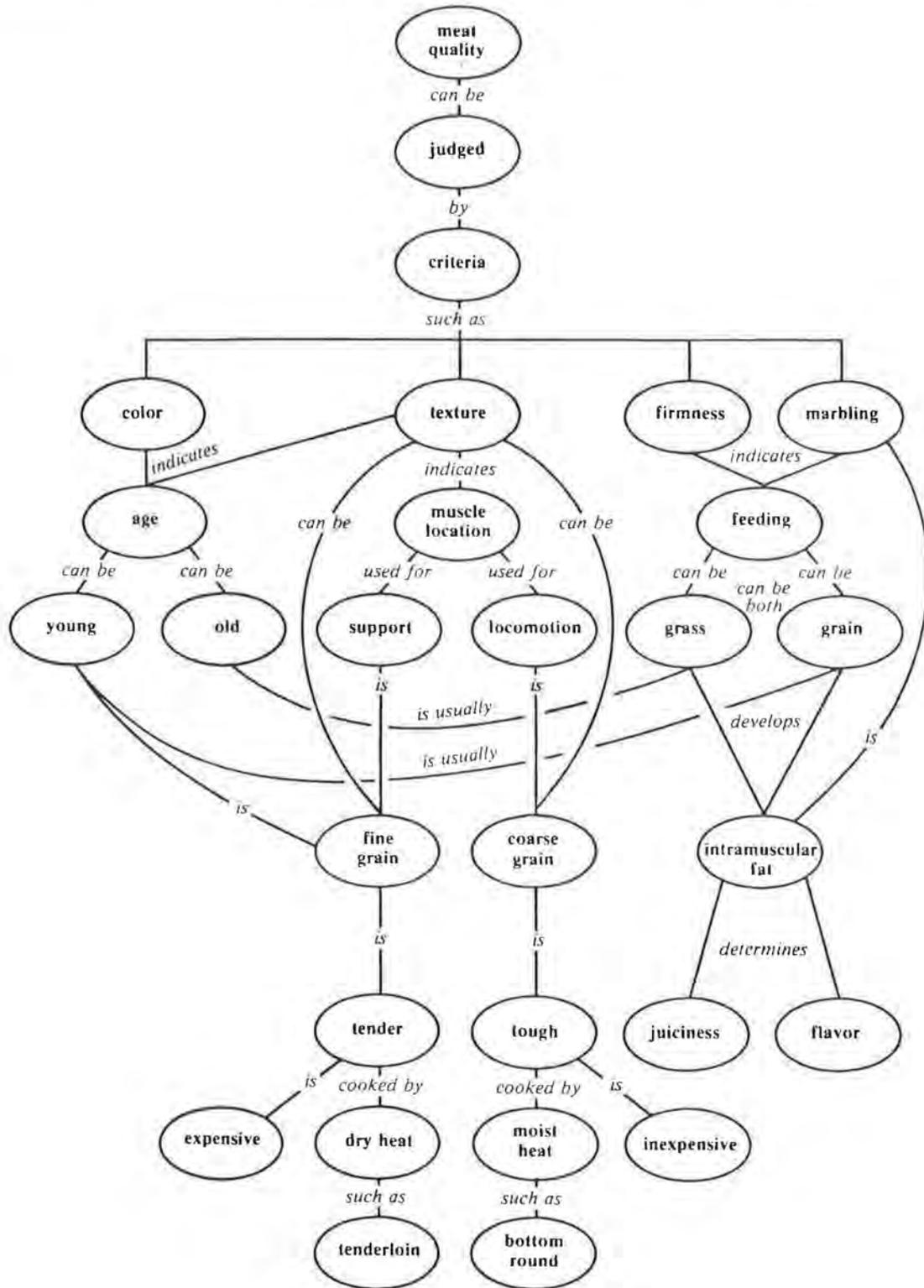


Figure 4: Concept map prepared for a course in meat science. Arrows show cross linkages.

1. PROPOSITIONS. Is the meaning relationship between two concepts indicated by the connecting line and linking word(s)? Is the relationship valid? For each meaningful, valid proposition shown score 1 point (see accompanying scoring model).
2. HIERARCHY. Does the map show hierarchy? Is each subordinate concept more specific and less general than the concept drawn above it (in the context of the material being mapped)? Score 5 points for each valid level of the hierarchy.
3. CROSS LINKS. Does the map show meaningful connections between one segment of the concept hierarchy and another segment? Is the relationship shown significant and valid? Score 10 points for each cross link that is both valid and significant and 2 points for each cross link that is valid but

does not illustrate a synthesis between sets of related concepts or propositions. Cross links can indicate creative ability and special care should be given to identifying and rewarding its expression. Unique or creative cross links might receive special recognition, or extra points.

4. EXAMPLES: Specific events or objects that are valid instances of those designed by the concept label can be scored 1 point each. (These are not circled because they are not concepts.)
5. In addition, a criterion concept map may be constructed, and scored, for the material to be mapped, and the student scores divided by the criterion map score to give a percentage for comparison. (Some students may do better than the criterion and receive more than 100% on this basis.)

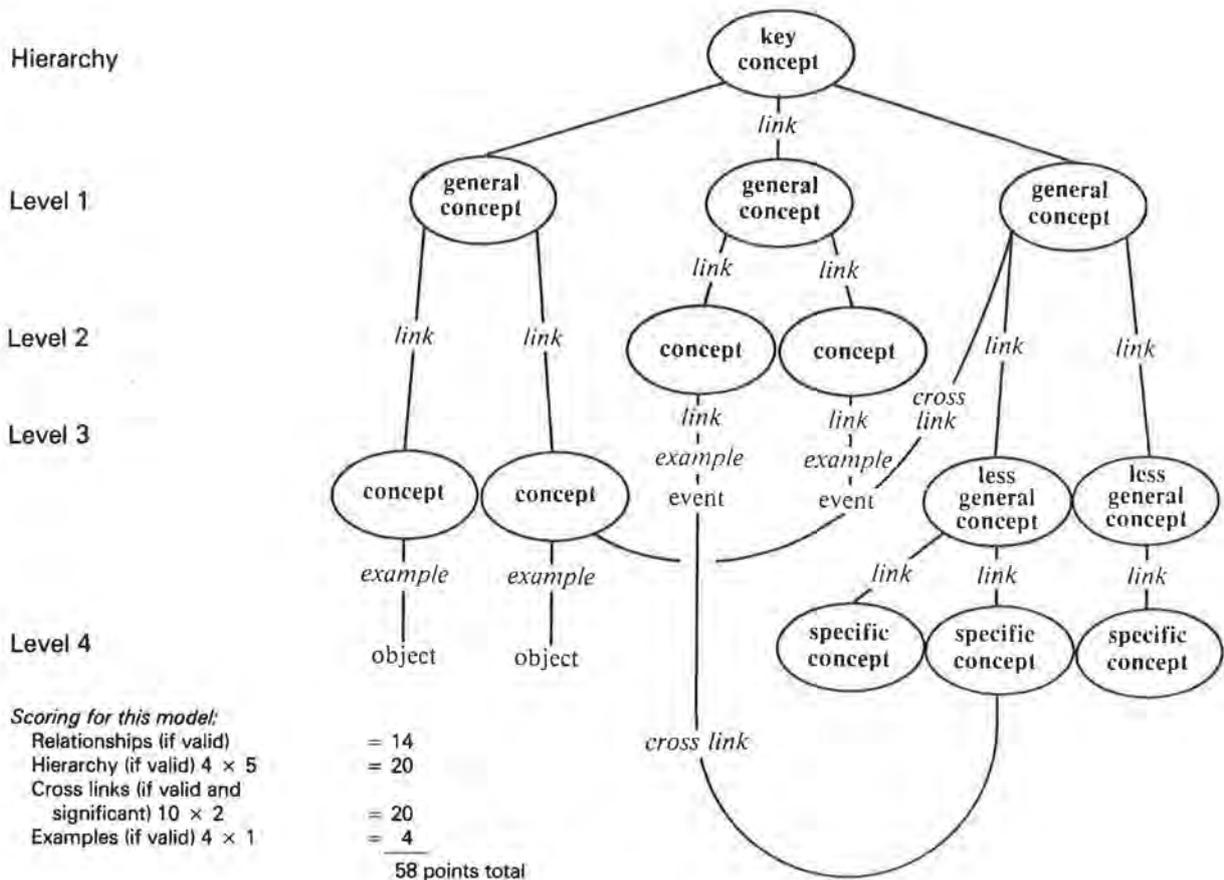


Figure 5: Scoring key for concept maps. Based on Ausubel's cognitive learning theory. A variety of similar scoring keys can be devised.

held by the map maker. The number of hierarchies identified also signals the extent of differentiation of component concepts in that subtle relationships between concepts are indicated by hierarchy denoting in part fine discriminations between the extent of inclusiveness and exclusiveness of concept meanings. Cross links, when they show significant relationships between concepts in different segments of the hierarchy, can be good indicators of integrative reconciliation of meanings, and in some cases some very creative interrelationships may be suggested.

Concept mapping is a powerful tool for analysis of curriculum. It can be used with text material to show the conceptual content and knowledge organisation (Novak, 1981), which in many cases will also reveal that key concepts necessary for interpreting the material in the

chapter may not be presented. When applied to a laboratory exercise, concept mapping represents the conceptual framework needed by a student to understand the events occurring in the laboratory. Often in the discussion in lab guides and associated lectures, key concepts that are needed are not mentioned, or have not yet been studied by students. Buchweitz (1981) found that when this occurs, students not only fail to profit from the laboratory work but also report dislike and frustration with the work.

There remains much research to be done with students to evaluate and refine further the strategy of concept mapping as a tool for helping students learn, and as a method for record making and record transformation in cognitive learning studies. At this point, I can only report that our enthusiasm for concept mapping has been

increasing with each year of new experiences and research.

The Vee heuristic applied to teaching

As noted earlier, the Vee heuristic (Figure 1) derived from our efforts to improve science laboratory instruction. Working primarily with university science courses, we found that students were preoccupied with making observations, records of observations and, especially in physics, transforming their records. Seldom did they give careful and explicit attention to the events or objects they were observing or to the regularities they were seeking to observe. Consistent with the latter problem, students rarely asked what concepts, principles or theories were guiding their observations. One consequence of the lack of concern for a conceptual-theoretical orientation to their work was that students saw little relationship between laboratory work and lectures or textbook readings. In short, they were preoccupied with the "doing", right hand side of the Vee and were inattentive to or unaware of the important guiding function that the "thinking", or left hand side, of the Vee could have provided. The consequence is that laboratory work seldom has meaning for the students and hence does not contribute significantly to their conceptual understanding. Of course, laboratory work should also contribute to skills and techniques of laboratory manipulations, but clear understanding of relevant concepts and principles will also contribute to these goals.

Our experience has been that most students will not conscientiously consider the role of concepts and theories in selecting events or objects for observation and constructing records or transformations even though they are admonished that this is very important. Partly for this reason, the research evidence indicates that little or no improvement in understanding science results from laboratory work as compared with lecture or lecture-demonstration instruction alone. Scientists are generally agreed that laboratory work is important for understanding, based on their own experiences, so the contrasting student attitude and lack of achievement has been an enigma. What we are finding in our work is that scientists more or less unconsciously import conceptual-theoretical ideas into their work; students do not and often cannot do this. Recent research on misconceptions students hold in the area of physics, as well as other fields, shows that such misconceptions are remarkably resistant to change in conventional instruction. Studies by Buchweitz (1981) and Levandowski (1981) show that when students are missing some concepts necessary for interpreting a specific laboratory experiment, few learning gains result, and students report frustration with the laboratory exercise.

"... laboratory work seldom has meaning for the students and hence does not contribute significantly to their conceptual understanding."

To alleviate the problem described in the last paragraph, we have found it useful to instruct students in the nomenclature of the Vee heuristic and its use for interpreting laboratory work. Most of the research we have completed is at the secondary school level (ages 12-16 years), but our work began with and is continuing

with students at the tertiary level. We are also using the Vee as a tool to help students analyse research papers or other documents. Figure 6 shows a Vee constructed for a research paper in the area of nutrition.

When concept mapping is introduced to students prior to use of the Vee, "composite maps" may be constructed that show both the hierarchical conceptual framework the student is applying in an inquiry and the records, transformations and claims that derive from the inquiry. Vee maps with concept maps are an alternative form of laboratory or reading report that can be much more revealing of students' thinking and easier to evaluate than written, conventional reports.

Waterman and Rissler (1982) report on the successful use of the Vee with graduate students in a seminar reviewing research journals.

We are also finding the Vee heuristic useful to younger researchers who are trying to define a good thesis problem or to reorient their research careers toward more productive questions or methodologies targeted at key conceptual or theoretical problems current in the discipline. Even senior research scholars report that using the Vee heuristic has given them new insights into their research. Herein lies an additional benefit in applying concept mapping and Vee mapping to the design of lectures or laboratories — preparation time devoted to teaching can have significant payoff in terms of new research insights. In university settings where teaching is necessary but research is the criterion of achievement, the latter payoff can be most welcome.

"... scientists more or less unconsciously import conceptual-theoretical ideas into their work: students do not and often cannot do this."

In summary, my major claims have been that recent advances in epistemology point toward the evolving nature of concepts and the central role that concepts play in inquiry. Complementary to these insights has been a growing understanding of human cognitive learning (knowledge acquisition) that also places central emphasis on the key role that an individual's concepts (or misconceptions) and concept frameworks play in new learning and problem solving. Out of these theoretical advances and associated research conducted, two pedagogical strategies or forms of "instructional technology" have been developed: concept mapping and Vee mapping. We believe the limited research data available at this time indicates that wider use of these pedagogical strategies is warranted. We invite you to join with us and to share your experiences in the use of these strategies. Explicit suggestions and examples for using concept maps and Vee diagrams are given in *Learning How to Learn* (Novak and Gowin, 1984).

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The Role of the Annual HERDSA Conference: To change or not?

The annual conference is the central feature of HERDSA's activities. Is it meeting the needs of members? If it does need to change what principles should be adopted? In this issue Jackie Lublin and Lee Andresen open a debate which it is hoped will continue through the pages of HERDSA News. If you are dissatisfied with any aspect of the conference let us know your views.

Conference Comment: an organiser's perspective

Jackie Lublin was the conference convenor for the 1984 conference. In this article she presents her evaluation of the event and makes some suggestions to the Society.

It may be timely to report in a more public way than has been done before on the Society's annual conference held in Sydney in May 1984, as I believe there are some important issues facing the committees who will organise conferences for HERDSA in the future. The following is a personal reflection arising from my experience as conference committee convenor this year.

(A) (i) The first issue is that of attendance. It was our prediction that numbers would be down for the 1984 Sydney conference, because costs and thus charges were to rise. Sydney was the second fall-back venue for 1984, and the decision to locate it there was taken far too late for bookings to be made at any university college. Thus we returned to the commercial venue we had used in 1982, the Clairmont Inn. The final costing for the 1984 fees to be charged ensured that fewer people would be able to attend as residents — or so we thought.

In the event, this conference turned out to be better attended than ever before. Of a total of 146 registrants for the whole conference, 73 or 50% lived in. This exceeded the number living in at the Clairmont in 1982 and necessitated overflow accommodation being found for us at the last minute. The reasons why this conference was so well attended are matters for conjecture in lieu of data: perhaps a Sydney conference will always do well because this city is central and attractive, e.g., in the post-conference evaluation, without being directed in any way at all, 11 people said that what they liked most about the conference was Sydney/Clairmont Inn. On the other hand, it would be heartening to think that the annual HERDSA conference is being increasingly seen as the conference not to be missed.

(ii) The other interesting aspect of attendance over the past few years is the shifting proportions of participants from the three sectors. Registration lists were analysed for 1981, '82, '83 and '84 and the following emerged:

	Uni.	CAE	TAFE	Other	Total
1981 N	38	38	2	33	111
%	34.2	34.2	1.8	29.7	100
1982 N	64	34	8	28	134
%	47.7	25.3	6	20.8	100
1983 N	62	30	13	31	136
%	45.5	22	9.5	22.7	100
1984 N	58	46	14	26	144
%	40	31.9	9.7	18	100

"Other" includes for every year 14 or 15 Thai lecturers, other overseas registrants excluding New Zealand, and persons from other affiliations like CTEC, AVCC, Public Service Board, etc. Students have been included in the sector figures — in 1984 there were a total of 4 representatives of student associations.

The variations over the past four years are interesting. Between 1981 and 1982 university participation increased and CAE participation decreased. In 1983 CAE participation was at its lowest during these four years, but during the same four year period TAFE participation rose from 1.8% to 9.7%; again, 1983 was the year in which the TAFE presence rose considerably. By 1984 the university participation rate had fallen again from the 1982 high, and CAE participation had risen dramatically from the 1983 low.

(iii) It is also very interesting to note that the numbers from Higher Education Units have risen slowly over the 4 years, but that they have dropped from being 35% of all participants in 1981 to a rather lower figure in the subsequent 3 years.

	N	% of total
1981	39	35
1982	41	30.5
1983	44	32.3
1984	45	30.8

So, in summary, during the past four years University participation rose from one-third to almost one-half of all participants then declined; CAE participation fell from one-third to less than one-quarter then started to climb again; TAFE participation increased from almost nothing to about 10%. During this time Education Unit participation hovered around one-third of all participants.

What might explain these fluctuations? I cannot account for the university and CAE figures although the composition of the conference committee, the thrust of the advertising, and the financial exigencies of individual institutions may have played some part. On the other hand, a deliberate decision to try to attract TAFE participants was made in 1983 and 1984, and TAFE special interest programs were commissioned in both years as part of the conference.

(B) The second issue is that of the role of Higher Education Unit people. Up to 1982 the conference proper was the professional forum for giving papers and con-

ducting workshops for such people. In the years before 1982 dissatisfaction had been frequently expressed about the extent to which Unit people dominated the conference program and indeed the conference itself. At the same time it was frequently reiterated that "practitioners" — i.e. teaching academics — needed to be encouraged to attend, to take part in the conference, and to be involved in the life of the Society through membership of the Executive, for instance.

These issues came to a head in 1982 and it was decided that in 1983 a day would be set aside after the conference for Unit people to meet and work together. This was done in 1983 and again in 1984. How has this affected the composition and format of the conference program?

	1981	1982	1983	1984
Papers & workshops				
Total	37	45	46	51
Number offered	N 16	18	18	15
by HEU people	% 43.2%	40%	39%	29%

Two things are clear from the above table: (a) that Unit participation in the conference program has dropped and (b) that total offerings of papers and workshops have increased. The latter point forms the third substantive issue.

(C) (i) This important issue concerns the conference format and the quality of contributed papers/workshops. A breakdown of the conference program shows the following:

	1981	1982	1983	1984
Papers	37	33	43	49
Workshops	{	11	3	2
Symposia/special interest sessions		1	6	1
*Guest speakers	4	2	4	2
Panels		1		2**

* excludes after dinner speaker

** 7 speakers in all

There are two changes observable over the past four years. The first one is the dramatic drop in the number of workshops offered between 1982 and 1983-84, while the second is the steady rise in the number of paper presentations.

In 1984 the call for contributions, like all previous such calls, invited offers of papers and workshops. The question of whether the Committee would commission papers or workshops was shelved until some idea could be gained of what was being offered. In the event only a very few workshops were offered while more papers than ever before were submitted. A dilemma then quickly became apparent: on the evidence of an abstract only, how are judgements of comparative quality to be made? The committee accepted all offers except one, and arranged them into a format of concurrent paper/workshop sessions, because this was also the procedure followed in 1983, both that conference and the 1984 conference look alike in the balance of papers to workshops — i.e. in the large number of papers compared with a number of workshops much smaller than in previous years.

What caused this dramatic swing in the balance over the past two years? One might speculate that the Unit people were saving their energies — and workshops — for their special session. In 1982 of the 11 workshops, 4 were given by practitioners, the rest being given by Unit people and/or other staff developers; but in 1983 2 of the 3 were Unit people, and in 1984 both workshops were given by Unit people. So practitioners were not coming forward with offers of workshops in these last 2 years. Perhaps one lesson is that if you want workshops in the

conference they must be actively sought out and commissioned as was done in 1982.

Why has there been an apparent steady upswing in the number of papers being offered over the past two years? One could hope that the HERDSA conference is increasingly becoming a popular and respectable venue for the sharing of ideas via the giving of papers. One might also guess that at least part of the reason is the increased need to present a paper in order to justify or be granted travel and conference expenses. This situation can only be expected to worsen in the future if competition for available funds increases.

(ii) This will exacerbate a perennial problem for conference committees, that of determining quality from the evidence of an abstract in order to reject, or accept and schedule appropriately. The 1984 committee decided that on the available evidence rejection was impossible unless the intended paper was clearly not related to aspects of tertiary education, both because we had already decided to choose a theme of sufficient generality and because it became impossible to gauge quality in advance. In a very real sense the control of quality rests squarely with members themselves who offer papers rather than with a conference committee.

In the event I thought that the quality of the papers contributed to the 1984 conference spanned a more extensive spectrum than at any previous conference. The end-of-conference evaluation by participants tended to reflect this opinion. Leaving aside guest speakers and panels, and organisation, then it was the case that there were 17 comments under "liked least" on the poor quality of the paper sessions but conversely 13 comments under "liked best" on the positive quality and interest of the paper sessions (there were 65 respondents).

I believe that for future conferences we need to agree on some quality control procedures. There are several options: (a) Papers can be commissioned in advance. If this is the only procedure for procuring papers then quality can be maintained but the committee is limited by its own knowledge of who is doing what in the field, and is open to the charge of patronage. (b) All offers of papers can be accepted on the evidence of abstracts, but alternative methods of presenting can be explored for those not chosen for platform presentation. In this respect the recent ANZAME conference's use of PEARLS allowed all offers to be accepted but to be given in informal ways. (PERSONALLY ARRANGED LEARNING SESSIONS; topics for presentation and/or discussion are offered on a board, takers put their name until numbers are full — but it needs a great deal of organisation in order to run smoothly.)

Some combination of (a) and (b) might be appropriate. However, a more radical alternative might be to require all papers to be submitted *in full* some time before the conference in order to allow them to be circulated to participants. This would have the very important function of allowing participants to read and evaluate in advance, so that "paper" sessions might more truly become discussion sessions, and so that people can attend or avoid sessions on an informed basis rather than on guesswork. If AARE can do it then there is no good reason why HERDSA cannot.

(D) This last alternative would help to resolve the final conference issue I wish to address, that of whether a publication should ensue from the proceedings of the conference. The arguments for doing so include the following: a publication is a permanent record of the conference proceedings; it allows participants to catch up on what was perforce missed during the conference; it makes the conference proceedings accessible to those not able to attend; it is an up to date record of new and exciting research and development; it allows ideas to be "tried out" without the formality and rigour required by

a refereed journal; it adds an item to an individual's CV; the work put into a conference by all concerned justifies having a permanent record; it is useful for getting ideas circulated beyond the conference membership.

The arguments against doing so include: unless rigorous editing and rejection is undertaken, a collection of HERDSA conference papers will have little internal coherence; the quality of what is offered will not be consistent; some conference papers are interesting in discussion, but boring in print; formality and rigour cannot be expected of conference papers as they can in journal articles; conferences are for discussion and the trying out of ideas — if successful, then a subsequent journal article is the proper written medium; the effort is not worthwhile in terms of readership.

I do not claim to know which is the superior argument; I do claim that in putting together such a publication from the 1984 conference I am struck by authors' problems in abiding by deadlines *after* the drama of the conference, by the huge variations in quality of the offerings, and by the present impossibility of being able to refuse publication to what had already been accepted as a conference paper.

I would be inclined to recommend that HERDSA try to collect and distribute papers in full before the conference. Such a collection of papers could not be produced in a

finished format, nor would it be proper to do so, as there would be no attempt to control the quality of content, style or mechanics, so it would not count as publication. People wanting to pursue such a goal with this material would be free to do so elsewhere following the conference. And yet... it is only fair to draw attention to the short but very favourable review of Ingrid Moses' volume from the 1983 conference which appeared recently in *Higher Education*.

I think this is a sufficiently important issue for it to be decided by the Society itself through the Executive. I think also that the Society should indicate what sort of a mix it wants in its conference between speakers and discussion groups, paper sessions and workshops, scheduled time and free time. Finally, it is interesting that the one most liked aspect which attracted more votes than any other in the post-conference evaluation was, as ever, the opportunity for informal networking. Whatever we decide to do, we should not lose sight of the need of conference participants for an experience which is exciting, challenging, and personally and professionally satisfying.

I would like to thank Mike Prosser for his help in compiling the numerical information used here.

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University of Sydney.

The Annual Conference: How might it be made more effective?

Lee Andresen has attended a number of HERDSA conferences and has been dissatisfied with what he has experienced. Here he puts forward some constructive ideas for future developments.

After the last HERDSA conference, deeply disgruntled about how unsatisfactorily the programme had met some of my personal needs, I felt a bit of catharsis might help and so turned my collected thoughts into the first version of this document. Helpful colleagues pointed out how naive were some of my ideas about how conferences can be organised, but I fear quite a few of those remain unexpurgated. They should, however, flag to the reader one important fact about the author: that, never once having served on a HERDSA conference planning committee, his views are the ramblings of a theoretician.

I wish to (i) offer one general criticism of the Annual Conference from a participant's viewpoint and (ii) analyse the allocation of time at the '84 conference. Then I shall (iii) argue for certain functions which should be served by the annual conference but which could not be well served by the 1984 format, and (iv) propose an approach to designing conference formats which might serve these functions better in the future.

(i) General criticism of the HERDSA '84 programme format

In spite of painstaking organisation, by outstandingly competent and devoted teams of volunteers, the programme format which has evolved in recent times appears to either ignore or actually obstruct the realisation of a number of what I think are important *participant needs*: HERDSA '84 was a good instance of this. Organisers have, I think, been handicapped by inheriting an inadequate vehicle — the programme format.

My main criticism is that the format relies too heavily on the model of science congresses such as ANZAAS,

functioning principally as a stage for presenters. I do not deny that this function is a necessary one at HERDSA. Colleagues have pointed out to me the growing importance of paper-giving in providing the key to a department's travel funds. Notwithstanding this, I think the model is a far too narrow one for us, tending towards outcomes which do not match the wide range of needs of HERDSA members. My argument is for *supplementation* (but not replacement) by certain programme elements more characteristic of the annual conferences of political bodies, social movements, professional associations and trade unions. What follows is an amplification of this point.

(ii) The '84 time allocation

By my calculation, 16.5 hours of programme time was available (+7.5 hours for educational developers), allocated thus:

	Hours of Programme Allocation
Papers (48 @ 0.5 hr + 1 @ 2.0 hr in parallel sessions)	9.0 #
Keynote speech (1)	1.5
Guest speaker (2 @ 1 hr)	2.0
Panels of speakers (2 @ 1.5 hr)	3.0
A.G.M. of the Society	1.0
[Symposium (1)	2.0] *
[Special interest group (1)	2.0] *
[Workshops (1 @ 1.5 hours + 1 @ 2.0 hr)	3.5] *

[Note: items within square brackets and marked * were in parallel with items marked # in the above list]

(iii) An analysis of needs, and some format implications

Presenter's needs

1. To demonstrate practical or intellectual skills, techniques, methods.
2. To report and disseminate limited, specific, research findings; to obtain feedback and make contacts.
3. To report or demonstrate ideas, theories or proposals related to research and development; obtain feedback, make contacts, generate new insights, stimulate commitment and decision-making.

Participants' needs

- To watch, listen, experience, evaluate, criticise, practise, learn.
- To listen, learn, clarify, criticise, offer feedback, make contacts.
- To listen, learn, clarify, criticise, discuss, debate, contribute new insights, analyse and synthesise ideas, appraise, evaluate, refine, and in some cases adopt and plan implementation of these.

Appropriate format

- Workshops as specialist skills sessions; duration variable.
- Specialist paper, poster, and "PEARLS" sessions; duration short (e.g. 0.5 hour) as at present; limited discussion time.
- Workshops as ideas-sessions or think-tanks; duration much longer than paper sessions, possibly generating position papers and proposals for new research, policy or action which could go forwards to a plenary or the Executive.

Comments

[1] is given tacit recognition in present conferences but appears not to be explicitly encouraged; time slots are inappropriately and confusingly set in parallel with sessions serving [2]. I would argue *against* the assumption that one is best meeting participants' varied needs by offering maximum *variety* of programming in each time slot; this disregards the variety of needs that may be felt *by each individual participant*. Inter-participant need variation may better be met by the use of posters and "PEARLS"-type sessions (below).

[2] predominates in present conferences but no distinction is made between papers which need presentation time and those which would be more appropriately disseminated as posters or dealt with through "PEARLS"-type sessions; no special time is presently allocated for these. In my estimate, the planning committee ought to assume the prerogative of *directing* presenters to use particular presentation formats appropriate to their content and intentions.

[3] is tacitly recognised by allowing panels and symposia. These are, however, inappropriately and confusingly set in parallel with research papers (the point about multiple intra-participant needs, already noted above); no distinction is made between research reports and papers better suited as contributions to a think-tank workshop (it appears that abstracts prove no help at all in such planning); time allocated is insufficient for proper discussion and for generating well-formulated outcomes. Opportunity for proposals for development or change is unrecognised at present and its absence is what most significantly limits the effectiveness of the conference as a vehicle for promoting change and development. Its absence may also contribute to feelings of alienation of some rank-and-file members, and their (probably misguided) belief that their Executive is a clique of primadonnas with a culture, mind, and interests of its own.

It can be observed that Function 3 is explicitly product- or outcome-directed; a characteristic significantly lacking in present conference formats which provide no opportunity for complex and significant issues to be debated in depth and at length, for generating any tangible or publishable products. (Having this as an aim may, of course, imply that participants should be well-briefed and prepared in advance of the conference.) Nor is there any conference mechanism by which participant-members of HERDSA may have any formal avenues for participating in general policy formulation to influence the direction the Society takes in the ensuing year.

(iv) An alternative approach to programme format decision-making

Session types

(1) Two guiding principles

I would propose two principles not apparently observed in present conference formats: (i) that sessions which serve qualitatively different functions should not, in general, be programmed in parallel (ii) that time allocated should be as much a function of audience needs as of presenter needs.

These principles, if implemented, would suggest the following sorts of guidelines for planners: (a) *adequate time* should be allocated to sessions whose audience participation functions require it and *minimal parallelism* in programming sessions whose subject matter is of greatest general interest, and (b) that *minimally sufficient presentation time* should be allocated to sessions which require least general discussion or debate and *maximal parallelism* in programming sessions where subject matter is of most specialist interest.

(2) A possible taxonomy of conference session types

Daily timetables could be composed of four distinct session types, defined as follows:

Type K

Key sessions would comprise one or two key speakers, possibly but not necessarily outsiders to the Society, their contributions invited or commissioned. Their function would be to provide a survey of a field, to present stimulating problems or challenges, to highlight issues requiring attention, etc. There would be time for limited discussion. Sample: One 60 minute or two 30 minute presentations followed by 30 minutes' discussion. These would typically be the first session on a particular day. Their main function would be to establish a framework or context for subsequent attention to current issues of concern.

Type P

Presentation sessions would comprise participants' papers, possibly presented as at present in 30-minute slots with the presentation taking 20 minutes and discussion the remainder. In a two-hour presentation session 3 papers should be the limit, and the final 30 minutes spent in chaired discussion of the more general issues arising from them and in making plans for the next session (see Type D sessions below). Only papers reporting research

or presenting theoretical contributions related to the key issues (defined by Type K sessions) would be permitted here. Research papers on specialist topics unrelated to the key issues would *not* be permitted in these sessions (see Type S sessions below). The forum or symposium would be a legitimate alternative format for this type and would encourage still wider rank-and-file participation. The main function would be to draw participants (particularly those who may have done recent relevant work in the area) into examination of the issues.

Type D

Discussion sessions would be devoted to intensive examination of key issues by means of some appropriate format such as (i) small groups/syndicates (ii) discussion panels (iii) formal debate, occupying at least 60 minutes. This would be followed, within the session, by a plenary preferably chaired by one of the key speakers (see above) lasting perhaps 30 minutes, at which the work of the session would be consolidated. In case the issue should require more time than has been allocated, there might be the option for those participants in a Type D session who wished, to volunteer to continue the work of the session (e.g. drafting a document) in parallel with the following Type S session. The main function is to work towards some sort of outcome: a new synthesis, a clearer analysis, a recommendation for action, proposals for change, etc.

Type S

Specialist workshop/poster or PEARLS-type sessions are those where skills-type workshops might be held in parallel with poster or short paper-presentation sessions for the presentation of specialist research or knowledge, without seriously limiting participants' access to a range of other things of similar particular interest to them. They would typically be held at the end of a day. If two or more such sessions were held, the same posters would be displayed in each and this would further increase participant access. Matters raised by these presentations would be of the sort that do not typically require extended group discussion. Their function is to maximise dissemination of new work and ideas in all sorts of fields (regardless of relevance to Key Issues) and to facilitate contact between presenters and interested, specialised audiences.

(3) Themes

Instead of attempting to choose one all-embracing or global theme for a conference, several themes could be chosen and a series of K-P-D type sessions devoted to each (or, if a single broad theme is available, the same could be done for two or more sub-themes within it). The needs of special interest groups could be addressed by

devoting one sub-theme to the issues of interest to them. Multiple themes (or sub-themes) would of course be catered for by parallel session series, and participants would choose which series of sessions to attend. Type S sessions are, however, not theme-related; posters are, by their nature, presented in parallel and so also would skills-type or special-interest workshops which are offered during these sessions.

The obvious approach to choosing multiple- or sub-themes for any conference is to derive them from the presumed interests of the various groups of participants attending. In the '84 conference the following candidates for themes can be found among the paper topics:

- **Students** (mature age/school leaver; undergraduate/postgraduate; male/female; full-time/part-time; campus-based/distance; continuing).
- **Studies** (vocational, professional, liberal, technical).
- **Curriculum** (theory/practice).
- **Policy, planning and administration** (theory/practice).
- **Teaching** (theory/practice).
- **Learning** (theory/practice).
- **Academic staff** (careers, conditions, professional development).
- **Evaluation** (theory/practice).

Each of these could separately be considered in relation to any of the three main institutional types represented in HERDSA: Universities, CAEs and TAFE colleges. All represent persisting or enduring themes of tertiary education, which will almost inevitably be embedded within whatever particular current or topical theme we may choose for a particular year's conference. If a topical theme does not permit treatment along a good many of these dimensions, one would want to raise serious questions about its relevance to HERDSA.

On this set of premises one could build up a picture of what some possible daily conference timetables might look like, for conferences of various durations. I shall resist engaging in that exercise here. If one were to do that, however, it would then be of interest to ascertain whether that alternative type of format might better satisfy the needs and aspirations of, say, CAE and TAFE special-interest groups, educational developers, and university/CAE researchers and teachers.

In sum, my plea is for future conferences to be made freer from conformity to formats designed principally to meet paper-givers' needs and interests, and for a fuller range of intra- as well as inter-participant needs and interests to be reflected (i) in the programme content (over which organisers typically have only limited control) and, more importantly (ii) in the program design (over which their control is much greater).

Lee Andresen,
University of New South Wales.

Problem-Based Learning in Education for the Professions

Following the highly successful conference on this theme held at the University of New South Wales on 30 and 31 March this year, a publication is planned with the same title as the conference. The aim is to present some of the innovative work which is being conducted in this region on problem-based learning and to examine some of the issues involved in this approach.

Contributions are sought on any aspect of problem-based learning.

Further information can be obtained from the editor, Dave Boud (02) 697 4933.

ABSTRACTS

ABSTRACTS EDITOR CHANGES

After many years of diligent service, Bob Cannon has laid down the heavy burden of the "Abstracts" editorship. This burden has been taken up by, or dropped on (he's not sure which), Hugh Guthrie from the Royal Melbourne Institute of Technology. Hugh has persuaded his colleagues at RMIT to assist him in the task of monitoring various journals and hopes that it may be possible to extend the range of journals currently monitored.

The new "Abstracts" editor would be pleased to receive copy from any authors or editors wishing to have articles, books or other appropriate materials included in HERDSA 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.

Educational or other non-profit organisations may reproduce a limited number of these abstracts in their own publications provided that HERDSA receives suitable acknowledgment.

HERDSA is most grateful to its abstractors and the co-operation of the editors of a number of journals abstracted in this issue. The *Abstracts* are edited by Hugh Guthrie, Educational Research Officer, Curriculum Development Group, Education Unit, The Royal Melbourne Institute of Technology, P.O. Box 2476V, Melbourne, 3001, Victoria, Australia.

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

Hatchard, D.B. and Ross, D., **A Reaction to "Towards Administrative Philosophies"**. The Journal of Educational Administration, XIX, 2, 1981: 177-184.

The dichotomy between theory and practice in Education Administration is a perennial problem. Many authors, both practitioners and theoreticians, have attempted to bridge this gap. Dr W. Hannah, in his article "Towards Administrative Philosophies" published earlier in the same journal (Vol. XVIII, 1, 1980: 114-131), writes about the problem. This present paper constitutes the reaction of an administrator and a theoretician to Hannah's contribution. The authors found that while the article clearly reflects Hannah's sincere effort to help develop philosophies which lead to a more humane administrative style, his impact is weakened by his psychological naivety and his philosophically obfuscatory approach.

(Author abstract)

Hore, T., **Future Strategies for Research and Development**. Higher Education Research and Development, 3, 2, 1984: 177-186.

This paper considers the seven research processes identified by Anderson and Eaton in a recent review of Australasian higher education research from 1940 to 1982. Two further dimensions are added in order to discuss likely trends and emphases in higher education research and development in the next decade. The paper concludes with a discussion of the role of academic development units in the conduct of research.

(Journal abstract)

Passmore, J., **Academic ethics?** Journal of Applied Philosophy, 1, 1, 1984: 63-77.

It is sometimes suggested that academics should subscribe to a special professional ethic. The question then arises under what circumstances a professional ethic is called for. The answer suggested is that this is when the members of a profession have peculiar moral privileges. In the academic's case, these relate to special forms of freedom which academics usually possess, in distinction from other workers. These generate temptations which a professional ethics would particularly warn against. Particular areas of academic activity, the ethical problems of which are explored are: teaching; research; grading of students; selection of staff; reference for staff; outside activities.

(SRHE)

B SYSTEMS AND INSTITUTIONS

Eisemon, T.O., **Reconciling University Autonomy with Public Accountability: The State, The University Grants Committee and Higher Education in New Zealand**. Higher Education, 13, 1984: 583-594.

This article analyses the contemporary role of the University Grants Committee (UGC) vis-a-vis New Zealand's universities and the Department of Education. Emphasis is given to the historical and political factors which resulted in devolution of the University of New Zealand in the early 1960s and brought the UGC into being. Established to guide the development of the university system in a period of budgetary expansion, the UGC assesses the financial needs of the universities and the national need for new academic programs. Recent financial exigency prompted the government to introduce restrictions on the financial autonomy of the universities. The UGC has lost some of its autonomy in consequence, but a fundamental change in its relationship to government or in its protective role with respect to the universities is considered unlikely.

(Journal abstract)

Genn, J.M., **Research into the Climates of Australian Schools, Colleges and Universities: Contributions and Potential of Need-Press Theory**. The Australian Journal of Education, 28, 3, 1984: 227-248.

In the 25 years since the explicit formulation of need-press theory by Pace and Stern (1958), much research has been conducted in Australia, using this theory and associated instrumentation and methodologies to study the origins, nature, and influence of the climates or press of educational environments. This review provides the first systematic description and evaluation of this Australian work, indicating its conceptual and methodological achievements, difficulties, and challenges. Climates studied in this research have largely been at what is sometimes termed the school level — that is, the climates are those of the whole school or college or university (or their major departmental kinds of sub-environments) as perceived by students. This review explains need-press theory, notes the primacy and pre-eminence of the theory as a vehicle and stimulus for environmental social psychological studies in education, and links the school-level need-press climate research to cognate, but hitherto rather separate, Australian research into classroom climate and organisational climate.

(Journal abstract)

Hill, S. and Johnston, R., **Postgraduate Education Towards the Year 2000 — A Changed Role for the Commonwealth Postgraduate Awards Scheme (1)**. Higher Education Research and Development, 3, 2, 1984: 121-135.

Ph.D. research training in Australia only came into existence after World War II. It grew slowly until the late 1950s when The Commonwealth Postgraduate Award (CPRA) Scheme was introduced to promote the development of research training. The scheme has had an extensive impact on research training, supporting over 700 new students a year by 1982. However, no serious evaluation has been made of the Scheme and whether in the changed circumstances of the 1980s it needs to be revised. The present article reports some of the key results of the evaluation that the Commonwealth Department of Education commissioned. This study has shown that the CPRA scheme achieved its original objectives: to develop postgraduate research schools; to maintain a flow of highly trained personnel to the workforce; and to promote the full intellectual development of the most talented students. But it is now operating in a new context where the conditions of expansion of the 1960s no longer exist and stronger pressures for relevance are being exerted on university research. In short, education policy and research policy have come into conflict, the result of which is new pressures on research education in general and the CPRA scheme in particular. Solutions to this conflict are proposed, involving no radical alterations of the scheme, but the trial introduction of a pluralist approach to postgraduate support which leaves the present scheme intact but meets the new demands the changing context is placing on postgraduate education.

(Journal abstract)

O'Brien, P.W., Slater, B.P. and Stefanovic, G., **TAFE Stakeholder Participation in Institutional Goal Review: Some Research Findings**. Journal of Tertiary Educational Administration, 6, 2, 1984: 143-153.

This paper reports three aspects of a study involving institutional stakeholders (that is, those members of the community who come into closest contact with an institution and who thus can anticipate the societal outputs expected of that institution) in a review of goals for a South Australian TAFE College.

The paper reports a factor analysis of concepts underlying attitudes to a list of 29 goal statements prepared by the researchers for the college, the analysis covering both attitudes to the goals the college is seen as pursuing and those which it ought to pursue. An endogenous panel of stakeholders, comprising staff and students of the college, was used in this aspect of the study.

The second aspect reported used both exogenous and endogenous panels — with output from the exogenous panel being used as input for the endogenous panel. Participants were asked to evaluate, on a three-point scale, each of the 29 goal statements used in this study on each of three parameters: Student Desirability, Institutional Feasibility, and Timing of Priority. The output from the second, endogenous, panel is reported here.

The third aspect reports the data derived from using an endogenous panel to rank the three goals they perceived as being most important for the college to pursue.

The data provide interesting insights into the perceptions of differing groups of stakeholders on the goals of this particular TAFE college.

(Journal abstract)

C TEACHING AND LEARNING

Jones, W.G., **The Case Study as an Integrating Mechanism in Management Education**. British Journal of Educational Technology, 14, 1, 1983: 14-18.

Management schools, like all organisations, are faced with the need to integrate their differentiated activities to achieve organisational goals. To do this, they must devise appropriate integrating mechanisms to ensure that the efforts of their

sub-units result in the pursuit and attainment of objectives.

The paper reports a business school's efforts to integrate its primary activity — teaching an undergraduate business degree — through the use of a complex case study.

(Journal abstract)

Marosszeky, M., **General Education within Professional Education**. Higher Education Research and Development, 3, 2, 1984: 187-196.

The debate regarding the general education component of professional education is as unresolved as ever. This paper proposes a basis for the analysis of this question. First of all an evaluation of the needs of society, industry and the profession is undertaken and a hierarchy of needs is proposed. Against this background the basic issues which the general component of professional education should address are defined. It is argued that a sound general education is an essential ingredient in all professional courses.

(Journal abstract)

Prosser, M.T., **Towards More Effective Evaluation Studies of Educational Media**. British Journal of Educational Technology, 15, 1, 1984: 33-42.

The problem of the usefulness of educational evaluation activities is one which has been of concern for some time. Recently, evaluations of educational media have been criticised in particular. This paper identifies several alternative models for the design of evaluation studies and describes a study based upon aspects of these alternative models. Some issues and problems arising from the review are discussed, and the paper concludes by referring again to the issue of the usefulness of educational media evaluations.

(Journal abstract)

Samuel, A.E., **Educational Objectives in Engineering Design Courses**. Instructional Science, 13, 1984: 243-273.

The article addresses the general educational concepts of engineering design together with the contrast of current instruction techniques in tertiary institutions. Work at Melbourne is reviewed in this context with particular reference to matching educational objectives to current educational theory. A case study in engineering design is evaluated against this frame of reference and some educational hypotheses are proposed. It is concluded that testing of the proposed hypotheses will require considerable research effort by design educators.

(Journal abstract)

Stranks, D.R., **Ph.D. Education for the Nineties**. Higher Education Research and Development, 3, 2, 1984: 167-175.

The Ph.D. degree in Australia, established some three and a half decades ago, has become recognised internationally as of high professional standing. However, attitudinal deficiencies in individual graduates, first recognised in the Fensham Report, still need to be addressed. Serious consideration needs to be given to the introduction of relevant course-work within the degree programme to broaden the intellectual base and offset premature specialisation. A corresponding reduction in the extent, but not the quality, of the thesis should be envisaged. Advantages are seen in interspersing employment between Honours degrees and Ph.D. commencement and greater emphasis should be given to counselling of candidates embarking on a Ph.D. programme. The quality and character of Ph.D. programmes is influenced by the sole-supervisor model, constraints on university research funding and the career expectations of candidates. The emergence of joint university-industry companies offers new opportunities for entrepreneurial and creative Ph.D. graduates in small firms rather than, as earlier, in large corporations.

New initiatives are proposed to build on the successful base of existing programmes to alter the balance in favour of greater intellectual development and awareness of Ph.D. graduates.

(Journal abstract)

Woods, J.D., **Lecturing: linking purpose and organisation.** *Improving College and University Teaching*, 31, 2, 1983: 61-64.

Using Bligh's threefold classification (the classical for transmitting information, problem-centred for creating interest, and sequential for promoting understanding) the author argues with the aid of illustrations that many lectures fail because the method used does not equate with the purpose to be achieved.

(SRHE)

D INFORMATION NETWORKS

E STUDENTS: GENERAL

Carpenter, P.G. and Western, J.S., **Transition to Higher Education.** *The Australian Journal of Education*, 28, 3, 1984: 249-273.

Within a context of declining participation of Year 12 students in higher education, the processes whereby young people make the transition from high school to university or college of advanced education was examined. A social psychological model of academic attainment which linked social origins to school experiences, perceptions of others' support, academic self-assessment, and aspirations and school results in Year 12 guided the analysis. Access to higher education was conditioned by class, sex, and geographical location, the effects of which were mediated by type of school attended, perceived encouragement from parents, teachers, and peers, views of own ability, career aspirations and orientations, and ultimately academic achievement. The process was different for boys and girls. While a father in a high-prestige job was a good predictor for boys, among girls those with fathers in low-prestige jobs were more likely to be tertiary entrants. Additionally, high academic self-assessment was a good predictor among female students, while school results in Year 12 formed a more important predictor among males.

(Journal abstract)

Dodds, A.E., Lawrence, J.A. and de C. Guiton, P., **University Students' Perceptions of Influences on External Studies.** *Distance Education*, 5, 2, 1984: 174-185.

Fifty-three external university students and a comparison group of 51 on-campus social and political theory students responded to a written questionnaire on their perceptions of the factors influencing their external studies. Responses were obtained to objective questions and by writing open-ended advice to two hypothetical prospective external students.

In both sets of responses students identified family, job and life circumstances as major influences on external university study. Advantages of external study were self-reliance and finances, and disadvantages were related to access to the library and academics' demands. Students expressed preference for studying on-campus or by the combination of campus and external courses which was available at the university. The study provides base-line data about students' perceptions of contextual frames or constraints on external study.

(Journal abstract)

Hatchard, D.B. and Toy, P., **Incoming Students and the Academic Library.** *Australian Academic and Research Libraries*, 15, 1, 1984: 23-28.

Research has shown that academic libraries are used by a minority of tertiary students. One reason put forward for this is the psychological barrier which exists between tertiary students and library staff. A further hypothesis put forward by the present researchers is that this may be due to inadequate antecedent knowledge about libraries and their resources held by students beginning tertiary studies. To this end, a survey of a sample of the student cohort entering the Bendigo College of Advanced Education in 1983 was conducted. The researchers

concluded that students approach their new academic library with vague, uncertain and often false knowledge about the nature and function of that library.

(Journal abstract)

Marland, P., Patching, W., Putt, I. and Store, R., **Learning from Distance-Teaching materials: A Study of Students' Mediating Responses.** *Distance Education*, 5, 2, 1984: 215-236.

It has been suggested that improvements in the quality of distance-teaching materials could be effected if the mental responses that mediate study of and learning from such materials were known. This project aimed at identifying the types and origins of students' covert mediating responses to distance-teaching materials during study sessions. Three one-half hour study sessions were videotaped for each of four student volunteers in a room set up on the campus. Immediately following each study session stimulated-recall interviews were conducted, the data from these being audiotaped and then transcribed for further analysis. Interview protocols revealed that approaches to study were influenced by a set of interdependent factors, which, when combined with a set of study strategies, resulted in two broad classes of study orientation. Twenty different types of mental processes were identified, seven of which were used more frequently than the others. Furthermore, textual features which activated mental processes were identified using the stimulated-recall technique, and promising suggestions for textual design were gleaned from the data. Areas for further research were also identified.

(Journal abstract)

F STUDENTS: SELECTION AND PERFORMANCE

Baumgart, N., **The student assessment project.** *Assessment and Evaluation in Higher Education*, 9, 1, 1984: 1-8.

The Student Assessment Project (SAP) is the development of a set of instructional materials on the topic of student assessment for the in-service education of teachers in Australia. The kit comprises seven tape-slide modules together with computer software (for an Apple II microcomputer), manuals and supplementary material. The topics covered are: test design, item writing, analysis of norm-referenced and criterion-referenced tests, combining scores from different components, moderation of test results, and grading and reporting. The article gives some details of the project and its development and describes the widespread use of the first twenty kits, from which evaluation data are being sought. Although SAP was originally focused on in-service education of secondary teachers, its applicability to higher education and its further potential for modification and use at this level are discussed.

(SRHE)

Marsh, H.W., **Experimental Manipulations of University Student Motivation and their Effects on Examination Performance.** *British Journal of Educational Psychology*, 54, 1984: 206-213.

Students (N=416) viewed a videotaped lecture and then completed an objective examination based upon the lecture. The lecture was experimentally manipulated to vary in content coverage (the number of test questions covered) and the expressiveness with which it was delivered. Different groups of students received no external incentive to do well, were told before the lecture that they would receive money for each correctly answered question (incentive-to-earn-and-perform), or were told of the added incentive after the lecture but before the examination (incentive-to-perform). Better student performance was associated with added student incentive, better content coverage, and more lecturer expressiveness. However, the level of incentive interacted with both content coverage and expressiveness. Lecturer expressiveness had a large effect ($\eta^2=9.4$ per cent) when there was no added incentive, but no significant effect when an external incentive was added. Content coverage had a small effect ($\eta^2=5.2$ per cent) with no added incentive,

a larger effect ($\eta^2=13.0$ per cent) for the incentive-to-perform condition, and the largest effect ($\eta^2=26.5$ per cent) for the incentive-to-learn-and-perform conditions. These findings suggest that lecturer expressiveness has a substantial impact when extrinsic motivation is low, and that added incentives have separate effects on motivation to learn and motivation to perform.

(Journal abstract)

Nicholls, M.G., **The Demand for Tertiary Education — An Australian Study.** *Higher Education*, 13, 1984: 369-377.

In this article the demand for tertiary education by successful Higher School Certificate Candidates in Victoria is modelled along the lines of Handa and Skolnik (1975). This particular component of the overall demand is studied because of the particularly plentiful and accurate information available. The estimated effect of youth unemployment on demand raises a number of interesting hypotheses related to the traditional human capital variables of opportunity cost of education and expected future returns. These hypotheses are evaluated using the developed demand model.

(Journal abstract)

Nightingale, P., **Examination of Research Theses.** *Higher Education Research and Development*, 3, 2, 1984: 137-150.

The examination of postgraduate research theses is of vital importance to academic institutions as well as to students. This paper reviews examination procedures at one university, summarising examiners' comments on 58 theses. A number of questions regarding examiner anonymity, alternatives to the traditional doctoral dissertation, and most importantly, the criteria for the award of degrees are raised. Although great care is taken in choosing examiners, the criteria they are expected to employ are inadequate. Rates of progress of research students in different degree programs suggest that some students may well lack adequate information about the extent of their task as postgraduates.

(Journal abstract)

G STUDENTS: CAREERS AND EMPLOYMENT

H STAFF

Emery, J.K. and O'Brien, P.W., **TAFE College Staff's Participation in Decision-Making.** *Journal of Tertiary Educational Administration*, 6, 2, 1984: 155-165.

In order to investigate selected aspects of decision-making in three schools of a South Australian TAFE College, data about modes of decision-making and extent of involvement in decision-making and the association of these with biographic variables were obtained from a questionnaire completed by 72 lecturing staff.

The hypotheses tested were:

- Teachers will desire modes of decision-making which permit them to be involved in decision-making to an extent greater than they currently perceive themselves to be; and
- Teachers will desire to be involved in decision-making to an extent greater than they currently perceive themselves to be.

These hypotheses were supported by the data. Ninety-four per cent of respondents were found to be in some state of decisional deprivation. Some decisional areas were associated with higher decisional deprivation than others. Whilst different modes of decision-making were desired for different decisions, the Democratic Centralist mode was most frequently desired for a majority of decisions.

The biographic variable having most association with responses was that of classification, with staff of higher classification

being more involved in decision-making and less deprived than those of lower classification.

(Journal abstract)

Lonsdale, A.J. and Bardsley, W.N., **Heads of Academic Departments: Responsibilities and Professional Development Needs.** *Journal of Tertiary Educational Administration*, 6, 2, 1984: 117-128.

The head of an academic department in a college of advanced education is responsible for a variety of activities that together contribute to the institution's educational effectiveness and quality. The ongoing professional development of heads is one of the surest ways a college can improve its academic standing. With this in mind, this paper seeks answers to a number of questions — What are the most important tasks and responsibilities of heads? What aspects of their role do they perceive most need professional development? What form should it take? How should it be done? By whom?

An analysis of the responses to a survey of 679 heads in 61 colleges of advanced education in Australia revealed some surprising results. One was the concern of heads for feedback on their own performance. The results of this survey are compared with the findings of some North American studies. Three alternative strategies for meeting the professional development needs of heads are suggested and evaluated in terms of quality, specificity and cost.

(Journal abstract)

Martin, M., **Plagiarism and Responsibility.** *Journal of Tertiary Educational Administration*, 6, 2, 1984: 183-190.

Plagiarism is more prevalent in academia than normally acknowledged. Because it is a "taboo" topic, administrations are ill-equipped to investigate allegations of plagiarism. Two Australian examples are used to illustrate the need for more openness about and better procedures for dealing with this academic problem.

(Journal abstract)

Moses, I., **Supervision of Higher Degree Students — Problem Areas and Possible Solutions.** *Higher Education Research and Development*, 3, 2, 1984: 153-165.

Supervision of postgraduate students remains an area of concern to university administration, to supervisors, to student unions and the individual research student. Many studies have examined student dissatisfaction with supervision. However, there is also considerable uneasiness among academic staff about the extent of their supervisory role and functions. In a series of workshops in several tertiary institutions, problem areas were discussed with supervisors, both experienced and inexperienced; and practices and strategies were explored which facilitate effective supervision. Those provisions for and approaches to supervision which supervisors have found to be effective are presented and discussed as they apply at the institutional, departmental or individual level.

(Journal abstract)

Over, R. and Lancaster, S., **The Early Career Patterns of Men and Women in Australian Universities.** *The Australian Journal of Education*, 28, 3, 1984: 309-318.

The career development of men and women who took up lectureships in Australian universities within four disciplinary groupings (behavioural sciences, education, humanities, social sciences) in 1962-64 or in 1975-76 was studied. Attrition and mobility rates were similar for the two sexes. However, proportionately more men than women gained early promotion. For the 1962-64 cohort, 68 per cent of men but only 30 per cent of women were senior lecturers within seven years of initial appointment. For the 1975-76 cohort, the comparable values were 48 per cent and 30 per cent. Multivariate analysis showed that the likelihood of promotion varied with sex even when allowance was made for research output and for level and place of qualification. However, even though sex differences in career

development exist, it is difficult to identify the specific processes through which women have been disadvantaged.

(Journal abstract)

Sloper, D.W., **Management Development for Academics: Reflections on a Trigger Film Evaluation by Administrators.** *Journal of Tertiary Educational Administration*, 6, 2, 1984: 129-141.

This paper examines the involvement of academic staff in the management and administration of Australian higher education institutions, particularly universities.

An early focus is on the maelstrom of change from 1960 until the mid 1970s when change was generally equated with expansion and growth often without integrative forward planning. Three positive outcomes of this period of change are identified: an expansion of the passive concept of administration to include management and entrepreneurship as legitimate activities in the operation of universities and colleges; a greater involvement by academics in institutional management because, among other reasons, of the availability of enlarged data bases and heightened competition for diminishing resources; and the increasingly definitive forms of professionalisation among career administrators.

The deficient preparation of academics for management roles in Australian universities and colleges is contrasted with evidence of increased participation by administrators in management development activities including graduate programmes. Trigger films which are designed to provoke opportunities for learning in a peer group situation are presented as a particularly powerful remedy for this deficiency.

An evaluation of the TERC trigger film, "Decisions in Academic Departments", by a small group of professional administrators from eight countries is then analysed. Such trigger films provide a stimulating and easily used resource for the improvement of

management and administration in higher education.

(Journal abstract)

I CONTINUING EDUCATION

Mathews, M.R., **Continuing education and the modern accountant.** *New Zealand Journal of Adult Learning*, 15, 1983: 16-25.

The author argues that the possession of up-to-date and specialist knowledge is the main justification for the professional status of the accountant, and that adequate continuing education is essential for the retention of that status. A review of the continuing education requirements of selected accountancy bodies in New Zealand, Australia, the United Kingdom and the United States indicates that most schemes are voluntary and require no more than 40 hours of attendance a year. In New Zealand most accountants do not meet these requirements. A minimum compulsory commitment to continuing education is suggested, as well as a re-organisation and broadening of provision.

(SRHE)

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SRHE — Society for Research into Higher Education, Abstracts

THE HERDSA GREEN GUIDES

At the Annual Conference last year the Society launched its new series of publications: the Green Guides.

The Guides are specifically designed to be useful to normal, busy teaching staff in tertiary institutions. To this end they are short (around 30 pages), easy to read and concentrate on supplying ideas that can be readily implemented. The Guides are quite deliberately not written in a normal academic style and make no pretence to be comprehensive, closely argued or well documented. The emphasis is on usefulness and the very limited, but annotated, bibliographies have the same aim.

The first two publications in the Series are selling very well and are reported to be turning up in quite surprising, and widespread, places. They are "Reviewing Departments" (Green Guide No. 1) by McDonald and Roe and "Up the Publication Road" (a guide to starting publication in the

Social Sciences) — Green Guide No. 2 by Sadler.

The Publication Committee anticipates that by the Conference this year the Series will have expanded to include Guides on Lecturing, Taking Tutorials and Supervising Postgraduate Students. We have had a number of suggestions for other topics, some of which we hope will follow over the next year or so but the Committee is anxious to obtain further ideas for titles and/or offers to produce Guides.

Suggestions for further Guides or offers to prepare (or help prepare) Guides should be sent to the HERDSA Publications Committee (C/- Bob Ross, C.A.L.T., Griffith University, Nathan, Qld 4111) and enquiries about the existing Guides should be addressed to HERDSA, C/- T.E.R.C., University of New South Wales, P.O. Box 1, Kensington, N.S.W. 2033.

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