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LEARNING SKILLS AND PERFORMANCE*

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Meaning Structures and Performance

One of the difficulties of addressing the question of learning skills is that there are many different types of performance towards which students direct their efforts. Some examples illustrate the point.

Gunstone and White (1980) asked physics undergraduates a number of questions concerning an apparatus in which two masses hung from either side of a bicycle wheel which acted as a pulley. In this case many of the students' answers revealed fundamental misconceptions about the nature of gravity and mechanical principles. Galbraith (1982) has recently shown that mathematics graduates have the same kinds of misconceptions in their subject.

In a different type of study (Evans, 1982), I asked grade 11 students the following question:

"The quantity "r" is related to "A" and "b" by the following formula:

$$r = \frac{A}{b^2}$$

For a particular value of A and a particular value of b, the value of r is 10. What would be the value of r if A were doubled and b kept the same?"

These students tackled this task in a variety of ways. Apart from the correct answer 20, many produced the answer "5", usually through attempts to apply routine substitution and manipulation procedures which they had learned in class. One alarming aspect of this study was that at least one or two graduates who had recently completed mathematics courses experienced the same difficulty.

Biggs and Collis (1982) present a system for analysing the quality of performance according to the conceptual complexity of the response. One task they used consists in presenting a poem and asking the open ended question: "What does this poem mean to you?" Not only secondary students but undergraduate literature students typically exhibited a wide range of responses which could be

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classified according to whether they understood one (unistructural) or several (multistructural) features, and among the latter, whether the features were related by themes present in the poem itself (relational) or by universals and abstractions (extended abstract) not necessarily inherent in the text.

Most performance tasks set at tertiary level require some level of transformation of material which the student may have learnt or some indication of the understanding of important concepts and theories. At the same time, however, most tasks also entail the need for the recall of information and basic procedures. Indeed Chi, Feltovitch and Glaser (1981) and others have shown that many problem solving skills, rather than being general purpose procedures which can be applied across a variety of different subjects, are highly specific to particular content.

These examples help set a number of interrelated tasks in the discussion of learning skills and performance. These can be divided broadly into (1) mapping the cognitive processes by which people come to perform as they do in particular tasks and (2) establishing the relationships between task, learner, and teaching characteristics. What has to be explained are the different types of performance which students exhibit at various levels of competence. They include:

- Recall of statements without appeal to an underlying meaning structure.
- Routine application of procedures without appeal to an underlying meaning structure.
- Making verbal statements based on an underlying meaning structure.
- Interpreting a meaning structure into an action (e.g. drawing an inference, or performing a motor action).
- Performing a procedure, based originally on a meaning structure, more or less automatically.
- Solving a problem,making use of a meaning structure, automatic procedures, and general heuristics.

These various performance levels are meant to be notional, rather than operational, although each could be exemplified by specific behaviours. For example, in response to the question on $r = A/b^2$ above, many students produced something like the following:

$$r = \frac{A}{b^2} = 10$$

$$r = \frac{2A}{b^2}$$

$$10 = \frac{2A}{b^2} = 2\,\frac{A}{b^2} = 2r$$

$$r = 5$$

These students have failed to distinguish between "old value of r" and "new value of r". There are two possible reasons for this. First, the problem may present too many elements for the student to cope with at one time, so that the distinction is simply overlooked. The fact that performance on this item correlates moderately with performance on a digit span test, a measure of information processing capacity, suggests that this is at least part of the reason. Second, many students may have simply applied well practised manipulative procedures in an unthinking way. Follow up interviews with the students suggests that this too is part of the reason. In either case, the student is making a routine performance without proper appeal to the meaning of what he has written.

The term "meaning structure" is used in preference to terms such as "understanding" to denote the hypothetical structure of experiences, concepts, and relationships between them, on which behaviour is presumed to be based. For example, the part of a person's meaning structure activated by the above mathematical problem might include some representation of the following:

Concept of a variable

Concept of symbols

Variables are commonly represented by symbols

Concepts of "equals", "divide", etc. and symbols for them

Prototype mathematical transformations such as

$$x = rs \qquad s = \frac{x}{r}$$

"Strategic" concepts such as "elimination", "substitution"

Experiences with these strategies.

A Proposed Learning Sequence

Presumably most intellectual behaviour relates to some "meaning structure" as defined above, but certain pathologies appear to interfere with the relationship between behaviour and meaning; perhaps because the task demands are too great, perhaps because of habits created during teaching and learning, or perhaps because of defects and inconsistencies in the meaning structure itself. In order to clarify each of these, it is useful to represent some of the performance types suggested as a learning sequence. This sequence is suggested by the work of Anderson (1981) who has argued for a distinction between "declarative" and "procedural" knowledge. For Anderson, declarative knowledge consists in a set of interrelated propositions, while procedural knowledge is concerned both with the transformation of the propositions and with applying them to new tasks. In the discussion above, "meaning structure" most closely corresponds with "declarative knowledge" and the various performance tasks with "procedural

knowledge", although there is an important difference in the way in which verbalization is treated.

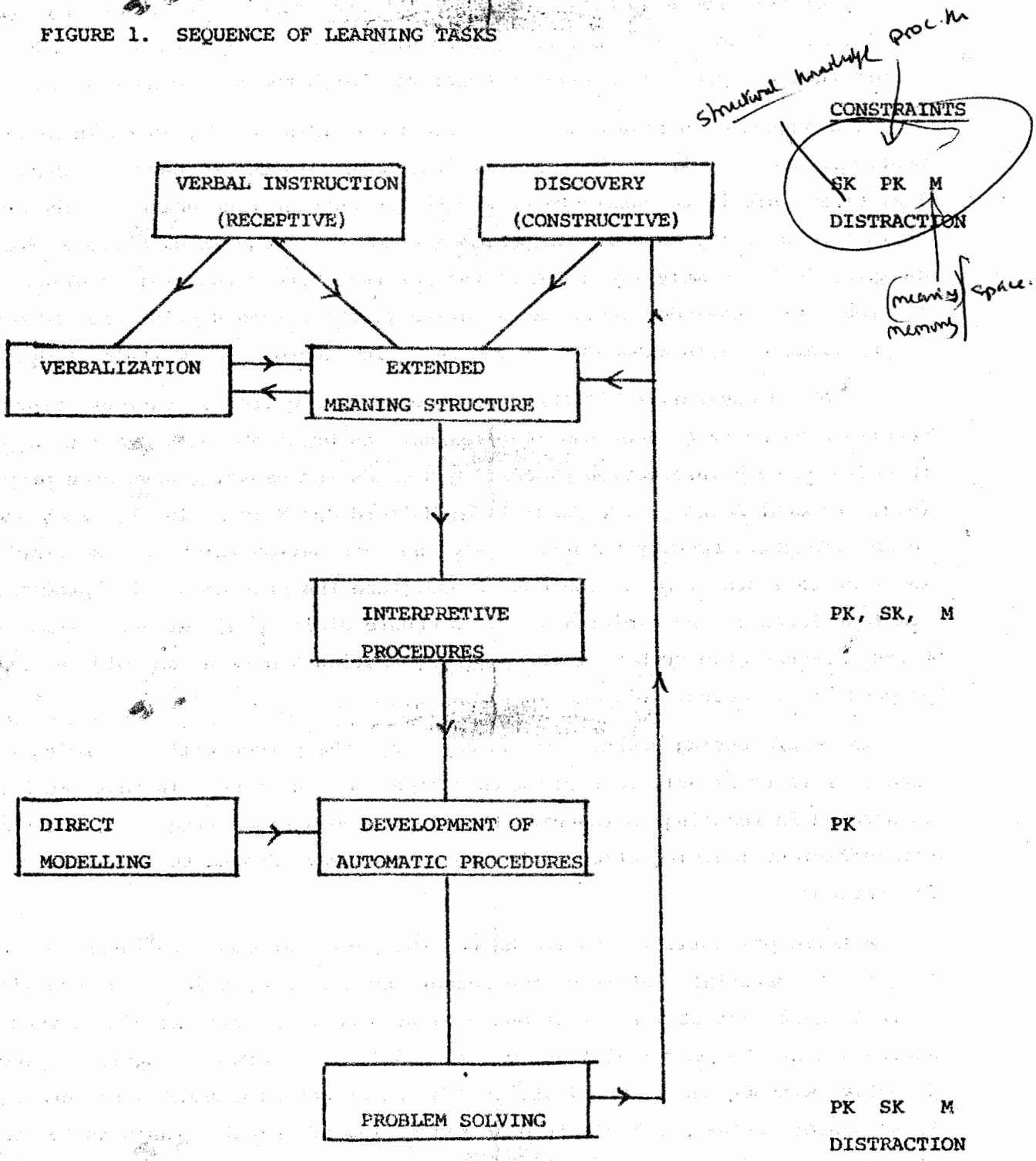
For Anderson, the basic problem is how one moves from declarative knowledge to procedural knowledge. He uses his findings to argue that first it is necessary to interpret propositions by means of general purpose procedures which can act on a wide range of propositions. The difficulty with this phase of learning is that action which makes use of the new procedures is extremely slow and halting. However, with practice, there come more direct, content specific, procedures which are linked to the original propositions, and finally, elements of the procedures become linked directly, bypassing the original propositions. This "automaticity" now liberates the person, who, because he/she needs to devote very little attention to the performance of the procedures can use them as an instrument of problem solving or further learning. The progression of learning of skills as far apart as driving a car, playing chess, solving quadratic equations, or writing a critical essay, tend to support this type of explanation.

Figure 1 incorporates the sequence suggested by Anderson with the exception that "declarative knowledge" is replaced by "extended meaning structure" which in the view presented here is more appropriate. One's structural knowledge may be increased by verbal instruction, by discovery for oneself, or by some combination of the two. One particular type of combination is the class demonstration, which allows for hypothesis formation and testing in a meaningful "reality-based" way. Another is the group discussion, which allows a continuous interaction between verbal statements from others, hypothesis formation and testing, and verbalization of one's own emerging ideas. Verbal instruction itself, should, as argued by Ausubel (1968), entail continuous active processing by the learner. Active verbalization of developing ideas may help learners clarify and stablilize their own developing meaning structures, although, apart from simple concept labelling studies (e.g. Bahrick and Boucher, 1968), direct evidence does not seem to be available.

Once new meanings have been established, they themselves can be the objects of particular procedures. One of these is the process of verbalization, that is, the process of encoding one's knowledge as a set of propositions. One of the well known advantages of this process is that it objectifies the structure to a form that more readily allows critical evaluation. If the verbalization is actually communicated, there is the added possible advantage of feedback and further impetus to clarification. It is because verbalization seems to be a

distinct operation on the meaning structure that Anderson's term "declarative knowledge", which entails both, is not used here.

FIGURE 1. SEQUENCE OF LEARNING TASKS



A second type of procedure is that of putting concepts and relationships into action. For example, Anderson (1982) makes the point that, in high school geometry, models of proofs, as commonly given in texts, do not contain explicit information on the process of proving. Yet he demonsrates that novices can in fact learn the process from the model, and is able to account for this learning theoretically by assuming general purpose problem solving techniques. This interpretation step between extension of the meaning structure and the development of specific procedures, according to Anderson's theory, tends to ensure that new procedures will be consistent with the system as a whole.

The sequence in Figure 1 can be used to explain the deviances in behaviour mentioned above. First, there are several points in the sequence at which the learner may simply be unable to cope with the current task demands. The most obvious possibility is that the person's prior knowledge is defective. For example, he/she simply may not have the pre-requisite structural knowledge (SK) or procedural knowledge (PK). Alternatively, the person's prior knowledge may be in error, as with knowledge of mechanics in Gunstone and White's study.

A second possibility is that the processing required at various points may require a capacity greater than the learner can bring to bear. Various approaches to defining such information processing demands and capacity have been proposed (e.g. Pascual-Leone, 1970; Case, 1978; Halford and Wilson, 1980). Each amounts to an attempt to specify quantitatively the information which must be processed in order to learn from the concept or undertake the problem solving process. The simplest index of the capacity is the backward digit span, which, in simplified terms, measures the number of items of information a person can hold in mind and process simultaneously.

Where processing demand exceeds capacity, the person will, according to the theory, fail to be able to perform that aspect of the task. In fact, much effort is devoted in teaching to reducing the simultaneous processing load, and students with efficient learning strategies tend to find ways around these capacity limitations.

A third possibility lies in the way the person attempts to learn, or is taught, the material. At least two dangers exist: one, that the person will learn to make correct verbalizations without a corresponding meaning structure; another, that the person will attempt to model, or to mimic, cognitive procedures directly, without the intermediate step of interpreting meaning structures. These dangers arise particularly when the pacing of learning tasks is too rapid for the person to keep up. Learning new concepts and relationships and learning by doing, that is by gradually interpreting structural knowledge into procedures are both slow processes.

However developed, the effects of non-meaningful verbalization and insecurely based procedures can be harmful. The former provides an inadequate basis for further learning and problem solving, and the problem compounds itself, resulting in excessive and unrealistic study time demands often without very much success. The latter leads to routinized but inflexible operations. When confronted with a situation with even a small degree of novelty, the person is unable to accommodate to or even to recognize the task.

One other difficulty which can be encountered in the sequence of learning tasks in Figure 1 concerns the possibility of distraction. Two conditions can be distinguished. In the first, distraction occurs because the learner focuses on salient but non-essential aspects of the task or stimulus. For example, irrelevant items in a historical account may divert attention from the main argument, extra but non-critical data in a problem in physics may prevent the person from seeing the essential relationships. There seems to be a reliably measurable tendency, field dependence, for people to succumb more or less to this type of distraction. (See Witkin, Goodenough, and Olton, 1979).

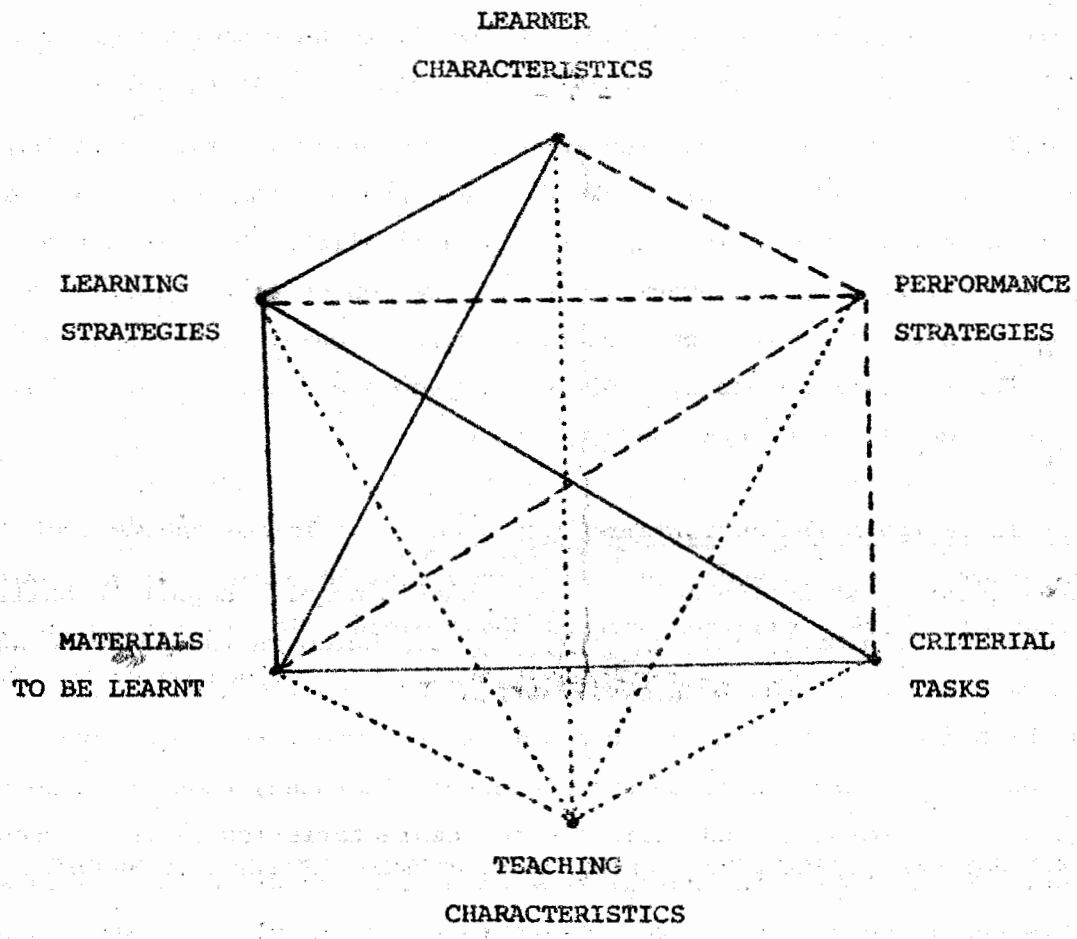
A different type of distraction results from prior learning which has produced a set to tackle certain tasks or see certain situations in a fixed way. This effect is generally adaptive, since it allows the person the economy of a set response. However, such set responses often generalize to situations of similar surface characteristics in which different approaches would be preferable or necessary. Different people exhibit different levels of rigidity under these circumstances.

Variables in Learning and Performance

The sequence just outlined, by which students acquire cognitive skills, is likely to be much more complex and varied, depending on the learning and performance context and the learner. There are at least six sets of factors which might contribute to such variation. The first three are the strategies the person uses in the process of learning, those that he uses in the process of performing, and various other characteristics of the person as a learner. The next two, the actual knowledge to be acquired and the tasks by which this knowledge will be tested, refer to the difficulty and other qualities of the task. Finally, each of these five sets of variables is related to or interacts with the ways in which the material to be learned is presented, or the methods of instruction. These six sets of variables are shown schematically in Figure 2. The focus of this paper is on learning and performance strategies, but these two cannot easily be isolated from the other four. Student failure is

not just a function of learning characteristics and strategies; it depends largely on the nature of instruction and the kinds of tasks. There are many instances, for example, where students have converted failure to success through a change in courses.

FIGURE 2. RELATED ASPECTS OF LEARNING, PERFORMANCE, AND TEACHING



In order to understand better the learning sequence in Figure 1, it is necessary to consider the variables in Figure 2. However, as Brown, Campione, and Day (1981) point out in referring to some of these variables, if students are to learn how to learn, they too must come to have some of the same insights as the psychologist into characterizations of learning situations. One of the important characteristics of the learner is thus his/her meta-cognitions about the learning processes that he/she is using and the variables in the learning situation. Some of the variables which might be taken into account or brought under learner control can now be outlined. The discussion of these variables comprises the remainder of the paper.

Learner characteristics. These include such variables as relevant background structural and procedural knowledge, areas of misconception and misinformation, information processing capacity, and communication abilities. Learner characteristics also include levels of interest and motivation, value positions, particularly the extent to which the student values what he/she is studying, and such self concept variables as level of aspiration, fear of failure, need for success, and the extent to which the learner attributes success and failure to him/herself or to others. Finally, they include such metacognitions as knowledge of one's own characteristics and strategies, knowledge of learning processes, and knowledge of the kinds of performance required.

Metacognitions and the ability to modify one's own learning behaviour by using higher order procedures presumably obey the same kind of developmental laws as do other forms of knowledge. It is therefore unlikely that the mere presentation of verbal rules will have much effect on the learner's actual behaviour. Effectively changing meaning structures concerned with learning itself and promoting interpretation and proceduralization of such knowledge is likely to take considerable time and practice, and may well need to be built continually into the teaching process.

Criterial Tasks. In an important sense, these determine the strategies of learning and performance the learner chooses. Tasks which require verbatim recall need different learning strategies from those which seek recall of the main points and arguments, or which ask for the demonstration of procedures, such as proving, arguing, resolving ambiguities, comparing and contrasting, analysis, or problem solving.

Criterial tasks are frequently judged according to quality, and learners need to be as much judges of quality as those who assess their work. It has often proved difficult in particular subject domains to frame criteria of quality

adequately in terms which learners can appreciate. The approach to this task by Biggs and Collis (1982) uses a general scheme, based initially on developmental considerations but finally on structural aspects of students' responses in particular content areas. They refer to the "structure of observed learning outcomes" or SOLO levels. Ford (1981) has integrated the proposals of Biggs and Collis with other attempts at specifying quality to produce a scheme more suited to tertiary level students. The main strand in Ford's approach is the use (or otherwise) or an integrating theme at four levels. At the second highest level, the integrating theme, supported by facts and details, brings together otherwise discrete pieces of information to make coherent all or most of the information which the student is asked to consider. The highest level goes beyond this in that the learner reflects on the integrating theme itself - testing its validity, comparing with other models, presenting counter-arguments, and invoking general principles. The second level utilizes the integrating theme, but without the support of facts and details, while at the lowest level, pieces of information are mentioned, but remain discrete.

This progression of quality offers not only an alternative means of assessment but may well help students see more clearly the basis of assessment and the underlying criteria of performance. Such formulations are, however, only part of the specification of the learning task, since much of what is required will also be domain specific. (See for example Chi, et al, 1981, Biggs and Collis, 198

Other approaches to critical assessment of a person's knowledge use even more open ended procedures. For example, Novak (1980) uses the idea of a concept map, a diagramatic representation of the information in textual material by writin the main concepts on a page and drawing in labelled connecting lines to indicate relationships between them. Fensham (1981) and others have utilized this approach as a means of exploring the way in which science students at secondary level actually structure their knowledge of a particular topic.

It is important to emphasise again the potent influence which assessment style has on students' learning styles. (Elton and Laurillard, 1979; Ford, 1981). It is assessment which is most likely to determine whether, for example, students set up genuine meaning structures and skills or whether they attempt to mimic model performances.

Learning Strategies. One dichotomization of learning strategies (Entwistle, Hanley, and Ratcliffe, 1979) refers to "deep level processing" vs. "surface level processing," an extrapolation of the idea of depth of processing used in studies on memory (Craik and Lockhart, 1972; Craik, 1979). Applied to the reading of articles, deep processing refers to such intentions of the learner as trying to understand what the author was saying, integrating what was read with other parts of the article or prior knowledge, or drawing conclusions.

Surface level processing refers to the intention to obtain facts or information, only, or to memorize or learn by rote. Deep level processing tends to be top down relying on existing meaning structures to help interpret the material. Surface level processing tends to be bottom-up, depending on the emergence of meaning as more material is processed.

It is apparent that the operations described for deep processing tend to be those associated with gaining an extended meaning structure (Figure 1), through hierarchical organization, related categories, logical relationships, or temporal sequences, with interpretive procedures. Surface level processing corresponds with verbalization without initial meaning and with mimicking of procedures.

Other authors (e.g. Brown, Campione and Day, 1981) have also concentrated on how students learn to learn from texts. They report studies in such processes as summarizing, self monitoring of comprehension, and self-question techniques, such as generating hypotheses about the text, predicting outcomes, and noting and remediating confusions. The PQ4R method (Preview, question, read, reflect, write, review) is one well known standard technique of this kind. (See Thomas and Robinson, 1972).

Apart from general processing strategies, there is some evidence (e.g. Broadbent, 1975) that information is better retrieved if at the time of learning the student keeps in mind the kind of task he/she will later be required to perform. One possible strategy for tertiary students would be to try to process the material at learning time in the way in which it might be tested. This appears, in fact, to be a fairly typical strategy, but it runs the danger of inflexibility if the underlying meaning structure is not adquately developed. Unfortunately, there is some evidence in at least one study of a trade off between high levels of abstraction and factual recall (Biggs, 1979).

Learning strategies also need to take into account the learner's self knowledge. For example, seeking ways to overcome information processing limitations such as segmenting tasks or using notes and diagrams. At a different level, students need to come to grips with their own patterns of motivation and interest, attempting to create study periods free of distractions. Effective learning strategies must at least entail adequate engaged time, the time that the person actually spends in seriously attending to the task, which in turn is related to test task performance. One of the advantages of deeper processing may well be that it forces the student to spend more time on the learning task.

Performance Strategies. These differ from learning strategies in that they are concerned with the way in which the student maximizes the advantage of what he/she has learnt in the performance of critical tasks. For example, Biggs and Collis' (1982) SOLO levels and Ford's four levels of integration may be useful to the student in performances where high level abstractions are required, acting as guides by which he/she can evaluate the responses given. Critical assessment of one's own performance may be one of the most useful means of maximizing it. Evans' (1982) study of senior high school mathematics performance suggests that many students at that level have not learnt to criticise and reconcile their interpretations of problems, application of rules, and results of processing.

Characteristics of Materials to be Learnt. While the structure of learning materials is most often not within the control of the student, an assessment of the nature of the materials is. For example, journal articles in particular disciplines tend to have a common structure, which, once understood, acts as a guide to comprehension. Within text, authors tend to make use of paragraph topic sentences, flag important statements, and provide indicators of section themes and concepts. Lecturers use similar devices. An understanding of such devices also provides guides for overall comprehension, summarizing, and structuring. (See also Brown, Campione, and Day, 1981).

Characteristics of Teaching and Presentation. These share many of the features of textual materials. They do, however, generally offer more opportunity for interaction and more flexible approaches to structuring. They may utilize a variety of models, ranging from structured exposition to group discussion and laboratory and field work. These various models of teaching can, however, be described in terms of some common concepts.

Top-down or bottom-up processing may be features of the teaching environment as well as of the learners' strategies. The advance organizer model (Ausubel, 1968) is one of the best known of the former approaches. Some other forms of expository teaching involving many episodes of teacher initiation-student response-teacher evaluation, retain control of the revelation of concepts and information to such an extent that the student is forced into a predominantly bottom-up process.

Most teaching relies on concept development as an inductive phase and utilization and differentiation of concepts as a deductive phase. Group discussion techniques, for example, appear to emphasize the former. Some concepts

are so critical that considerable time must be spent in their development. If this is not done, the meaning structure may be inadequate for further meaningful progress.

The importance of these characteristics to the present topic is not only that the quality of teaching is important in directly helping students in the formation of meaning structures and skills but that it offers possible models for effective student learning. Like assessment, it tends to direct the nature of what students conceive as learning. If teaching emphasizes surface level processing, it is likely that students' learning will follow the same course. If it emphasizes the careful accummulation of meaning structures, and demonstrates how meanings can be put to use in procedures, deeper level processing may be encouraged.

Beyond offering an example, however, there seems to be no reason why tertiary teaching should not attempt to make explicit the learning processes it seeks to promote. This would entail not a separate presentation of subject content in ordinary class sessions and of learning strategies at some other time, but the coherent and simultaneous presentation of discipline content and of methods of dealing with that content. Given the domain specific nature of much learning this seems to be the sensible course to follow.

Conclusion

The discussion in this paper has not emphasised detailed procedures for achieving improved learning skills and performance, but has concentrated on some theoretical aspects which seem to bear on the problem and on the conditions which seem appropriate to promoting improvement. The major theoretical distinctions are those between meaning structure and verbalization and between learning to do by interpretation and proceduralization, on the one hand, and copying models without utilizing underlying meanings on the other.

The developmental processes desribed are sensitive to a number of sets of variables - characteristics of the learner, learning materials, criterial task, and teaching and the students' strategies of learning and performing. I have suggested that tertiary students should be encouraged to develop self-awareness of their learning processes and the variables that bear on them. This self-awareness itself has both a meaning structure and cognitive skills. It is the nature of these processes that they are learnt only slowly with effort and attention. The use of "one off" or occasional sessions to help students develop effective study skills is therefore not likely to prove effective. Nor, given the domain speicificity of much knowledge, are separate study skill courses likely to

be as effective as more integrated approaches. In particular, it seems appropriate for tertiary teachers to take opportunities in the course of their normal teaching to demonstrate and encourage appropriate reflective learning behaviours.

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IMPROVING THE PERFORMANCE OF STUDENTS: A JOB FOR THE FACULTY

This paper discusses the work of the Science Faculty Sub-committee on Student Performance, which was established in 1978 at the Victoria University of Wellington. While the strategy described is only one of a number being used in Australian and New Zealand universities (e.g., Skerritt-Zuber, 1981), it has considerable relevance to a Faculty's responsibility for teaching and learning. The introduction provides an appropriate context by discussing major studies of success and failure of first year students in New Zealand universities.

Introduction

When Miller (1970) reviewed research in Australia and New Zealand into selection and wastage of students at university he concluded that, while school results might be the best single predictor, if applied too rigorously, they could lead to serious wastage of academic talent by exclusion of students who had the potential to succeed.

Miller commented that:

> 'More interest is needed in helping and motivating students once they are admitted, by improving teaching and examining and by providing facilities such as counselling.' (p. 7)

In his review, Miller noted that Parkyn (1959, 1967), then Director of NZCER, had reported on success and failure at university and that this work had been complemented by an intensive study by Small (1966) on achievement and adjustment in the first year at university in New Zealand.

Parkyn's work on success and failure was published in two volumes. Volume 2, 'The problem of failure', published eight years after Volume 1, 'went beyond' the research and was, in effect, an extended essay that discussed factors contributing to the failure (or lack of success) of students, and explored ways of reducing failure. In Parkyn's terms, success was identified with passing, regardless of how well the student performed. It is, however, worth considering some of the principal conclusions of the work of Parkyn (1967) and of Small (1966).

For first-year students following full-time courses, Parkyn considered that $r = 0.54$ could be taken to represent the correlation between the best prior measures of ability and subsequent performance. He determined that the average pass rate of such students was approximately 67 per cent. Parkyn's general conclusion was 'that a large proportion of the actual failure was unnecessary, in the sense that it was not inherent in or predetermined by the ability and attainments of the students on entry to the university' (p. 14).

For comparison, Table 1 shows correlations and average pass rates for first year mathematics courses in 1979.

TABLE 1. CORRELATIONS OF MARKS OF N.Z. BURSARIES EXAMINATION (1978) AND 100-LEVEL MATHEMATICS EXAMINATIONS (1979) AT VUW; ALSO AVERAGE PASS RATES

	r	N	Pass (%)
BURSARY/MATH 113 (fy)	0.44	177	69.3
BURSARY/MATH 114 (fy)	0.57	192	67.8
BURSARY/MATH 115 (1/2)	0.53	82	95.9
BURSARY/MATH 116 (2/2)	0.52	78	91.7

NOTE: (1) Pass rate based on number eligible to sit the final examination

(2) MATH 115 and MATH 116 have an entry level requirement of 65% or more in the Bursary examination; they are designed on Keller principles, which provide for the study of modules with a pass level requirement of 80%.

Parkyn argued against further selection on the grounds that selection based on a prior measure of ability (school marks) would exclude a significant proportion of students who would otherwise succeed. Table 2 summarises the estimated effect of a range of selection rates.

TABLE 2. EFFECT OF FURTHER SELECTION UPON PERFORMANCE (Parkyn, 1967)

r = .54; pass rate before further selection, 67 per cent.

Per cent of present entrants to be rejected	Pass rate in remaining students	Fail rate in remaining students
0	67	33
10	71	29
20	74	26
30	77	23
40	79	21
50	82	18
60	86	14
70	88	12
80	90	10
90	94	6

The table indicates that, if 50% of students had been rejected to reduce the fail rate from 33% to 18%, instead of 67 passers and 33 failers out of the original 100, there would be 41 passers and 9 failers out of the remaining

50. Of the 50 rejected, therefore, 26 would have passed and 24 failed. There is no doubt that, if students with low previous attainment are given the opportunity, a significant proportion will succeed. Parkyn concludes that 'reasons for failure (or success) must be directed toward factors other than that of the standard of admission.' For the purpose of this report, Parkyn's findings are reported in full:

> 'However, in examining such other factors as the socio-economic background of the students, the hours of paid employment undertaken by part-time students, the time spent in travelling to the university, the type of living quarters occupied, and so on, we were unable to find any that had even a moderate correlation with the differences in performance of the various groups of students. This, again, does not mean that such factors did not influence the performance of individual students, but simply that they did not have a uniform effect throughout a large enough number of students to show an appreciable general correlation with performance.
>
> 'The final success of the students, however, depends not only upon their ability but also upon their determination to succeed, the time they can put into their studies, the conditions in which they live, their mental and physical health, the process of examination, teaching methods, and many other circumstances.' (p. 210)

Parkyn (1967) acknowledged that his (very thorough) investigation had not identified any 'strikingly important' factors and that, accordingly, Small (1966) had carried out a complementary individual study of a group of 99 full-time students. Referring to Small's work, Parkyn commented:

> 'Furthermore, individual studies showed fairly conclusively the way in which particular combinations of aptitude, preparation, aim, interest, personal traits, study load, external circumstances, and so on, could influence the students' adjustment to university life and affect their academic performance.' (p. 123)

Small (1966) reported 'an attempt to examine in some detail the circumstances under which individuals had studied in their first year at university and to find out why some students had failed' (pp. 1-2). In his report, Small included summaries of all the 99 cases of first year students so that the reader could appreciate the 'circumstances of individual cases'.

Small's main (commonsense) conclusion is that 'failure is due to a variety of factors' (p. 72). He considers that 'the performance of students is so idiosyncratic that a reduction in the failure rate would not be easily achieved by general procedures' (p. 72). In response to the required 'So what?' question, he recommends improvements:

(1) by providing educational guidance to individual students;

(2) by strengthening the work of liaison officers and assisting transition from school to university;

(3) improving the conditions under which students live and work.

Small acknowledges that even when advice is given, such as recommendations of reduced course loads to students considered to be 'at risk', it is likely that the advice will not be taken. He concludes:

> 'If advice were reinforced by regulation, some improvements would almost certainly be effected. One of the chief advantages of such a procedure would be to give all students more realistic notions of their academic aptitudes than many seem to have at present.' (p. 75)

The experience of a detailed study of mathematics students (Imrie, *et al.*, 1983) corresponds closely to this point and, also, to the point made by Small about mathematics and the physical sciences in which systematic prior teaching is assumed: 'that some students enrol with quite inadequate backgrounds'.

It is pertinent to note that, as a direct result of the VUW Liaison Officer's report in 1978, Science Faculty established a Student Performance Sub-committee to consider how Faculty should respond to the needs of students with poor previous attainment. Since then an orientation programme has been developed to assist all Science students with the development of study or learning skills (Imrie and Weatherburn, 1980); also recommended by Small for senior school students as preparation for university. Faculty's Standing Committee has cooperated by developing advisory procedures to assist 'at risk' students; these provide official recommendations but stop short of regulation.

All such considerations are relevant to a study of student performance that seeks to raise awareness and suggest strategies for improvement. Parkyn endorsed this but made his strongest recommendations on the basis that his work had identified a considerable proportion of students whose failure was 'a result of certain deficiencies in the process of examination itself'. Parkyn goes on to make suggestions intended to help (university) teachers 'to apply their own standards of judgement with greater consistency and accuracy, so that fewer students will be failed through deficiencies in the process of examination itself' (p. 227).

An account has been given of the work of Parkyn (1967) and Small (1966) so that readers can appreciate the commonsense conclusions confirmed after considerable study of a complex problem. The question which remains to be answered is, 'What can be done to help the university student confirm potential, and benefit as much as possible from the experience of higher education?'

This detailed background discussion has two purposes: first, to provide context for a report of recent experience in a New Zealand university and, secondly to emphasise the complexity of the problem, including the effect of examination and mark interpretation for the assessment of student performance. Similar significant work in this area has been carried out in Australia and elsewhere, and Miller (1970) provides an excellent review in which he makes reference to such studies as Schonell, Roe and Middleton (1962), in Australia, and Nisbet and Welsh (1962) in Scotland. These and other workers cited by Miller reject using selection based on matriculation levels to increase pass rates.

The Science Faculty Sub-committee on Student Performance

Small identified the potential of the Liaison Officer when he considered the results of his study and that of Parkyn (1959). Each year, at Victoria University of Wellington, the Liaison Officer produces an annual report in which she summarises the range of performance of students taking university courses, and gives details of their school achievements. In 1978, she drew the attention of the Science Faculty to the particularly poor performance of first year science students entering University from Seventh Form with the High School Certificate (HSC) as their highest level of attainment. Table 3 compares the performance of HSC students with other full-time first year science students from 1976 to 1981.

As a direct result of the Liaison Officer's initiative, the Science Faculty (19.10.78) established a Sub-committee on Student Performance (referred to as the Committee) to report on standards of performance of science students in general, and of first year students in particular. The Committee was asked to consider the needs of science students for an induction course and to report accordingly.

It was noted in the Faculty Minutes of that meeting that the following aspects of performance needed consideration:

(a) Assessment procedures, their aims and effectiveness

(b) Preparation at Seventh Form level

(c) Pre-enrolment in relation to appropriate counselling

(d) The recording of advice given to students

Composition of the Committee is: one representative from each Department of the Science Faculty; two student representatives; Faculty Clerk; Convener; co-option of Liaison Officer and Student Counsellor as appropriate.

Over a period of four years, all of the above considerations have featured in the work of the Committee, as will be described later. The Committee decided that its first priority should be an 'induction course', which was introduced in 1979 as the Science Faculty Orientation Programme. This paper sets out the development of the programme as a strategy for improving student performance, and discusses current considerations in the light of an evaluation of the 1982 programme.

SciFO - Science Faculty Orientation

The Science Faculty Orientation Programme started, in 1979, as a one-day programme on the third Wednesday of the first term. This was modified to an afternoon-only programme for 1980. These early developments are described by Imrie (1979) and by Imrie and Weatherburn (1980). The basic aims of the programme are to make first year students aware of the implications of study/learning skills and to provide access to experience and opportunity for self-development.

TABLE 3. COMPARISON OF PERFORMANCES OF FULL-TIME FIRST YEAR SCIENCE STUDENTS 1976-81(1)
(A) THOSE WITH HSC ONLY
(B) ALL OTHER STUDENTS
(C) ALL FIRST YEAR SCIENCE STUDENTS

Year	Number of students	Credits taken	Credits passed	Success %
(A) 1976	85	43.6	20.9	47.9
1977	97	42.1	17.6	41.8
1978	80	41.3	19.9	48.2
1979	68	41.5	20.6	49.6
1980	64	41.4	23.5	56.8
1981	80	41.5	20.9	50.4
(mean)	(79)	(41.9)	(20.6)	(49.1)
(B) 1976	229	45.4	36.9	81.3
1977	277	45.1	36.2	80.3
1978	285	44.5	34.5	77.5
1979	307	44.6	37.9	85.0
1980	290	44.8	37.7	84.2
1981	272	44.7	37.3	83.4
(mean)	(277)	(44.9)	(36.8)	(82.0)
(C) 1976	314	44.9	32.6	72.6
1977	374	44.3	31.4	70.9
1978	365	43.8	31.3	71.5
1979	375	44.0	34.8	79.1
1980	354	44.2	35.1	79.4
1981	353	44.0	33.6	76.4
(mean)	(356)	(44.2)	(33.1)	(75.0)

(1) Data taken from VUW Liaison Officer's Reports to Professorial Board

One outcome of the 1982 evaluation (discussed later) is adoption of a student suggestion of SciFO as a title for the various opportunities which are now provided in 1983 but cannot be described accurately as a 'programme'. In general, the focus of SciFO is on introducing students to study skills, to students and staff, and to Science as a principal activity of university scientists (staff and students). In particular, the following elements have been used as part of the orientation experience from 1979 to 1983:

Plenary meeting: for all first year science students, by invitation, to start the programme and to introduce students to factors affecting learning

Videotapes: on study skills (Main, 1977 and Jones, 1981) for all first year students; shown in a lecture theatre and repeated during the first few weeks of the first term

Handbook: introduced in 1981 and revised for a second edition in 1983, the Science Faculty Handbook on 'Improving your performance as a student' (Imrie, 1983) is sold at enrolment to first year science students

Leaflet: given to science students at enrolment, describing the orientation opportunities available

Tutorials: timetabled opportunities in first year courses for student development activities within the context of the particular course

Science: an opportunity to visit student-selected Departments as an introduction to current research and to meet academic staff; also an opportunity to meet with other students and to discuss experiences of the first two weeks of university

Social: basically a 'wine-and-cheese' opportunity for informal socialising

Figure 1 summarises the change in use of these elements as the orientation concept developed.

FIGURE 1. STRUCTURE OF SCIENCE FACULTY ORIENTATION, 1979-83

	1979	1980	1981	1982	1983
Plenary meeting	✓	✓	✓	✓	
Videotapes	✓	✓	✓(a)	✓	✓
Handbook			✓	✓	✓(b)
Leaflet			✓	✓	✓
Tutorials				✓	✓
Science	✓	✓	✓	✓	✓
Social	✓	✓	✓(c)		

NOTES: (a) Auckland videotape series (Jones, 1981) introduced to complement Strathclyde series (Main, 1977)
(b) Second edition of Science Faculty Handbook (Imrie, 1983)
(c) Social discontinued since students in Halls or living at home had difficulties in attending

Evaluation

In 1979, experiences of the programme were evaluated with feedback from staff and students, and changes made (Imrie and Weatherburn, 1980). In 1982, the programme was evaluated on the basis of student response to a questionnaire (attached as an Appendix) administered during lecture periods in the second half of the year, to students in first year mathematics courses. The responses, therefore, were made six months after Orientation, to provide for retention. Some items were common to the 1979 evaluation, and are discussed in conjunction with the following outcomes of the evaluation.

In 1982, there were 360 full-time first year science students; 229 (~64%) responded to the questionnaire together with 59 other students, including first year students, doing other degrees.

Of the first year science students responding, 80.5% had purchased the Handbook, and about two-thirds thought that it was good value for money. The specific topics which the students found particularly helpful are indicated by the percentages listed with the Table of Contents of the first edition of the Handbook.

Allocating your time	31%
Learning from lectures	28%
Laboratory work and reports	23%
Field trips	7%
Scientific illustration	6%
Reading and essay writing	9%
Tutorials and assignments	22%
Assessment and examination	18%

Only about a quarter of the respondents watched the videotapes in 1982; this was because of lack of support with publicity by the student newspaper, *Salient*.

As a result of the evaluation and of two years of experience with the Handbook, a second edition has been prepared. This includes a general revision, the addition of three new sections ('Giving a seminar', 'Coping with staff', and 'You need the Library'), together with weekly and annual planning sheets for personal use. A suggestion by one of the student representatives (also the 1983 VUW Student President) on the Committee led to the inclusion of a single page (both sides) of advertising in the Handbook and a substantial contribution to the budget for printing the second edition.

In 1979 and 1982, students were asked to rate the importance of the benefit obtained from viewing the videotapes (six months previously):

	Not at all important %	Not important %	Important %	Very important %
READING				
1979	19.2	42.4	36.4	20.2
1982	10.5	31.5	52.6	5.3
NOTE-TAKING				
1979	19	37	39	15
1982	7.2	26.1	47.6	19.1

out of context? "Prelim Pill"?

Of the 130 students who attended a study skill session as part of their first Mathematics tutorial, only 39.2% rated the benefit 'important' or 'very important' six months later. Comments made by students included:

'Attitude of people who ran the study skills session wasn't really very encouraging'

'Might have been better if tutor convinced of worth of the scheme'

'Too early in the year'

'Topics covered were relevant'

'I was foolish not to attend the session'

'Only told us what we already know'

'A lot of it was commonsense'

The Mathematics tutors (all full-time academic staff) had agreed to use the first tutorial for this purpose. They attending a briefing meeting about involving their tutorial students in discussion on 'managing your time' and 'learning from lectures'. Student comment confirmed our concern that some staff were not interested in helping students in this way and, of course, students noticed!

For 1983, with an additional two hours of timetabled time in the first week allocated from the Physics laboratory timetable, volunteers will be sought by invitation to all members of the Science Faculty. The major deficiency of this aspect of SciFO for 1983 is that these sessions are too early, being in the first week of the students' first year at university. All first year course coordinators will be encouraged to refer students to the Handbook during the year.

Visit to a Science Department

This was an opportunity for first year students to meet other science students, academic staff, and to discuss some of the current research projects in which their teachers are involved. The 1979 evaluation responses are given for comparison.

	Not at all important %	Not important %	Important %	Very important %
MEETING OTHER STUDENTS				
1979	3.4	23.7	52.5	20.3
1982	15.1	33.3	47.3	4.3
MEETING ACADEMIC STAFF				
1979	1.7	22.9	66.9	8.5
1982	4.4	24.4	56.7	14.4
DISCUSSING SCIENCE				
1979	1.9	23.1	63.0	12.0
1982	11.1	16.0	54.3	18.5

Student comments included:

'This was probably the most beneficial part of the programme.'

'Meeting with staff and students is very important, for this I was annoyed I didn't make the effort and go.'

'It was a good opportunity to see first-hand the sort of thing we were letting ourselves in for.'

'I didn't follow it with enough enthusiasm.'

'Staff member showing various aspects of research and the many branches, really helped and made us aware of what lies ahead (if we get that far). Personally this made me more enthusiastic about them.'

Discussion

From 1979 to 1982, the Science Faculty Orientation Meeting was held on the third Wednesday of the first term. Faculty cancelled timetabled classes so that all first year students could attend (but not all did for a variety of reasons/excuses). The plenary meeting was used to organise the allocation of groups of students (according to predetermined preferences) to staff to take them to Departments for a brief tour, refreshments and general discussion about the first two weeks of course experiences.

Because of problems of coordinating Departmental support, and the unpredictability of student attendance (despite registration to give prior notice to Departments), the plenary meeting has been dropped for SciFO 1983. Instead, each Department has been invited to organise its own Orientation visiting arrangements with dates and times to suit the convenience of staff, these arrangements to be publicised on noticeboards and in lectures. This will also make it possible for students to visit more than one Department, if they wish to see more of the work of the Faculty.

Orientation Overall

Students rated the benefit from the Science Faculty Orientation Programme 'as a whole':

	Not at all important %	Not important %	Important %	Very important %
1979	1.9	23.1	63	12
1982	8.5	34.5	50.6	6.0

For the 1982 evaluation, students were asked:

'In retrospect, what do you think you gained from the opportunities provided by the Orientation Programme?'

Student response included:

'It made you immediately begin thinking about gearing yourself to the fact that you would have to work.'

'Realization that there would be no-one to push you into working, and to avoid the temptation to slack off.'

'Got me thinking about work - what I had to do.'

'Didn't start the year so cold in learning sharpened up study skills, helped me get going properly.'

'Gained insight into the detailed organisation one needs to succeed in any 'Varsity degree. Planning ahead with specific goals vitally important - most of all the attitude - you want to pass, don't you.'

'A chance to meet other students and the staff enabled me to examine my own ideas about my studies, as well as helping me to examine my use of time.'

'It helped me to assess the importance of time allocation in respect to handling assignments and projects.'

'It showed me what the Science Faculty was all about. It is a very necessary programme.'

'Confidence in organising my 'Varsity Course work and coping at University.'

'All right for type of student it is obviously aimed at in retrospect.' (☺)

Discussion

Science Faculty Orientation is intended to contribute to the academic development of students and staff: the former by providing opportunities as outlined in this paper, the latter by providing opportunities for staff to develop awareness of individual learning differences and of strategies to improve student performance. Since 1979, with experience and evaluation, SciFO has developed into a set of opportunities to help students make the best possible transition from school to university studies. Its development since 1981 has been influenced by the work of Steinaker and Bell (1979), which identifies experiences which enhance development. Five principal (and sequential) experiences are suggested: exposure, participation, identification, internalisation, dissemination.

The most that can be claimed for SciFO (1983) is that it makes provision for the first three. The culmination of development in the form of 'internalisation' and 'dissemination', so that the student does in fact improve systematically, must be left to course experiences. It is still a job for the Faculty.

SciFO directs student attention to other resources for further individual development; to books such as those by Anderson *et al.* (1969) and Rowntree (1976), and to the workshop and individual discussion opportunities provided by the Student Counsellors. In contrast to but complementing the general

nature of SciFO, the work of the Counsellors (as part of Student Welfare Services) is focused on the needs of the individual student, as described by Main (1980) and Gibbs (1981), for example.

Student development and student performance

Miller (1970) cites Iliffe (1964) to make the point that students have a 'somewhat romanticised picture of work at the university' and are not prepared by their school experiences for 'long spells of hard application', which is their own individual responsibility. Miller identifies general support for allowing as many students as possible to do the first year at college or university and then select on the basis of first year performance.

Miller (1970) comments:

> 'What is being suggested here is that in the first year in higher education, when students are wrestling with new methods of study, their motivation for higher studies is also being tested. Those who achieve best in that year would seem less likely to drop out and more likely to produce superior degree work. They would have proved by the end of the first year that they are self-directed towards studies, in a way that no examination of their school work could.' (p. 125)

These considerations of 'hard application' and 'motivation for higher studies' correspond closely to the implications of diligence identified by Crooks, Mahalski *et al.* (1982) as the important factor linking student development with student performance. The students were first year psychology students at Otago University, and the authors concluded that 'among those students who were very diligent in lecture attendance the quantity of notes recorded was very highly related to examination success.' The authors stress that this should not infer causality, but it is obvious that effort to attend lectures provides opportunity for further effort to make detailed notes as the basis for the culminating effort of preparing for examination.

Accordingly, diligence can be considered as the effective organisation of effort and time; it is the response that each individual student makes (albeit by default) in choosing between opportunity and distraction at university. Student (cognitive) ability is not then the primary factor for student performance.

The study by Crooks, Mahalski *et al.* (1982) has particular significance since it was carried out in the 'naturally occurring setting' of a full year university course. The lack of such studies is a criticism made by Covington and Omelich (1979) in a study of the cognitive model of achievement motivation developed by Weiner (e.g., 1974) which proposed ability, effort, luck and task difficulty as among the major perceived causes of achievement performance.

From their study 'in the naturally occurring contexts of achievement', they conclude that:

'the achievement process is not solely, or even primarily, a manifestation of cognitive attributions. Rather it is most productively viewed as the operation of personality and socially conditioned dispositions emerging from the individual's efforts to protect and enhance a sense of competency.' (p. 1502)

In other words, a first year student will do better if s/he

* knows what is required by the courses
* knows the people involved - staff and other students
* knows that staff and students will be supportive
* knows how to improve performance

It is clearly a job for the Faculty (assuming that the student does not have to spend too much time travelling, earning money, or living in unsatisfactory accommodation).

Other strategies for student development at VUW and other New Zealand universities are described by Imrie (1982). All have in common the intention of enabling students to appreciate the significance of study skills and to develop these skills to improve performance.

For example, Mahalski (1980), working with first year psychology students at Otago University, has designed (as part of the course) a laboratory on study skills and attribution of success (Weiner, *et al.*, 1971). She has developed an Academic Information Inventory which has three sub-scales of 25 items each:

- information acquisition (listening, note-taking, amount of study)
- information processing (summarising, trying to understand, memorizing)
- student performance (writing reports, answering examination questions)

The inventory focuses student attention on their own learning, provides awareness of different ways of learning, and indicates how the student rates against a peer group.

Student development may be a job for Faculty, but it is always the responsibility of the student to make the effort to improve performance.

It was noted earlier that the work of the Committee included the principal considerations discussed by Parkyn (1967) and Small (1966) with reference to transition from school to university, and the assessment of performance.

In addition to Orientation, two copies of the first edition of the Handbook were sent to each secondary school in the Wellington region. In May 1982, under the auspices of HERDSA, representatives from Wellington secondary and tertiary institutions were invited to a seminar on

study/learning skills and available resources. Some schools are already using the Study Habits Evaluation and Instruction Kit (SHEIK: NZCER, 1978).

Assessment of student performance

The Committee has placed considerable emphasis on improving the assessment of student performance. Three developments will be described briefly.

With the approval of Faculty and with the assistance of the Faculty Clerk, a form is used before courses start, to collect details of the assessment requirements of each course. Departments are then advised about clashes of dates and any other potential problems.

The Committee has collated undergraduate performance statistics for each University science course (since 1976). This information has been sent to each Department to enable staff to review trends and other considerations of student performance.

For the further development of assessment procedures, the Committee is currently preparing a handbook for staff on assessing the performance of science students; sections will be contributed by various members of the Faculty, and the handbook will include details of a computerised course grading system (CCGS), introduced for Faculty use in 1982, on a pilot basis. The CCGS not only provides 'mark book' convenience, but also extensive facilities for mark management and interpretation (Imrie, 1982) to improve professional judgement of student performance. This is a Faculty responsibility.

Concluding comments

Whereas Parkyn (1967) Small (1966) and Miller (1970) were more concerned with reducing failure rate, this paper has emphasised student development to improve performance. It can (and will) be argued that in the past students have managed all right without orientation programmes, handbooks, and the like. The 'deep end' philosophy still prevails: 'it is up to the student to make the effort to swim; if someone sinks, then he shouldn't be here'. Much more than a lifebelt should be provided so that not only do students learn quickly how to swim but learn how to swim as well as possible. Again, it is attested frequently that anyone who knows the subject can teach. There are many who make the effort and accept the responsibility to teach well?

Small's (1966) recommendations included educational guidance to individual students and assisting transition from school to university. Orientation to assist transition is not the only Faculty response. Standing Committee has developed advisory procedures to provide guidance to individual students and to monitor the outcome. Individual Departments also have taken initiatives, such as the 'Chemistry Bridging Course' organised by the VUW Centre for Continuing Education before the academic year begins.

As more staff become aware of these developments and their implications for student performance, it is hoped that course planning will provide for student development in terms of learning as skill-orientated in relation to

the subject or discipline. While student awareness of study skills can be generated by videotape and printed material, the potential for student development is greatest when planned as part of the 'naturally occurring setting' of the course of study. The effort required by the student to develop a sense of competency is then seen to be relevant in the context of course requirements. This requires diligence from staff as well as students.

Discussion of student performance implies that there has been some kind of assessment; Parkyn (1967) commented on deficiencies in the process of examination. Accordingly, the Student Performance Sub-committee has worked to develop procedures to improve assessment in the Faculty.

There is no doubt that students do learn from experience: from their own 'trial-and-error', and also from the experience of other students. Interviews with mathematics students (Imrie, *et al.*, 1983) indicate clearly that most students, looking back at first year, know how to improve performance 'if they were to start again'. They have used the first year to complete the final two stages of development identified by Steinaker and Bell (1979). There is thus the potential for Orientation to become more effective by involving senior students so that first year students can benefit from their experience, which is more acceptable in a social sense and because (as one student put it) 'they are nearer to us on the learning curve than staff'.

Commonsense tells us that most students could do better if they tried. Experience in the Science Faculty at VUW confirms this and affirms that it is the job of the Faculty to help students make the effort to improve performance and to improve the assessment of that performance.

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1982/OPQ

SCIENCE FACULTY STUDENT PERFORMANCE SUB-COMMITTEE

SCIENCE FACULTY ORIENTATION PROGRAMME

QUESTIONNAIRE

At the beginning of the year, you were probably involved in at least some aspects of the Science Faculty Orientation Programme. The aim of the Programme was to help you to improve your performance as a Science student.

To enable us to make next year's Programme as effective as possible, we would like you, in retrospect, to evaluate the benefit you obtained from the Programme. Please feel free to make additional comments and suggestions which you feel may be helpful.

Your name will be confidential to the University Teaching and Research Centre, and will be used only for the purpose of research and correlation.

Name _____

Degree _____

Majoring subject(s) _____

Year of University study *(please circle)* 1 2 3 4 4+

The Science Faculty Orientation Programme took place during March 1982 to help you to improve your performance at University. Four aspects of this Programme were:

1. A Science Faculty Handbook, 'Improving your performance as a Science student'

2. Videotape programme, shown in CB.114, 12.00-2.00 p.m., Wednesdays, 24 February, 3, 10 and 17 March

3. Study Skills Session, held at first tutorial of MATH 113, 114, 115, 192, 193

4. Science Faculty Orientation meeting, Wednesday, 17 March

SCIENCE FACULTY HANDBOOK

		YES	NO
1.	Did you buy the Handbook?	☐ 1	☐ 2
2.	The cost of the Handbook was $2. Do you think that it was good value for money?	☐	☐

3. Have the suggestions in the Handbook been of help in improving your performance as a Science student?

Not at all helpful	*Not helpful*	*Helpful*	*Very helpful*
☐ 1	☐ 2	☐ 3	☐ 4

4. Indicate which of the specific topics covered in the handbook you found particularly helpful

(a)	Allocating your time	☐ 1
(b)	Learning from lectures	☐ 2
(c)	Laboratory work and laboratory reports	☐ 3
(d)	Field trips	☐ 4
(e)	Scientific illustration	☐ 5
(f)	Reading and essay writing	☐ 6
(g)	Tutorials and assignments	☐ 7
(h)	Assessment and examination	☐ 8

5. Please suggest any other topics which you think should be included in future Handbooks to help improve student performance.

VIDEOTAPE PROGRAMME

6. The videotape programme consisted of two series:

   (a) A black/white series, prepared by Dr A. Main of the University of Strathclyde

   (b) A colour series, prepared by Dr J. Jones of the University of Auckland

   If you attended any of these sessions, please rate the benefit which you obtained from

		Very little benefit	*Little benefit*	*Some benefit*	*Considerable benefit*
(a)	The Strathclyde series	☐ 1	☐ 2	☐ 3	☐ 4
(b)	The Auckland series	☐	☐	☐	☐

/continued.....

7. If you did see any of the videotapes, please rate the benefit you obtained from viewing the videotapes on:

	Not at all important	*Not important*	*Important*	*Very important*	*Did not see any on that topic*
(a) Organising your time	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
(b) Reading	☐	☐	☐	☐	☐
(c) Note-taking	☐	☐	☐	☐	☐
(d) Essay-writing	☐	☐	☐	☐	☐

COMMENTS

STUDY SKILLS SESSIONS

8. Did you attend a study skill session as part of the first Mathematics tutorial? *YES* ☐ 1 *NO* ☐ 2

9. If *YES*, please rate the benefit you obtained

Not at all important	*Not important*	*Important*	*Very important*
☐ 1	☐ 2	☐ 3	☐ 4

COMMENTS

SCIENCE FACULTY ORIENTATION MEETING

10. Did you attend the Science Faculty Orientation Meeting on Wednesday, 17 March? *YES* ☐ 1 *NO* ☐ 2

11. If *NO*, please give the principal reason for not attending.

12. If *YES*, please rate the benefit you obtained from the following:

	Not at all important	*Not important*	*Important*	*Very important*
(a) Meeting other Science students	☐ 1	☐ 2	☐ 3	☐ 4
(b) Meeting academic staff	☐	☐	☐	☐
(c) Visiting Departments and discussing with staff some of their research interests	☐	☐	☐	☐
(d) Attending the special programme for Intermediate students (if relevant)	☐	☐	☐	☐

COMMENTS

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13. Please rate the benefit you obtained from the Science Faculty Orientation Programme as a whole.

Not at all important	*Not important*	*Important*	*Very important*
☐ 1	☐ 2	☐ 3	☐ 4

14. In retrospect, what do you think you gained from the opportunities provided by the Orientation Programme?

15. Please add any comments and suggestions for improvement that you wish to make about the programme, e.g., timing, content.

16. Can you suggest a new name for the 1983 Science Faculty Orientation Programme?

THANK YOU FOR YOUR COOPERATION

4TH STUDY SKILLS CONFERENCE
UNIVERSITY OF QUEENSLAND, MAY 1983

MATURE AGE STUDENTS: HOW DIFFERENT?

Brigid Ballard
Communication and Study Skills Unit
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There is an increasing proportion of mature age students (MAS) enrolled in Australian universities (nb. various studies use different definitions of 'mature age').[1] These students have an effect on university resources (eg. increased use of student services); they are generally welcomed by lecturers and tutors (especially in Arts); they tend to be part-time and make specific demands on scheduling (eg. lecture times, library hours).

What specific demands do they make upon our study skills services? Do they present particular problems for us? Do we/should we regard MAS as 'different' from recent school leavers (RSL)? If so, what must we do?

Previous research findings

Two areas of educational research appear to be relevant to the concerns of study skills advisers - but have important limitations in practice:

a. research into learning theory[2]

There is a current preoccupation with dichotomizing models of learning styles/strategies/approaches, often suggesting a 'deep' approach to be the invariably preferred style for tertiary studies. The limitations of these studies for our work are that:

i. they seldom distinguish age or discontinuity in formal education as factors within their analytical framework;

ii. they seem to regard learning styles as either static (He is a surface learner/He has extrinsic motication) or mutually exclusive (He must shift to a deep approach/ to intrinsic motivation), rather than looking at learning habits as practical responses to specific contexts, being capable of selection and of development.

Two papers which I have found useful are:

i. Roger Saljo, 'Learning about learning',[3] who draws a distinction between students who 'take-for-granted' the way they learn (ie. it is a matter of memorizing, knowing the facts) and those who 'reflect' on the process of learning (ie. look for systems, underlying structures, understanding).

ii. Diana Laurillard, 'The processes of student learning',[4] who very convincingly shows that it is the student's perception of the task that largely determines the choice of learning approach. (This paper supports the approach used in the CSSU in working with ANU students - so I, naturally, find it 'useful'.)

b. research into attitudes and performance of mature age students

The Australian research has limited relevance to our interests partly because of the methodology used:

i. research based on available numerical data[5]

These studies look at the performance, in terms of final year grades/withdrawals/failures, of MAS and compare these with the results of RSL or other categories of students. Such research is focused on learning outcomes rather than the process of learning.

ii. research based on questionnaires and interviews (intellective')[6]

These papers usually focus on MAS in isolation and do not discriminate between insights which are common to most new tertiary students and those specific to MAS (eg. Hore's 'embryonic interactive model of adult learning'[7]).

For study skills advisers it is the distinguishing characteristics of MAS on entry and over the first year of studies that are important in guiding how we can best assist such students.

Characteristics which differentiate mature age students from recent school leavers

a. age (probably not central to learning abilities, ref. Knox list of eight "within modifier" differences[8])

b. more diverse and extended 'life' experience

c. lack of recent experience with formal education (except for some entry schemes: also past educational experience often poor and remembered as 'learning facts')

d. part-time studies, competing with responsibilities in job and/or home

e. largely enrolled in Arts/Social Science-related courses (nb. Biggs' distinction between Arts requiring strategies for 'sorting and organizing' and Science for 'integrating new materials into existing conceptual hierarchies'[9]).

TABLE I: CATEGORIES OF MATURE AGE STUDENTS AND RELATED DEMANDS ON STUDY SKILLS ADVISERS (drawing on ANU experience)

CATEGORY	MOTIVATION	STRENGTHS	PROBLEMS
1. administrative/managerial (eg. higher level PS, military officers, teachers, business executives, nursing supervisors, T.U. officials)	career advancement	Used to evaluating and making impersonal decisions Efficient time management Adequate study resources Good in discussion	Usually want a quick check on the efficiency of their approach to studies May have trouble shifting to role of student May be critical of academic inefficiency May dominate tutorials/overawe tutors
2. general employment (eg. lower level PS clerks, secretaries, nurses, retail employees)	career advancement	Used to working to a time plan bridging work and home/ social demands Used to collecting/reproducing information	May lack confidence/experience in evaluating information to reach a conclusion Present reading and writing habits may be inappropriate (need to 'unlearn') May have trouble with student status, in university, at work and among friends
3. housewife	future career/missed opportunities	Highly motivated to achieve change	Need to set realistic goals (pressure for high achievement common) Unconfident of full range of study skills (and prev.educ. may have been negative) Need to shift priorities (eg. kitchen floor vs library research)
4. leisured (eg. people with leisure to pursue a special interest,retiring/ retired people)	personal interest	Seldom under pressure to achieve high grades or quick degrees Time to reflect on course materials	Want to get 'full benefit' from new experience - study skills for understanding rather than speed efficiency May sample too extensively in course choices.
5. recent school leavers	future career/life (or pressure of family,school,etc.)	Accustomed to studying and to assessment pressures Confident in recent educational achievements University more often major	Adjusting study habits to new demands of tertiary studies (often development rather than 'unlearning') Maturation

REFERENCES

1. L.H.T. West et al, 'Policies and practices of tertiary institutions in Australia towards mature age students', (Table 2.4), in T. Hore & L.H.T. West (eds), Mature Age Students in Australian Higher Education, HEARU, Monash, 1980: 15-22

2. See the array of recent articles and books by J. Biggs, N. Entwistle, G. Gibbs, D. Hounsell, F. Marton, G. Pask, P. Ramsden, R. Saljo, L. Svensson & co.

3. R. Saljo, 'Learning about learning', Higher Education 8 (1979): 443-451

4. D. Laurillard, 'The processes of student learning', Higher Education 8 (1979): 395-409

5. E.G. Eaton & L.H.T. West, 'Academic performance of mature age students: recent research in Australia', (Table 4.2), in Hore & West (1980): 53-67
   Also reports and conference papers emanating from TEDI (Queensland), HEARU (Monash), TERC (UNSW) and Counselling Service ANU

6. As above, with particular reference to T. Hore, 'Andragogy not pedagogy', (HEARU), S. Gough & R. Maddock, 'The mature age student viewpoint' (TEDI), and J. Martin, 'Women return to work' (TERC)

7. T. Hore, 'Andragogy not pedagogy' (unpublished? conference paper, n.d.);9

8. ibid; 3-4, from A. Knox, Adult Development and Learning, Jossey-Bass, 1977

9. J. Biggs, 'Faculty patterns in study behaviour', Aust. J. of Psychology 22 (1970): 161-174

OPENING THE DOORS TO HIGHER EDUCATION

V.J. Beasley
Transition Counsellor
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> *"It's now generally accepted by sociologists that in a variety of ways the operation of the education system serves to perpetuate an unequal and hierarchical society, and to reproduce actively the attitudinal and behavioural conditions necessary for its development in harmony with the vested interests of dominant groups."* (Jane L. Thompson, Lecturer in Community Education, University of Southampton).

Over the last twelve years I have been concerned to identify people in the community who would be interested in undertaking university studies, to help them to understand what university study might involve and to smooth, wherever possible, their transition into this "community of scholars".

In 1973 Flinders University established a Mature Entry Scheme which provided an alternative method of entry for adults who had not matriculated. This scheme grants provisional matriculation to adults on the basis of interviews, an essay and a test of scholastic ability (an A.S.A.T. test produced by A.C.E.R.). They then enrol in existing undergraduate courses.

Since that time many of our best students have entered by way of this scheme, and mature entrants as a whole have performed significantly better than school leavers. What is clear, if we needed to be convinced on this point, is that many older people in the community who have limited previous formal education (some of our mature entrants have not studied for ten or twenty or more years, and then only to lower secondary school level) can successfully undertake, and gain great personal benefit from, university study even when no special assistance is given.

Despite this there are many groups in the community who are very under-represented in our universities. Aboriginal people, working class people, and people with disabilities are examples. Such people are, in effect, barred from admission to university. Though we might have difficulty agreeing upon the nature of the barriers (and obviously there are no explicitly stated laws or statutes which state that such people may not enrol in university courses), I would assert that lack of intellectual capacity is not a barrier which explains this under-representation.

It must be added that Mature Entry Schemes do not appear to have changed this situation. It would seem that if we wish to provide a genuine access to higher education for those adults in our community who have experienced educational disadvantage and who have the ability and the desire to undertake tertiary study, we will need a new approach.

A further point is that numbers of these mature entrants find their first year at university quite traumatic. About one in five withdraw in that first year, and many who press on and succeed speak graphically of the pain of making the transition.

I believe that universities should establish open foundation courses which would give such people an opportunity to test the water, to discover whether further study is relevant to their needs, to develop confidence in their intellectual capacity, and to develop learning and communication skills which will enhance their chances of success should they decide to proceed to higher education.

The University of Newcastle has been running an open foundation course for some years. Recently I visited the United Kingdom and found a plethora of foundation courses of various kinds, many specifically designed to provide "second chance" opportunities for educationally disadvantaged adults. So the proposal to establish open foundation courses is not a new one. The best way in which to operationalise such a proposal is, however, open to debate.

Though I consider that a central feature of a successful foundation course would be its ability to develop the learning and communication skills of its participants and, concomitantly, the confidence of these participants in their own intellectual capacities, I am unsure how this can best be done. I therefore put forward the following propositions as a basis for discussion of this issue.

1. *The development of both specific Discipline skills and more general study skills should be built into such a course.*

I suspect that the above general proposition would arouse only one kind of objection, viz. that universities are quite different places from secondary schools and further education colleges and that it is not their task to develop such skills. In the extreme form, this argument proposes that university academics are not teachers, but researchers, and that what a university properly does is simply to present knowledge. It is up to students to assimilate this knowledge and be able to demonstrate that they have done so in some specified manner. If they can't do that, then they shouldn't have been admitted.

I find this latter proposition unacceptable. I would further argue that if people are to learn to undertake university studies successfully, they must undertake university studies in a university setting. I doubt the value of sending people to another institution to learn to study at a university.

The most powerful counter argument which I have heard (in the U.K.) is that some educationally disadvantaged people find universities so frightening that they are better served by foundation courses in further education colleges which are rooted in the local culture. This provides a bridge to university study. I am yet to be persuaded that this argument is applicable to the Australian setting, though it might have considerable force with regard to country people.

A further reason for my preferring on-campus foundation courses is that the university must then take responsibility for them. I would be concerned that, if foundation courses were offered by other institutions and if students were subsequently unable to cope with university courses, it would be too easy to blame the other institution and/or the students. Any serious attempts to provide "second chance" education must include a willingness to examine critically existing university courses. A carefully evaluated on-campus foundation course could provide a sound basis for sensible modification of existing courses.

Further I would argue that we still have much to learn about the kinds of specific discipline-related and more general learning and communication skills which are necessary or useful for successful academic performance and how we can best help people to develop these.

2. *Skills cannot be learnt in isolation*

They are best learnt in context, by doing the thing for which the skill is required and by discovering the inter-relationship between the many skills which make up any complex performance. Ideally then, academic skills are best taught as part of an academic course of study by those responsible for that teaching. In practice this may not be possible but those designing and implementing study skills programmes will need to find ways of approximating this situation.

3. *Learning occurs when people are able to make connections with and elaborate upon that which they already know and when new information is seen to be relevant to their interests and needs.*

We need to develop learning and communication skills programmes which lead to student learning. The alternative is that students will memorise and initiate study techniques in a ritualistic and uncomprehending manner, often quite inappropriately.

Consequently a skills development programme should have a significant "independent learning" element. That is, students should be able to negotiate with respect to the content and process of the programme. This is not to advocate a laissez-faire, unstructured approach which would be especially inappropriate for educationally disadvantaged and unconfident students. It is to argue for an approach in which the teacher states explicitly his/her expectations and demands and the reasons for these, but also leaves space for students to decide what and how they want to learn. An aim is for student control of the course to become more pronounced over time as confidence grows.

4. *The development of a sense of "groupness" among participants of a study skills programme is essential especially for educationally disadvantaged and unconfident students.*

Such students need peer group support if they are to survive in an alien and seemingly hostile institution. In addition, students frequently seem to learn more from each other than they do from teachers.

5. *Universities may be unable to assist people with severe literacy and numeracy difficulties.*

An open foundation course might attract a number of potentially able students who have severe literacy and/or numeracy difficulties. I doubt whether universities have the capacity at present to assist such people. Should such students be re-directed to TAFE courses, should we seek to develop computer-assisted-learning programmes, or what?

6. *An aim of skills development programmes should be for students AND teachers to learn about learning.*

The most powerful way in which this can be achieved is for teachers to undertake research into their own practices. There is a growing literature on what has variously been called "action research" and "formative evaluation", notably from Deakin University.

In brief, a teacher wishing to undertake action research would collaborate with his/her students in order to develop, implement and evaluate a course. Initially a statement of objectives is developed describing what will be done and why. This constitutes a set of hypotheses. As the course is implemented, both teachers and students observe and reflect upon the programme and evaluate whether the practice is consistent with the intention, whether the predicted outcomes are occurring and why, and what alternative strategies, if any, seem preferable.

This may lead to a modification of the first plan and to modified plans being implemented, observed and evaluated. These processes of planning, acting, observing and evaluating are repeated in a cyclical fashion.

It is possible to document this whole process. Teachers and students may keep journals or notes of what is happening. They may discuss (and record) the progress of the course. Ultimately they could produce one or more documents for agreed audiences reviewing the course and recommending future action.

It is generally agreed that such research is greatly aided by an outside researcher/facilitator.

It has been suggested that some kind of organised association of Language and Learning Advisers be formed. If this were to occur, and if members were willing to research some aspect of their own practices and to document this, we could have the basis for some very exciting shared learning. We could consider a modest publication in which such writings could appear.

V.J. Beasley
March, 1983

R.S. Meyer
Deakin University

A RIGHTFUL PLACE FOR ORDER

No one stops to notice the encouraging assurance we receive, day by day, from the reliably-organised scheme of the Universe. The sun will rise, the sun will set. Succeeding days exhibit some variety, as the gloom of a rainy evening closes in early one night, and the next the light lingers after sunset; but this only brings enlivening relief from the monotony we should find in too inflexible a system. The point is, that we may predict that daylight will come tomorrow; and predict, too, the times of the tides, the succession of the seasons, and the inevitability that one generation will supplant another. All have their interesting peripheral variety; but all keep, basically, to a dependable cycle. We benefit from it in more ways than we might realise - though we ignore it. We enjoy the comfort of a secure routine, exactly as the animal creation does. As you arrive home, the household pets will expect to be fed; during your breakfast, the local birds will fly down to the lawn to wait for their share of the crumbs; in the country, the cows will move down to the yards of their own accord at milking-time.

When I was at school, the existence of order and system was accentuated not only by the regularity of school life - during which an outing was almost unheard-of - but by practices within the school. We chanted our multiplication tables, much as we chanted our time-honoured skipping-rhymes during games at lunchtime; we learnt little mnemonics to prompt us that i comes before e, except after c, and also that thirty days hath September, April, June and November; we wrote 3-line propositions endlessly to argue that if x men dig a well in y days, then one man digs the well in x multiplied by y days and therefore z men will dig the well in x by y over z days. War-time brought other systems to our notice: we drilled for emergencies, observed the blackout, and for food and clothing exchanged not only cash but coupons. These had to be carefully husbanded with good management, and in the resulting anxious discussions we naturally shared. We had a part, too, at school in administering its organisation - especially as we grew older: so we were no strangers to its régime. But we were critical of the unvarying strictness with which regulations were enforced and standard protocol expected even in our social lives. These inflexible codes of behaviour lacked the refreshing variations which Nature plays on its regular themes. So it is no wonder that after the war people began to look for more pliancy in their lifestyles and to practise informality; and to assert the rights of individual wishes against the inexorability of rigid systematisation.

The result, however, a generation later, has been to make today's young people less conscious of humanity's reliance on stable patterns of procedure - just as we remain largely oblivious of our dependence on Nature's repetitive

rhythms. Unattuned to convention and its usefulness in getting one off to a start, they are at a loss if taken from a familiar environment. So once students are liberated from the tutelage of school, they find the freedom of the campus in some respects inimical. Where are any familiar guidelines? They are not even required to attend for standard hours each day. They are expected to be independent, but they have not yet learnt for themselves how to manage for themselves. For independence stems from knowing how to plan your strategies, and if you do not even know that strategies exist to be planned, you will be confused - if not, indeed, confounded. For the apparently easy-going society at University conceals from you those procedural expectations it assumes that you too will share.

Since these are second nature to us we may fail to recognise how much we rely on them. The protocol of contacts, committees, conferences, communication, is so familiar as to beget the contempt of disregard. But the simplest practices are not usually common practices. For example, asked two months ahead to give a paper, during a brief phone call we simply note in our diaries the time, and the date on which we must begin to prepare it. We may need to juggle the time-slots on the day the paper is to be given, as we would move round the wooden pieces in a Swedish puzzle, so as to allow for a class and for somebody's birthday celebrations - but we do that almost without thinking. This may sound ridiculously childish to you: who can't do that? you ask. The answer is, a lot of people. Some of my friends do not keep diaries and simply won't (I suspect, can't) make normal appointments more than a week in advance. "Give me a ring nearer the time", they say. No wonder preparing for a holiday represents such a big issue to them: for this, they are obliged to know in advance what they will be doing, and frequently therefore they opt out by having a travel agent draw up a schedule for them.

Equally, you know that some of your students cannot design a time-table for themselves, and need to come to you for help in making the best use of their available hours through the week. These clients do not think, I suggest, in terms of an expected order of events, within which the hours may be distributed for various purposes. You do: you think automatically in terms of regular systems, frameworks of procedures, predictable patterns for operations and for undertakings.

Please understand that I am not simply saying that an orderly life has its advantages, as students should know. That pious recommendation has its place, but it is not my point. What I am trying to emphasise is that not all of your clients can perceive a process, a functioning scheme within which one thing has a relationship to all the others. Abandoning time, let me take a

fresh example. Why do you put petrol in the car? You may not know exactly why, but already your trained minds will be searching for the system which operates the internal combustion engine; because this is your habit. If I could explain the contribution of the fuel, the oxygen, and the spark, you could analyse the pattern of the process - and you would grasp that, in essence, its principles could be applied to the lighting of a Boy Scout's fire. You could relate the order within one system to the order within a similar system - for both are instances of burning - and compare the one with the other.

I argue that this is precisely what our clients cannot do, and that our task is to have them grasp, first the existence of processes, and then the predictable patterns of those processes, so that one pattern may be compared and related to another. I am speaking not merely of those students who cannot draw up a time-table, but of a great many of our clients: as in due course I shall go on to explain. Most of them are people who for whatever reason have come to University ill-equipped to find, or indeed to seek out, accepted, standard, regular approaches.

The orientation programmes which many of you offer to students illustrate this. A programme is itself an exemplar of order, both in its purpose and its methodical organisation. Gloria has explained to us in earlier conferences the relatively complicated systems of thought which are required to map out her programme. None of the schemes and educational principles which she harmonises into one exercise are at first visible to the students. All they initially realise is that they are being given an experience of order as they proceed with the programme. The same, holds good of all the courses which many of you prepare and teach. You must find it rewarding that little by little the clients perceptibly give signs of being more aware of systems of procedure, as they start to apply them in their own cases. But they still have a long way to go. Any student who comes for remedial help is - statistically speaking - an extreme case, either fresh from school or midway in his course without having cottoned on to habits of working which are indispensable for the successful student who is to be found at the other end of the scale.

It is no wonder that so many are unaware of what they should be doing. I with all my routine background from home and school could not really have told you, by the end of my final year, how I went about my studies. It all just seemed to happen. It has taken me long enough to recognise the existence of the orderly habits I was in fact calling on, and developing in ways which are not only specific to professional practice, but endemic to it. It was only recently that I began to consider their significance; and that began with a lucky accident while I was studying genuine illiteracy.

You may know that those who have researched dyslexia at some point always comment on the chaotic confusion in the subject's mind. Analysis and tests have produced various results, and various names are accordingly attached to the behavioural patterns observed. I need not worry you with any of this, since I wish to make the point that a negation of order, of which evidence is given in differing ways, is characteristic of young folk who cannot read; and it affects some who can read but cannot spell. I have found this out for myself as I have worked with one youngster or another; and have had some measure of success in counteracting it by following out my personal theories to their logical conclusion, as I have designed and presented exercises for my subjects. My own theories I have spoken of in previous conferences, as they have developed stage by stage. You may remember that, basically, I have been stressing the importance of students coming to terms with abstractions and with concepts.

Order is one abstraction which seems to have eluded young illiterates. This is not surprising, since some of them have so little hold on the abstract that they cannot even consciously distinguish the sounds they themselves utter in speech - but then, that goes for a lot of tertiary students also, as you will have discovered for yourselves. Returning to order, the lucky chance that first set me thinking occurred when Peter Caldwell and I found that one boy with whom we were working could not visualise numbers in the thirties as being greater than numbers in the twenties. This seemed to us extraordinary, because surely anyone can see (and in any case will have been told) that the figures in the "tens column" proceed numerically precisely as do figures in the "units column"? Yet this youngster, although at home with numbers, could not; and an even luckier accident showed me that another (with whom I was working alone) could not either.

The process of increment whereby ten becomes twenty, twenty thirty, and thirty forty, had escaped them. Now it is obvious that you must first distinguish a process, before being able to analyse the system which governs it. You must desert the blissful ignorance of just assuming that something happens under the bonnet so that the car will go, and arrive at least at a perception that the engine is designed to occasion a thrust which is eventually directed towards propelling the vehicle forwards, before you can ask yourself how the thrust is contrived, and where it is directed. Only when those questions have been answered will you understand why you must fill the tank with petrol. You will have apprehended the relationship of the fuel supply to the turning of the wheels as you leave the garage.

The process of numerical order is the one you visualise as you begin to draw up a time-table; mentally picturing a linear progession of hours stretching

out in front of you, neatly divided into days, weeks, months, and years. The difference is that the group increments are irregular: the hours tot up in units of one at a time, but in sections of 24, then 7, then four or so, and then twelve. Only after that do we resort to standard hundreds (centuries), thousands, and millions... Within these sections, you subdivide for your own purposes. You must allow so many hours for sleep, and so many for waking activities. Your budgeted allowance must balance, when completed, with the resources of time at your disposal.

Some of you will perceive that I am about to move on to the planning of written work. In principle, it is in exactly the same way that you sketch the structure of an essay: that is, of an undergraduate essay which has a given limit of words. The words go up by ones, and the only problem is that you must decide for yourself on the compound increments. How many words are to be expended in each section? and within sections, what will need to be the size of the sub-sections? First you must visualise the process, as you do when wondering how your car goes, and then you must consider how many operations will be wanted to bring you to a productive result: and in consequence, devise your system. The system will govern the procedure, relating one segment of the essay to another in an effectively-functioning programme. This seems to me as good an example as any of the second stage in a student's perception of order: when he begins to comprehend the importance of the impact of one factor on another, and thus considers not merely the contribution of each to the whole but the dependence of the whole on the working relationship of its parts. A process can now be glimpsed not as just a succession of one thing after another or as an array in orderly disposition, but as the galvanic activity occasioned by the parts in combination, provided that the connections between them are functional.

It is vital that students should attain to this second stage in perceiving order, if they are ever to proceed to further conceptualisation. But they are subject to influences from a world in which chaos is beginning to encroach on order. This occurred to me when I watched "Star Wars" on television. I was alone, and therefore was able to follow the dialogue and get the point of the story - which I had missed in the noise at the cinema when first I saw the film. Now I understand why Alec Guinness (whoever he was) vanished during the duel with Darth Vader. First off, I was staggered to see the Goodies lose their best man so early in a film set up for the Right to triumph in the end. Then I found that he had just uttered the illuminating remark that he would become more powerful should he be temporally overthrown. I then looked for, and found, the work-out of the results - continued in "The Empire Strikes Back", in which I now realise that "the Force" (which I'd taken for some Space-Force

and its batallions) is in fact a power emanating from the departed Alec Guinness. What I had missed was a vital link in the story-line: the beginning and middle which eventually must lead to a fitting end. A restive audience in the cinema had been indifferent to following out its course.

This provoked two reflections: firstly, I grasped why horror has to be more horrific, sensation more sensational, and effects more effective, in every succeeding film; the box office caters for sensation-seekers, not for story-seekers. Secondly, I suggest that this is something new. Of course it has its roots in appeals to human nature which hasn't altered significantly in thousands of years; of course (as in ancient Rome) the populace looks for bread from the State and circuses from the T.V. But. The reason, surely, why even illiterates remembered stories so as to tell them, father to son, down the centuries, was that the story-line hung together. If you forgot a bit, the logical chain of narrative prompted your memory. If you got Snow White out among the dwarves, and delighted your audience with the thrills of dwarfish technological achievement, pre-empting Sci Fi, you still had to get her away from them if she were to pull off a marriage to the Prince. The story has nice structuring: the full circle whereby the true royal line is reinstated at the palace (and the Order of Being upheld, as in *Macbeth*). So you bore that consciously in mind, and sent the Prince out hunting for the chance encounter which was to conduce, directly, to Happily Ever After.

A generation accustomed to the interruption of T.V. ads is starting to lose its grip on beginnings, middles, and ends. I find it hard to follow the cricket, especially if I have just switched it on: it takes time to sort out which is the continuing play, which the repeats, and which just the introduction for Den Lillee or Peter Russell-Clark to advertise something. Clearly, I with the viewing public am/are not expected to be so trad. as to desire simply to watch the ongoing play ball-by-ball.

Yet your clients, at least, have got to come to terms with the overwhelming importance of structure: that grid through which one can see any single specific factor in its place as part of a co-ordinated functional scheme. Have you held out to them the attractive flip-side of this requirement? - that the benefits which accrue are invaluable in practice? This was the immediate response I received when first outlining my ideas for this paper to friends who took in my line of thought at a bound. One instantly furnished me with an example. Just back from an organ-music workshop, he reported that before the participants addressed themselves to a piece, the leader took it apart for them, energetically expounding the relevance of each section of the work to the total composition -

after which, they were able to learn it, he said, in a quarter of the usual time. They knew where they were going, as the individual notes of the beginning blended into the middle, and with its themes and harmonies strove to find concord in total resolution at the end.

This is a very interesting comment on my thesis, inasmuch as it contributes to the debate on teaching and learning which concerns so many of us. The first thing a professional mind looks for in undertaking a new subject or a new subject-area is, surely, the governing system which dictates its operation? Once grasped, this system will allow an analysis of content material, and will indicate also the extent of that content material, so that one may plan how to absorb it.

An ability to grasp structural frameworks will certainly assist your clients to learn; and, what is better, to understand what they learn. You may need to tell them this - for sometimes the framework in a discipline is so familiar to its practitioners that they never think to make mention of it. I once taught First Year English Literature, in a course which introduced poetry from Chaucer to the present day. The staff, planning it in consultation, were eventually satisfied that we could provide a background against which to appreciate the evolution of poetic theory under the influence of the history of ideas. It was a super scheme, but to us so obvious that once the year began nobody thought to mention it expressly. It was in the last week that it occurred to me to make sure the penny had dropped, so I asked why the poems in the vast anthology we used appeared in the order selected by its editors - Byron, for example, appearing not alphabetically after Browning or whomever, but with Shelley, Wordsworth, Keats, and the other Romantics. It seemed at the time a fatuous question that only I would have asked: but no one was able to answer it. All the carefully-prepared background material had passed them by, and the same proved true of my one remaining group for the year. Only now do I recognise the extent of the disaster... which it was too late to remedy. All the students had done, was to read up each separate poet who received a mention in lectures - a technique which leads in exams to the unwary writing down "John Donne is known to be metaphysical."

This is not so funny as it might sound. I spare you my professional anguish as I reflect that these students could have had no comprehension of the Renaissance mind, nor have seen how one facet of its expression - Donne's - develops into Eighteenth Century satire or reappears combined with other attitudes in the output of Byron or, much later, T.S. Eliot. I do not spare you the comment that many people have gone on to take Ph. D.s without any

real understanding of how what they study relates to the world which produced it.

I read recently a well-researched article on Shakespeare whose writer had learnt from a social historian that the aristocratic family of the English Renaissance was "patrician, primogenitural, and patriarchal" and from his shocked account proceeded to draw certain conclusions. These were sound enough: but firstly, she lost the humanity of the characters so that the plays appeared far less convincing; and secondly, she had apparently never glanced at the families of the Texas millionaires among whom she lived: many of whom must be "patrician, primogenitural, and patriarchal", though as prone as the English Renaissance to everyday human joys and sorrows. The framework of analysis she had adopted was too narrow used alone; she had neglected to relate it to the larger enveloping framework of human life. In the same way, many of our First Year Literature students had by studying poets in isolation both missed the comprehensively human voice with which they speak to humanity as they reflect the minds of their generation, and failed altogether to note the development of poetic techniques and theory through the centuries, let alone their reliance on one another.

This is the goal to which clients first encountering order with awareness need to proceed. They must relate one structure to another, and find the overall context which harmonises many applicable structures into a meaningful relationship. To take a simple example, the student of Business Administration knows that one man digs a well in x multiplied by y days only within the pages of a maths. text book. He has studied psychology, and he knows that the man will take longer than that, because he lacks the stimulation of working beside mates; or he will not take so long, because he wastes no time in talking. He won't dig at all, if Management have failed in personal relations with their employees, and the unions have declared the job black.

It is not only the contextual framework of the human condition that needs to be considered, however. Professional analysis may have to consider two (or many more) systems operating simultaneously. The student who is to appreciate irony must be thoroughly aware, not merely of two opposing processes which function in isolation, but of the resultant tension between the pair that provides their total statement. If he is not, he will have little idea of what Jane Austen, for one, meant to say. It is probably for this reason that so many students misunderstand her. Yet they come so close to catching her meaning! Those same students of mine who declared they hated Emma because in the first sentence she is said to be "handsome, clever, and rich", after attending lectures which to me seemed also to miss the point of the novel's

ambiguities, wrote at length in their exams of Emma's folly, and her gradual education through her misadventures. So much for "clever"... As for "handsome", not only do her greatest admirers, discussing her looks, find agreement only on her being the picture of health, but she obviously suffers by contrast with her rival, Jane Fairfax, whom contemporaries of Jane Austen would have recognised as the ideal Romantic beauty popularised by Walter Scott. And how can she be called "rich", in comparison with the jet-setting Churchills? - while clearly she improves her fortunes in every way when she marries the primogenitural Mr. Knightley. Deliberately, the opening description is quietly undercut as the novel proceeds. Then did Jane Austen write rashly, and re-draft oblivious to the discrepancies? By no means. In the carefully and classically balanced structuring, her gently humorous irony reveals a satisfying portrait of mankind's inconsistencies. Emma in the wide context is seen as very small beer, a country gentleman's daughter, no more; but to the only part of the world that ever encounters her (for she never leaves Highbury except for the seclusion of her sister's circle in London), she gives the impression of having everything. Not merely her position in the village but her character contribute to this. Examine yourself, and see that much the same applies to you. Examine your colleagues, and admit that it is true of everyone. We are not Jekyll-and-Hyde personalities; but we all present an image which is true only up to a point, and all present rather different images in the differing contexts of our daily lives, briskly professional at work but relaxed at home. Perhaps this is why other people so frequently misunderstand us...

If you are unconvinced by this example - since you have only my word for what Jane Austen intended - then I offer a couple of instances from my own conversation down the years, since I trust you will credit that I certainly knew what I intended at the time. In each case, my meaning could only have been understood in context of the situation which prompted my remark. I once endured a long harangue on a subject of which the speaker was clearly ignorant. Appealed to for agreement on some point, I simply said "I know nothing about that." Now, the speaker already knew that I had had some practical experience of the issue under discussion; I suspect, that this was why he was attempting to impress me. So my comment meant that I felt it was improper to offer any opinions until one had studied the subject - and thereby hinted that he would do well to be silent. Only recently have I understood why he took the rebuff so blandly; missing the clash of his conflicting information, he must have thought I was confessing to ignorance. On the second occasion also my point was probably not taken. I had become thoroughly annoyed when my account of some event was vehemently opposed by someone who had not been present and was hearing of the incident for the first time.

"If you are correct," I finally broke in, "then your information is better than mine." The elaborate circumlocution should have driven home the insult of the four-letter epithet I had in mind; but the economy of irony allowed me at the same time to defend my position.

I am concerned that, at school, students are actually encouraged to attend to only one matter at a time. Drawn into a discussion about spelling with the parents of a VIth Grade pupil, I was told that during Creative Writing lessons the pupils were advised to focus on the content of what they were putting down and were not to worry consciously about its contextual English. Even at this early age, children could be learning to hold in mind at least two considerations at once. Maturing, they would find methods of balancing out factors and distinguishing the processes they themselves employ to relate the claims of the one to the other.

The student who is to succeed must search out not only systems, but their related and their contextual systems, so that he can see the complex significance of any one case. Seeing an apple fall, he should think not "Gosh, that might have hit me!" but "Ah! There is an instance of Newton's Law. This keeps the world within reach of the sun's heat, so that apple trees may produce fruit and contribute to the Gross National Product." A little extreme, perhaps. But my point is that he should not stop short at remarking the fortuitous, but instead endeavour from the incident to understand the working of the world through which he must make his way.

One particular client of mine will serve as a more valid example for this section of my argument. She had been getting good marks until she failed in one essay, and wrote indignantly to me to demand why. At first I was baffled by a somewhat incoherent essay, which seemed unsure of its material. Since mature students are as a rule thoroughly in possession of their facts, I looked more closely. Very simply, it turned out that she had reached a stage where she could distinguish patterns in historical processes, but could not take the further step of relating one pattern to another. Perhaps she was not sufficiently conscious of the operation of the systems. She had been asked to describe the relationship of European colonial expansion on some Pacific island to the ongoing reactions of the islanders. Her essay swung uncertainly between the two, describing only the course of events, and this not as move and counter-move but as procedures apparently in isolation. She could not visualise the relationship. Had she been able to work methodically, she might in writing have discovered it: but she had no "tricks of the trade" to help her, such as that old invaluable technique of comparison and contrast. This will always reveal points of contact between two entities - points of

contact, even if the two differ, because they must be shown to differ in terms of one issue, be it (in this case) opposing cultural expectations, contrasted technological development, or whatever.

By supplying points of contact, the student will be creating a contextual framework within which to analyse the history of colonisation. Here will be one more structure superimposed on the line of thought, and this in turn may be related profitably to other structures again: those, for instance, which govern the marketing of overseas produce in Europe; or those which dictate the defence policies of today, as culture clashes with culture and national ways of life seem threatened.

As we direct our students' minds to the structuring and ordering of operations and of processes, we may open for them ever-expanding horizons in which they may gain a deeper understanding of the fascinating complexities of life. Thus they can more accurately assess their knowledge and make it functional. This is one way to show them how to "work with their facts." The more conscious they are of an order which can be imposed on apparently miscellaneous material, the more methodical they become in pigeon-holing their information, then the better-informed, as well as the more successful, they will grow to be. I think you will agree also that memorising is promoted by the mental filing of information.

One final point. Has it occurred to you that in this way you can also grant them their freedom? I have become increasingly aware, recently, of my own good fortune in being enabled by my education to practise an independent judgment, along lines tried and proved valid on the campus.

If I take a problem to a colleague, he will prompt me to conceptual considerations. "If you do this, what will happen, do you think? Or what would be the result, if you did that?" Between us, we envisage different chains of cause and effect, and then evaluate their relative benefits. But if I take that same problem to friends who have no professional methods to fall back on when making decisions, then they baffle me by urging me to take advice, their own or someone else's, and to proceed uncritically by its direction. Often, advice is given on the strength of some one incident which my friends claim falls into the same category as my own problem. My bewilderment generally arises because I cannot see why the context they are applying should relate to the contexts which I know are true of my personal circumstances. Not only am I surprised to have it suggested that I should be told what to do - rather than to think what to do - but further, we are really not communicating

for the reason that either the frameworks we bring to bear are discrete (or overlap only slightly), or that my friends are not supplying any context whatsoever: they just imagine identity in two superficially similar cases. One example of disparate contexts; or rather, of context as used by one side but disregarded by the other. My library of discs was wearing out, so when asked what I wanted for Christmas, I named records. I mentioned one or two composers for luck, thinking to offer guidelines. However, the donor went off to a music shop and asked the salesman what should be purchased to update a collection. So she told me as I unwrapped, thinking to increase my pleasure in receiving discs "known to be good". As she had given the salesman no hint of my tastes or of my current collection, I hope he had the sense to apply one functional principle - his own - and flog off a couple of records he had been unable to sell hitherto. However, the donor was at least correct in considering that those who have acquired some informed context are empowered to assess the given instances which fall within its scope.

My second example is far more serious. I heard recently of a little girl who at the age of nine still cannot read - cannot read even the simplest words. What has been said to her anxious parents? "She will never learn to read now. You should just concentrate on making her happy." The parents (and this is worse) have accepted that dictum. They have no contextual frameworks from which themselves to assess the situation, and they have accepted the advice because they have no means whereby to criticise it. You and I, rapidly applying one context after another, find it fits none validly. What does "never" mean, if related to all possible courses of procedure? How many remedial systems remain to be tried? And in terms of wider issues, what will be the effect on the child's morale? Her parents will encounter this, as they dutifully attempt to make her happy. Considerations of learning aside, how can a totally illiterate person take a part in normal Twentieth Century life, when she will be unable to qualify for a driving licence, use the telephone book, read the instructions on the package or the prescription, write out a recipe for a friend, or, eventually, encourage her children's education with any real understanding? Nor can she take up her responsibilities as a citizen, if she cannot cast a vote or offer her signature as guarantee of what is written above it, even on a cheque. Her identity will suffer. I have spoken already of the chaos observable in the attitudes and approach of partial illiterates. I think it likely that this is in store for her, compounded result as well perhaps as contributory cause of her difficulties. Fragmentation attends a life that cannot be lived to the whole, as others know of the whole.

So when you introduce your students to their first awareness of order, you are not only working for their success in their studies, and beyond that in

their careers: you are offering them a way to the freedom of independent judgment, and the joys of complete personal responsibility in every future activity of their lives.

LEARNING TO STUDY DESPITE BEING A STUDENT :

YOU'VE GOT TO HAVE A SYSTEM.

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Virtually all Universities and Colleges of Advanced Education in Australia provide some form of service designed to improve their students' learning skills with the general aim of upgrading academic performance. Underachievement has generally been considered to be the result of both emotional problems and study skills deficits (Bednar and Weinberg, 1970) and Counselling Services or Learning Centres have attempted by and large, to deal with such factors separately, though recently some services have reported attempts to manage both aspects of underachievement (Robyak and Downey, 1978). However, outcome studies have not shown the efficacy of such programs to be at all reliable and an enduring difficulty is that to do with isolating the factors alleged to be determinant, such that some form of replication can be effected. And while it is comparatively easy to tear methodological strips off much of the 'research', ways of establishing rigorous experimental design remain elusive.

Together with the methodological exigencies that plague attempts to reliably measure outcome and identify causal factors in this field, there are also raised from time to time questions about the desirability of the whole learning improvement exercise. It is argued, for example, that if students cannot solve their own learning problems then they should not be in higher education, that teaching study skills will encourage students to have problems or that study skills are too amorphous to be taught at any level higher than worthless generalizations. While debate around these issues remains unresolved, it is clear that the crucial factor is not so much that students be aware of good study methods, but whether they put them to use. Weigel and Weigel (1968) found that the students they surveyed did have

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an adequate knowledge of good study methods but used them infrequently. And after reviewing reported work in this area, Robyak and Patton (1977) concluded, not surprisingly, that a student's increased use of study skills - perhaps prompted by a study methods course - may be more closely related to improved academic performance than simply increased knowledge of skills and that such use was associated with certain personality types, particularly those rated as 'judgers' rather than 'perceivers' on the Myers-Briggs Type Indicator. This and other studies have lent support to the view that there is no relationship between study skills course content and the observed increases in academic performance that often follow attendance at learning improvement courses. Nor has it been shown that academically ineffective students become effective by mastering particular study skills (Robyak, 1977). Certainly behavioural change can be brought about, though often at high cost in terms of time commitment by teacher and student. Robin, *et al* (1977) for example, showed that after four hours of intensive teaching in notetaking designed to improve accuracy and coverage through a combination of modelling, instruction, active responding, fading and positive feedback, student performance did improve. But this improvement did not produce differential gains in examination scores. This, the authors say, is not surprising since accurate notetaking does not lead to success unless the notes are studied properly, an activity which involves both cognitive and attitudinal factors. It is well known - by many of us through personal experience - that borrowing good notes does not guarantee the bringing about of good results.

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Hartley and Davis (1978) reviewed the available studies on notetaking and reported that while over half of the studies found either no difference or a negative effect on subsequent recall through simply taking notes, reviewing of the notes was found useful in thirteen out of sixteen investigations. Further, Norton (1981) found that the best test scores were obtained by students who took full notes, held positive attitudes to the value of notetaking and who made subsequent use of the notes through reviewing.

other was being tested?

What seems to emerge out of all this is that students who are 'organized' - and judgers are seen as organized compared with the more vacillating perceivers, are more likely to benefit from study skills courses through their increased tendency to put the skills they learn into practice. And such students are more liable to be satisfied with the course if it contains a good deal of structure, that is if the course is directive, didactic, prescriptive and seen as offering practical techniques. Pauk's experiences as a learning skills teacher lead him to similar conclusions as he points out in his preface to 'How to Study in College' (Pauk, 1974) ... "students have told me that by learning a particular technique for taking notes, remembering what they read, learning for an examination ... they have achieved some sort of breakthrough" (p.vii). It is then, the application of a worthwhile technique that makes the difference - once students find that there is a best-way-for-them of approaching some aspect of study, then this provides an incentive to look for ways to attack other aspects of their work. That is, often it seems to happen that the use of one or

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two study techniques opens the door to the solution of a whole complex of related problems.

Alex Main of Strathclyde University looked at behaviour and attitudes of successful students and found that contrary to the popular study skills view of things which sees good students as, for example, having regular schedules of study, working at the same time each day in the same study place, and taking the dog for a walk every fifty minutes or so, these students were more likely to choose their own personal and idiosynchratic methods of study rather than those based on advice in study skills manuals. He concluded that their success largely rested on the active use of systems, probably because this organized their approach to study, and also on their high levels of motitvation (Main, 1980). And the Melbourne study (Frederick *et al*, 1980) found much the same in that ... "students consistently reported more problems in the study organization and motivation areas than with study skills *per se*" (Synopsis, p.7.)

According to Gibbs ... "how organized students are is the one aspect of their studying that consistently correlates quite highly with examination results. Well organized students do better" (1981, p.15). And organization does not simply mean rigid adherence to timetables. In fact one of the few follow-up studies in the literature found a negative relationship between specificity of planning and academic improvement; monthly planners did better than daily planners (Kirschenbaum *et al*, 1982).

Students who are organized are those who have worked out a good balance between study and recreation, and who use study systems - often spontaneously discovered, less often gleaned from study skills manuals or courses. They are organized therefore, not because of deliberate highly specific time planning but because use of a system dictates in part how they must structure their time. If it is true then, that successful students are those who are organized and that this organization involves the use of systems, can the reverse be brought about; that is, if students are introduced to systems and shown that they can be useful in helping to organize their study time, will this improve their performance? Our experience at WAIT, much as Pauk found, is that students who are made aware of systems, rather than given advice or told to use a particular study method, do indeed often experience that 'aha' reaction which leads them to use and look for systems which will help them to structure their approaches. Some students have also reported an increased interest in study derived, they say, from knowing 'what to do next'. And this is perhaps the major effect of the use of systems - it takes the student out of the limbo of not knowing how to start and sustain an attack on notes, text books, assignments or whatever academic task they are faced with; it gets them off and running.

In our study skills courses then, we guarantee students no good advice, useful suggestions or helpful hints (which often comes as a great relief to them) but rather the explanation and demonstration of systems - ways of doing things. And this not with a view to their adopting exactly those systems but rather to encourage them to adapt the techniques to their own styles, the vagaries of their lecturers and text book authors and the academic content, and then to look for further systems

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to deal with other aspects of their study. One system students find particularly useful - though often only after they have 'adapted' it out of all recognition, is the Cornell system of notetaking which exploits much of what we know about long term memory access as well as providing indexing and summary notes for later reviewing. The various text book systems - PQRST, SQ3R, etc. are reported valuable in giving students a method of approach which can be readily altered to suit purpose and content, and demonstration of Buzan's work on brain patterns for recall and creative thinking (1974) stimulates students towards using transformation of medium as a study technique as well as providing ways of seeing relationships between bits of knowledge which may have been acquired across a wide temporal gulf. Our courses then, are structured and didactic and the running theme is "you've got to have a system".

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GIVING CREDIT WHERE CREDIT'S NEEDED -

A PROPOSED COURSE IN TERTIARY LEARNING SKILLS

A Paper Presented at the

ANNUAL NATIONAL CONFERENCE ON LEARNING SKILLS AND COMMUNICATION
UNIVERSITY OF QUEENSLAND

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This paper deals with a current proposal within a College of Advanced Education to introduce a sequence of three, semester long, elective course units designed to equip students with a repertoire of effective study strategies and to encourage them to use these in developing a personalised approach to study appropriate to tertiary learning. The courses do not result from a research base within the College nor indeed from any institutional tradition of practice in the field. They are an intuitive response to the apparent needs of a significant number of undergraduates beginning study at degree or diploma level in a range of College courses. A brief account will be given of the manner in which the course units evolved, the rationale and objectives of each course unit and approaches to evaluation.

The College Content

The international concern about the changing characteristics and needs of beginning tertiary students in relation to study techniques is well known and was reported by several speakers at an earlier conference of this type at La Trobe University in 1981 (Bock and Gassin, 1982). In many respects the situation in this College is probably similar to that in other such institutions. However many of the courses in fields such as social welfare, police and correctional studies, business administration and arts, also attract students who have returned to formal education, often on a part time basis, after an absence of many years. The majority of students do not have any social or familial ties with the traditions of higher education since the College is the only tertiary institution located in the rapidly growing suburbs of Sydney's south western industrialised areas.

Background for the Development of Course Units in Study Skills

Staff of the various schools within the College have become increasingly vocal over the past few years about the proportion of students whose lack of achievement stems not from an inability to cope with the conceptual demands of their discipline studies but rather from inadequate strategies for engaging in, and responding to, tertiary learning experiences. Indeed, many students are acutely aware of this as a major source of difficulty.

A few staff members showed interest in attempting to integrate the development of study skills with the teaching of discipline courses. This interest however, was not shared by all staff and course units were taught to various groups by different lecturers, hence the needs of many students were not met. This problem was exacerbated by the large part time student population and the elective nature of some courses.

The student counsellor was able to provide consultation and informal tuition to some students and in addition she attempted to organise short non-credit courses outside of scheduled lecture hours. Despite wide publicity and promotion, these efforts attracted a very low level of student participation which was not sustained even over the short period of the course's duration. It must be remembered that a large number of the students needing help were already stressed by the work demands of college. They perceived only the extra work load associated with additional voluntary classes. A number of students who initially showed interest wanted to obtain help toward short term goals, i.e. they wanted specific help with particular assignments and were not aiming toward the development of more independent strategies. A different approach to meeting student needs was required.

Guidelines for the Development of Course Units in Study Skills

The following guidelines are clearly the result of pragmatic and theoretical considerations and seemed to represent the only viable basis for developing the tertiary learning skills of all students in the target group.

1. Courses should receive credit and be conducted within scheduled lecture time.

2. Skill development should be fostered in the context of students' own discipline studies.

3. Skill development should be based on efforts to stimulate students' metacognitive awareness.

4. Students should be encouraged to see additional study skill development as a continuing personal responsibility in their professional lives.

A Bridging Course in Study Skills - Aboriginal Education Programme

For the reasons discussed above it became clear that students could not easily be provided with fully integrated study skills sessions within existing course units in the various disciplines. This realisation coincided with an opportunity to design a discrete semester long course on "Study Skills" consistent with the principles stated above. A submission entitled "A Proposal to Encourage Aborigines to Successfully Complete Tertiary Studies at The Milperra College of Advanced Education" was endorsed by the N.S.W. Higher Education Board. In Spring 1982 the College offered an "On-Campus Orientation/Bridging Programme" for Aboriginal students entering the normal College courses in Autumn 1983. This programme aimed to provide mature Aboriginal people with the opportunity to develop study skills to a level which would enable them to cope satisfactorily with tertiary study and to bridge into the normal Teacher Education and Social Welfare Courses. Students undertook course units in : study skills, mathematics, oral/written communication as well as one core and one elective course unit in their discipline areas. The study skills course unit occupied three hours per week over a twelve week period. Only a small number of students were involved, they were all studying either one of two core units offered. The co-operation of lecturers involved in these units was obtained and the core course unit material was used as a basis for developing study skills. For example lectures in the core unit were video taped and used as a resource in improving students' techniques of notetaking. The very positive response of the Aboriginal students who completed this course and the practical experience of implementing an "integrative" approach to Study Skills development encouraged further work on the formulation of a sequence of course units dealing with Study Skills.

Rationale for Elective Course Units in Tertiary Learning Skills

The present proposal is for a sequence of three course units to be offered as electives within the general studies component of the courses taught at the College. All courses provide for a student elected component of general studies (or one fully elective) so this makes courses available to all students. The broad content of the courses is similar to that described by Zuber-Skerritt (1982).

1. Time Management.
2. Taking Notes from Books and Lectures.
3. Reading Skills.
4. Tutorials Seminars.
5. Writing Essays & Assignments.
6. Examinations.
7. Library.
8. Study Methods.

Some additional topics such as learning from non print materials and reading statistics are to be added. The efficacy of metacognitive development is emphasised throughout the courses and the learning skills are developed in a context which encourages their immediate application to students' work in other course units.

T.L.S.D. I

The first course addresses the demands commonly placed on students in basic undergraduate courses. The specific objectives of this course would require students to :

(i) develop and progressively and critically, modify a personal study timetable.

(ii) apply the strategies studied in this course to their learning in other course units.

(iii) become familiar with the range of library information sources available.

(iv) develop a procedure for conducting a library search for information.

(v) identify authors'/speakers' pattern of organising ideas in texts/ lectures and use this as a basis for notetaking, recalling content and planning expository writing.

(vi) adjust reading rate according to the purpose for reading and the difficulty of the material being read.

(vii) scan chapters of text books to gain an overview of their organisation and content.

(viii) skim chapters of texts to answer specific questions quickly.

(ix) critically evaluate material appropriate to their professional studies in terms of currency, relevance, validity of evidence and logical development of argument.

(x) develop well structured notes based on lectures and texts.

(xi) apply systematic research and planning strategies to the writing of expository essays and demonstrate a knowledge of accepted conventions in the use of quotations, references and bibliographies.

(xii) use knowledge of individual roles within groups and techniques for effective communication to increase their efficiency in learning through oral discussion, tutorial or seminar groups.

(xiii) demonstrate the ability to use background knowledge, content organisation and a variety of learning modes in developing study strategies for essay, short answer and multiple choice tests.

It is the lecturer's responsibility to ensure that students progress through personalised learning tasks in working toward these objectives. Indeed, the initial concerns of the course are to provide diagnostic information as a basis for the implementation of this aim as well as setting the metacognitive tone of the course. The stimulus material for all aspects of skill development should be drawn from the content of discipline studies which are representative of those being undertaken by students in the class group. This implies a dynamic approach

to lecture and tutorial planning, necessitating close consultation with other staff. An outline of the content of this introductory course might include the following :

1. Diagnostic Analysis of Students' Study Skills.

   Study Skills Inventories.
   Cloze Tests.
   Silent Reading & Recall.
   Listening to Lecture and Notetaking.
   Practice Essay.

2. Organisation in College Life.

   The "full time" student.
   College combined with Employment - Home Duties.
   Establishing goals.
   Personal Long Term Planning Formats.
   Scheduling Techniques - Developing a Personal Study Timetable.

3. Using Libraries and Information Sources.

   Identification of information sources :

   - primary and secondary sources)
   - book and non-book)
   - reference publications) distinguishing features
   - periodical literature) and functions of each
   - government publications)
   - research reports)

   Planning and preparation of a "search strategy"

   - determining nature of information required
   - establishing scope, specific objectives of research assignment
   - identifying steps involved in consulting information sources
   - utilisation of flow chart method to develop sequential steps approach to searching
   - awareness of progression through information sources from
     - broad/comprehensive - specific
     - general/descriptive - reserach oriented
     - historical/state of the art - current trends/developments

   Developing a familiarity with Library systems

   - classification scheme(s)
   - subject headings assignment

4. Learning and Written Language.

   Vocabulary Development.
   A variety of Language Registers.
   Organisation Patterns in Prose.

5. Efficient Reading.

   The Nature of the Reading Process.
   Flexibility of Reading Rate.
   Skimming and Scanning.

6. Critical Reading.

The authority of the author.
The relevance and currency of the source.
The adequacy of evidence.
The use of propaganda techniques.
Fallacies in Argument.

7. Notetaking.

Marginal Notes, Underlining and Highlighting.
Outline or "conceptual tree" notes.
Linear notes.
Combining approaches.
Notes from lectures and texts.

8. Writing Assignments.

Personal writing development.
Researching an Assignment Topic.
Establishing a Writing Plan.
Working with rough drafts.
Conventions : Quotations, References, Bibliographies.
Editing.

9. Oral Communication Skills and Learning.

Individual Roles within Groups.
Communication Checks - Paraphrasing.
- Feedback.

10. Concentrating and Remembering.

Depth of Processing and Memory - relation to past experiences, organisation and learning mode.
Mnemonics.
Exam Strategies - preparing for essays and tests.

T.L.S.D. II

In the second course efficient reading, writing and note taking are extended through a focus on more complex and evaluative forms of academic writing. Attention is also given to innovative approaches to information compilation, storage and presentation. The role of interpersonal relationships in adult group learning situations is further explored. The specific objectives for this course will require students to :

(i) develop and progressively and critically modify a personalised method of professional task scheduling.

(ii) apply the procedure of searching of library and information sources to research a topic in depth using a wide range of information sources.

(iii) prepare a bibliography of the relevant sources used following correct bibliographic citation format.

(iv) apply techniques of scanning and skimming to assigned reading, journal articles, abstracts and reports.

(v) demonstrate an understanding of the characteristics and purposes of basic statistical techniques used in behavioural research.

(vi) apply modified techniques of scanning and skimming (phased reading) to derive an understanding of the central themes of a whole book in a limited time.

(vii) establish criteria for the evaluation of research reviews.

(viii) develop an index system for student compiled notes and references.

(ix) survey the variety of written assignments demanded in different course units and establish guidelines for writing development in commonly required assignment modes.

(x) examine a range of techniques for presenting assignments in innovative presentation formats.

(xi) examine the role of interpersonal relationships in adult group learning situations in order to improve learning efficiency in tutorials and seminars.

(xii) develop metacognitive skills to enhance learning through evaluative feedback.

In both courses students are required to demonstrate their practical application of learning skills through assessment items based on learning experiences, assignments and tests from other course units. The following illustrates an assessment schedule relevant to T.L.S.D. II :

Assessment

1. Students will devise a personal task schedule covering all College commitments for the semester. 10%

2. Test : Efficient Reading.

   (i) Prior to the test date students will choose from a selection of journal articles, abstracts, reports, etc. appropriate to their discipline studies and establish common purposes for reading them. The test will be an "open book" type. The student selected materials will be distributed with accompanying questions devised by the lecturer to relate to students stated purposes for reading.

   (ii) A "short answer" test on the characteristics and purposes of commonly used statistical procedures in behavioural research.

   (iii) Students will be issued with a contemporary popular book which they have not read previously and which is related to their professional studies. The books will be similar to those used in the instructional sequence on phased reading. Students will use the method of phased reading to respond to a question dealing with a central theme of the book. 30%

3. Prepare a bibliography for a class assignment. The items cited should demonstrate that you have consulted a variety of research aids to locate relevant sources. 10%

4. Students will submit their completed "notes" system for this course unit. 10%

5. Students will submit a personal report on "Learning From Evaluation" which is to be based on two assessment items in a selected course unit. Students may wish to explore alternative presentation formats for this assignment. 20%

6. Completion of Tutorial Practice Exercises. 20%

T.L.S.D. III

Consistent with the metacognitive orientation of this sequence of course units, students who have developed effective approaches to tertiary study through learning experiences in the first two course units, are now given the opportunity to critically evaluate current educational research, experimental practices and commercial programs dealing with study skills. The general aim is to alert students to current research, commercial and practical issues in Tertiary Learning Skills Development so that they may seek innovative ways to further develop this aspect of their professional lives. Practical application of concepts dealt with to students current work in other course units is emphasised. In consultation with lecturing staff students will produce an innovative study guide for a course unit of their choice. This will reflect students approaches to the study of various aspects of the selected course unit throughout the semester and hence maintains the integrative approach to learning skills development.

The specific objectives for this course unit would require students to :

(i) establish criteria for the evaluation of commercially marketed "memory improvement" and "speed reading" courses.

(ii) demonstrate a knowledge of approaches to Tertiary Learning Skills Development used at other universities and colleges.

(iii) evaluate examples of current research on the effectiveness of "study skills" programs.

(iv) critically examine current research dealing with the nature of learning processes in higher education.

(v) articulate their own approach to tertiary learning and describe their range of personal study strategies.

The following outline represents the proposed nature of the course content.

1. Students will present detailed evaluative reports on current issues in educational research, experimental practice or commercial programs dealing with tertiary learning skills. Students will be encouraged to identify a topic relevant to their own study needs. Examples of such topics might include :

Commercial Memory Improvement Courses
Commercial Speed Reading Courses
Learning and Memory for information in film and video presentations.
Using Imagery to improve recall.
The role of illustrations in prose learning.
Student generated adjunct aids in learning from text.

2. Students will compile a "student's Guide to Learning in .....", a course unit of their choice.

The guide will contain a suggested task schedule covering required reading, assignment work, exam preparation etc. Topics within the course unit will be dealt with in terms of :

Useful background and related knowledge.
A list of key questions on the central theme to focus students' attention on important information in exploring the topic.
Approaches to the assimilation of essential vocabulary.
A categorisation of suggested reading according to its difficulty and the purpose for reading it.
An annotated list of important graphical and non print information items.
Sample notes from lectures and tests.
A research and writing plan for assignments.
Questions and points for clarification in tutorials.
Specific test preparation strategies.
Additional and alternative sources of help.

Student progress might be assessed through tasks such as the following :

1. Students will conduct a seminar of 45 minutes duration in which they will present an evaluative report on one current issue in educational research, experimental practice or commercial programs dealing with tertiary learning skills. Students are encouraged to explore innovative presentation modes for this assignment. Each submission must include a paper of about 1000 words produced to a standard suitable for publication in local journals. 40%

2. Students will maintain systematic notes and evaluative comment on "current issues" seminars presented by their colleagues. 20%

3. Students will produce a "Student's Guide to Learning in ..." - a course unit of their choice. All phases of compilation will be completed in close consultation with lecturing staff. The general format is described in the course content. 40%

Conclusion

It is intended that these course units should raise an awareness of skills necessary for effective learning at tertiary level. They aim to provide highly personalised tuition focussed on the development of skills in the content of study students are undertaking in their discipline studies in which their intellectual energies are genuinely and actively deployed. Hopefully the presentation of this proposal in some detail will elicit critical feedback which may assist in its further development.

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TEACHING INFORMATION SKILLS: WHOSE RESPONSIBILITY? - a discussion paper.

Annual National Conference on Learning Skills and Communication

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University of Queensland

Abstract:

Information skills are described in relation to general study skills and library search skills; university teaching is discussed in terms of the roles of academics, librarians, study skills counsellors and educational consultants. Acquiring information skills is argued to be an integral part of the mastery of academic disciplines, and their transmission a part of the process of effective teaching. Questions are asked concerning whether information skills ought to be formally taught, and if so by whom, when, and in what sort of relationship to subject content. Finally an appeal is made for dialogue between, and closer partnership among, academics, librarians, study skills counsellors and educational consultants.

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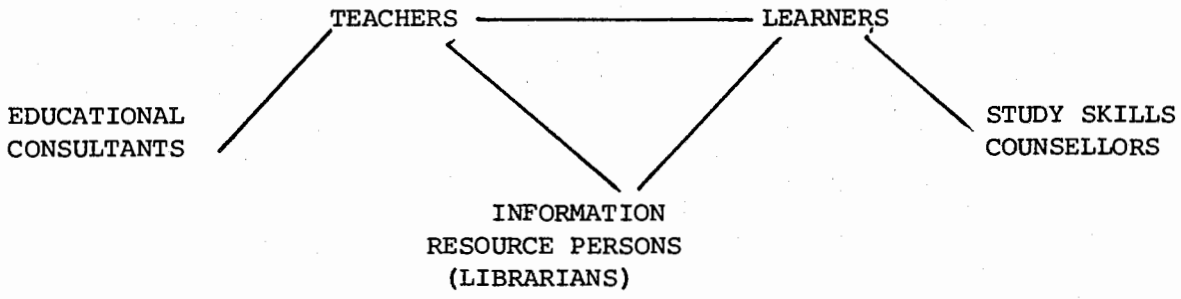
Introduction

At the historical heart of the concept of the university is the idea of a community of scholars or intellectuals practising their craft in pursuance of an ideal which comprises scholarship, research and the teaching of students[1]. Among those students taught in each generation will be some whose shoulders will receive the mantle and who will become the next generation of intellectuals, scholars, researchers and teachers.

Though simplistic, perhaps even naiive, this model is readily filled out and qualified in order to approximate quite closely to the reality we see in today's universities. One element the model lacks is that army of persons engaged in activities ancillary to and supportive of the academics and students. Most obviously comprising technical and administrative staff, this group also includes a small band of specialised support persons: study skills counsellors, educational researchers and consultants, librarians and others, many of whom are represented at a conference of this type.

These latter groups are clearly not, in the first instance, directly involved in those centrally characterising pursuits of scholarship, research and teaching which are the domain of academics. Their roles, however, both intertwine with those of academics and, in several important respects, directly confront and overlap them. One of the purposes of this paper is to examine these roles in relation to that historical concept of the university, and particularly to the teaching component in it.



Their full roles are, in each case, quite diverse; I shall examine them only insofar as they bear on the central concept in the title of this paper, namely Information Skills .[2] The discussion will be essentially theoretical, and it will require another quite different paper to explore the practical applications of these ideas (though I have suggested a number of these in the footnotes). I shall state and defend three fairly general propositions, and these comprise the titles of the three sections:

1. that there exists a definable body of knowledge which can appropriately be described as Information Skills,

2. that this body of knowledge is centrally relevant to the intended outcome of university teaching (which I take to be effective student learning), and

3. that though for a variety of reasons Information Skills may be a neglected area [3], there are compelling reasons why academics, information resource persons, study skills counsellors and educational consultants should jointly accept responsibility for promoting it[4].

I do not think a great amount in my discussion is original, unless it be the analysis and framework I have imposed on the topic. Several perceptive and persuasive writers have recently argued the same sort of case in their own way: among educational researchers and consultants, Ernest Roe; among librarians, Raymond McInnis in the USA and Nigel Ford in the UK. I shall draw liberally from their wisdom in making my case. My intention is the modest (but, I believe, important) one of disseminating their ideas to a wider audience and raising the issues as fruitful areas for discussion at a conference such as this.

Though theoretical, my case is based on practical involvement in two recent projects: the development of a library skills curriculum, in collaboration with Reader Education Librarians, and a series of interviews subsequently conducted with academics nominated by librarians as being representative of committed library enthusiasts on campus. Both these were engaged in as part of my role of an educational consultant and researcher.

1. What are Information Skills?

Roe suggests they comprise the area where learning to study and learning to use libraries overlap or interact[5]. We may look for them within those elements of study skills courses that deal with obtaining, evaluating, storing and using information, and also in those elements of library reader education courses that deal with using library and bibliographic tools for (i) opening up the literature of a subject and (ii) locating items of that literature within a particular library collection[6].

A different, and perhaps more illuminating, approach to describing the area is through tracing a hypothetical student's experiences in the course of studying. It is possible to imagine the student starting with the recognition that certain information is required, then progressing through a number of stages until it is finally obtained and used. These stages include, among others,

* making decisions about what sorts of information will satisfy the needs,
* identifying the most likely sources of this,

* evaluating and choosing those sources,
* locating them in a collection,
* evaluating and selecting materials from within the sources,
* and carrying out these and other operations in rational, consistent, efficient ways, compatible with the other operations that have to be done in the student's life.

The nature and importance of this area impressed itself on my own awarness through working with reader education librarians. Our aim was to devise an improved curriculum for use in library tutorials which are offered for all levels of student groups[7]. Algorithms and concept maps and instructional objectives were plotted in an attempt to represent systematically and comprehensively what it is that an effective student must know so as to operate successfully in tapping an information resource such as a library. Time and again it became clear, however, that the traditional division between library skills and study skills is quite arbitrary, and I have since come to believe that it may even act as a barrier to clear thinking and good practice in regard to meeting student needs[8].

Items typically encountered which stood on the perimeter of traditional 'library knowledge' included:

* devising and using consistent citation techniques
* developing and using an efficient system of rough recording during the formative stages of a search
* developing an efficient card system for references of permanent use
* devising patterns of efficient movement around an inefficiently-designed library building
* fitting library tasks into the time left in an irrationally designed class timetable
* making decisions about relevance and importance of items found
* planning and using fallback options, in case the 'best' item is unavailable in time
* persistently recycling through standard search procedures
* meeting apparent dead-ends by cutting losses
* trimming over-large tasks to fit the time available
* ruthlessly discarding trivia and using sampling procedures on what remains
* taking the initiative in approaching librarians for guidance, information or other help

When these sorts of matters arose, the response of librarians was quite naturally to feel at first that it is really not their problem ; their expertise does not qualify them to prescribe what a student should do in such cases. The skills involved are marginal to ordinary library skills. They are those

skills, however, which any rational, efficient, prudent, self-interested searcher after information would need to use in any study task. The pity is that when students do face information-gathering tasks in complex, bewildering libraries, being rational, efficient, prudent, etc. is frequently the last thing they find themselves capable of when an assignment is due in a few day's time.

Of course it is crucial to recognise that a great many of the Information Skills are precisely those traditional Library Skills which librarians are, in my experience, only too happy to teach students when asked. A good many study skills publications contain these, though they are often dealt with in a rather more cursory manner than they would be in a library instruction class [9]. When I asked a Counsellor colleague to recommend me five good study skills books from his extensive library, four of those he offered each contained a substantial chapter on these library skills (sometimes called the use of 'resources for learning') [10].

In almost every case, however, the chapters comprised the library skills alone, and it was rare to find them integrated to any extent with those general study skills mentioned above. There does seem to be the need for someone to address the problem of providing a coherent guide for students who need to find, tap and use information sources (generally housed in libraries) for survival in their courses of study [11].

I suspect one problem here is that few librarians or study skills experts appear to have developed a thoroughgoing conceptualisation of the area of information skills, in order to write about it or design courses embodying it, perhaps because each feels reticent to step into the territory of the other professional[12]. This is reasonable enough, but hardly good enough if students are to be given the support they need.

I believe, in addition, that there is a problem in failing to see the study-skills / librarian relationship in its wider context; namely, the context of the entire university scene, and one that takes in the role of the academic at its central focus, and that includes the role of the educational consultant as an additional point of reference. I will pursue this exploration in the next section.

2. How are Information Skills related to the intention of university teaching?

If one is to make a convincing case for the recognition of Information Skills, and defend any views about whose particular responsibility it may be to teach these to students, I believe it is necessary first to understand how they relate to the whole idea of the university: as mentioned in the Introduction, the idea of an institution devoted to scholarship, research and the teaching of students in academic and professional disciplines[13]. This is too broad a scope for one paper, and I shall limit my comments to the teaching function only.

Roe identifies two key educational roles of academics as being

* teachers of subject content, and
* selectors and evaluators of teaching / learning materials[14].

He believes these two educational roles are neither able nor likely to be usurped by other 'specialists' on campus, and also that library practitioners rarely, if ever, engage directly in these two areas of the academic's role[15].

Reciprocally, academics do often engage in several key librarian roles within their own disciplines. Roe mentions their involvement in both building up literature collections and in developing subject bibliographies. Both these bear, obviously, on the teaching task. Only occasionally, however, do academics act towards their own students as library use educators or advisors on the use of library resources[17]. My own investigations among academics who are library enthusiasts suggests that they are often regarded as odd, even eccentric, for doing so. Reader education librarians inform me that they, in a similar way, are often looked at askance by other librarians for daring to adopt the role of teacher as well as librarian.

What of the Study Skills Counsellor? Both Gibbs and Main have commented upon this role in relation to that of the academic. Gibb's experience in publishing a book for teachers on how to run group study skills sessions for students, led him to conclude that there is a huge, unmet demand for help with study skills of a sort which goes far beyond the conventional giving of pastoral advice to students[18]. His subsequent efforts have been directed into developing exercises which address learning skills specific to a course or discipline and which can be administered by teachers in class time[19].

Main has written of his experience as both subject teacher and study skills counsellor. He believes these roles do not differ markedly and that what he has done as counsellor could equally be attempted by any university teacher with the necessary will and courage. His message seems to be that, though the teacher and counsellor roles are obviously not identical, the differences are not such that role conflict is necessary or even likely when one person engages in both simultaneously; indeed, they are complementary roles. He also emphasises the enhanced legitimacy study skills acquires when delivered by the subject teacher[20].

I do not intend to elaborate on the role of educational consultant beyond one brief point. It is that, in a period when accountability is being made much of in universities, and professional development for academic staff is an item on the agenda of a growing number of university councils and academic boards, the educational consultant is almost certainly entering an era of role changes in which his or her work will be seen as much more integral to the central functions of teaching and learning than hitherto. If changes are to be made to the roles of librarians, and study skills counsellors in response to the call for more effective teaching and more efficient use of university resources, the educational consultant is in a key position to work with academics in the crucial task of negotiating with them how they will adapt to these new conditions - particularly how their courses and their teaching methods will need to change. They alone are in the position to be facilitators of change in a situation where these other established professional roles are being redefined and adapted.

Up to this point I have outlined some aspects of the roles of librarians, study skills counsellors and educational consultants in relation to the academic's role as university teacher. A great deal more could be said about all these, but not here. Is there any way in which one can conceptualise all these roles in relation to the whole idea of effective teaching in universities? I think there are at least two ways, and I shall deal with them in turn:

(i) by examining what it is we mean by a 'subject'- that is, by looking at the content of university instruction,

(ii) by looking at the activity of teaching itself, and in particular by considering the idea of effective or successful teaching.

(i) Subjects: the content of teaching

McInnis has dealt exhaustively with this and I shall condense into a page what he develops over about thirty pages of his book[21]. Central to his case is the concept of the structure of a discipline, which refers both to the key concepts or ideas of the subject and to the relationships between and among them.

Teachers presumably have their own idea of what the subject consists of and it is this they try to communicate to students. McInnis, following Ausubel, calls this the teacher's psychological structure of the subject, and it is idiosyncratic to each academic.

Subjects exist outside of the minds of teachers, students, and the process of teaching. Somewhere there is a substantive or logical structure of a discipline, to which each practitioner's psychological structure is a sort of approximation which becomes nearer as he or she matures in sophistication. Here, Ziman's notion of the consensus of expert practitioners is appealed to. This is what standard subject texts seek to represent - the distillation of the stable, consensible essential core of the subject, as distinct from its fluid, growing edges; it is equally what review articles and handbooks represent, but to a different audience.

Both psychological and logical/substantive structures are defensible enough notions; their defect is their intangibility. A far more tangible form of a discipline's structure exists in the published works of the researchers and thinkers who have, over generations, contributed to it s growth. This is the bibliographic structure , a network of references and citations into which each new contribution situates itself while at the same time extending it in a particular direction. Chronologically sequenced and stable, it can be spelled out on paper and analysed graphically; far from being a library artefact it is embedded in the very idea of the nature of public, scientific knowledge.

Students, in mastering a subject, find their way (independently or dependently or in some balance of the two) along a pathway which takes them towards the point where they share, with other mature practitioners of the field, in the consensus of the logical/substantive structure. For most, a stage is reached where their grasp of it (their psychological structure) is sufficiently close to that (or to what their teacher understands by it) to meet their needs[22]. In many cases, the only information resources needed are texts; for a good many others, however, more than texts are called for and their learning process necessarily involves some type of entry into the bibliographic structure of the discipline. The extent of the student's need for information resources is thus a function both of the relative independence or teacher -dependence of their learning style, and of the level at which they need to master the subject.

This model of effective learning carries a number of implications for our examination of information skills. Among these are:

* that it is consistent with the model (as well as being widely held as a truth of university life) that the effective academic is to some degree or other both researcher /scholar and teacher[23].

It is part of the scholarly role, in other words, to be typically making contributions to the growth of the discipline - which means to the growth of the subject literature.[24] The implication of this is that any academic will be engaged , at some time or other , in information searches within some part of the discipline, and hence will have expertise of those skills at some level. Information skills are not a mere frill or accessory to the academic's craft, but in virtually all cases an integral part of it[25].

*Since the teaching intention can, through this model, be conceived as offering an induction into the subject's structure, it will involve an induction (at any level above elementary) into at least some aspects of the bibliographic structure, and hence into mastering information skills appropriate to the level at which this is carried out.

(ii) Teaching : the communication of, or induction into, subjects.

A somewhat less abstract view of the same thing is obtained by looking at teaching as a process; in what ways does this academic craft relate to the acquisition of information skills?[26] The achievement of effective (which is successful) teaching requires that students successfully learn. To achieve this, academics engage in a wide range of activities which can be called teaching. Of these, I shall choose three typical, important, and public teaching activities of university academics, each of which has its own implications for the learning of information skills. For brevity, they can be represented in a simple chart thus:

TEACHER ACTIVITY	CORRESPONDING STUDENT ACTIVITY	IMPLICATIONS FOR INFORMATION SKILLS
The teacher as communicator	The student learns by	The teacher will need to
(lecturing, explaining, telling, demonstrating, etc).[28]	attending, listening, noting, assimilating, understanding, etc.	plan, choose and use the materials of instruction (texts, readings, bibliographies); also give advice, instruction, etc. to equip student for independent searching.
The teacher as task-giver	The student learns by	The teacher will need to
(assignments, exercises, tasks, projects, etc.)	doing, researching, experiencing, trying, reporting, etc.	choose tasks compatible with available information resources and with potential for giving training in use of information skills; assess work in terms of breadth and choice of information and effective use of search techniques.

The teacher as role-model (master craftsperson)	The student learns by	The teacher will need to
(being, practising, modelling, exemplifying) 29	observing, noting, modelling, copying, respecting, valuing, practising, etc.	Both demonstrate and explicitly communicate own skills, attitudes and values, as a person contributing to and making use of information; this implies communication of tacit knowledge and hence apprenticeship relation with students.

An analysis such as this highlights the considerable potential existing, within the teacher's ordinary, conventional role, for activities which could encourage students to learn information skills[30]. Assuming some reasonable degree of competence in those skills, the teacher would be involved neither in having to master any additional knowledge nor communicate any additional subject matter than what is essential or integral to the discipline itself and to the life of a practitioner of it. It could be described as a case for teachers to simply 'be themselves' towards students. That there is a need to make the case implies that, at present, many teachers appear to feel unnecessary to be authentic in this manner, or perhaps unable to be. To exploit the potential for communicating information skills through ordinary teaching would, however, be far more faithful to the task of what is generally agreed to be the teacher's aim - to induct students into certain parts of that knowledge which they require in order to master and ultimately practise the craft of scholarship and research which to a large degree comprises the academic life[31].

The picture can be criticised as idealistic since it assumes the teacher to be a proficient user of information skills and there are reasons for questioning this assumption in many cases[32]. It may need to be supported by proposals by which upgrading could be carried out, and questions may be raised about academics' willingness to engage in this. Further the picture has not mentioned the support roles of other specialists on campus - librarians, staff developers and educational consultants and study skills counsellors. Each is a vitel repository of information and insight and it would be unwise to attempt to do without their contribution. What can they contribute, and how? That is the question to which I shall now turn in the final section.

Up to this point what I have tried to argue is that there is a body of knowledge we can call information skills which can be spelled out, itemised, analysed, learned and taught, and it is the same set of skills as that which is central to the scholarly craft of academics. We know that students need to learn it if they are to master a discipline and become practitioners of it[33]. It is

a body of knowledge for which the ordinary events that typically comprise classroom instruction provide a quite appropriate venue by which the knowledge might be transmitted to students[34] to meet their learning needs, whether these be merely passing courses to get certificates, or becoming effective academics themselves or professionals in other callings. This case has been presented against the background of what I assume to be an undisputed fact, namely that students are very frequently not mastering these skills, or are doing so at a level far below what they need.

3. What can be done about information skills?

First, nothing I have argued so far necessarily implies that any of the following conclusions must be reached:

* that information skills ought to be taught, formally, to students. On the contrary it may be that they are best learned by apprenticeship alone, simply rubbed off (or picked up) as people go along[35]. I think there is good evidence, however, that at least some of these skills are of sufficient complexity to warrant formal, direct instruction.

* or that , if taught formally, they ought to bear any particular relationship to subject matter in courses. On the contrary, it may be that they are best transmitted as a discrete body of knowledge uncontaminated by other subject matter. However I think there is good evidence that some elements at least can readily be integrated into subject matter and that such integration is an effective, motivating approach which students perceive as legitimating the whole exercise.

* or that, if taught, they ought to be taught at any particular stage of subject learning. It may be that the most appropriate stage will be a different one for different subjects, and perhaps even differ from student to student. Some parts may be best suited for elementary subject matter levels, others to more advanced. I think there is good evidence that the appropriate stage is a matter for careful consideration by a number of expert parties, taking into account the context of each subject, course, and type of student. It may often be that the skills can be progressively introduced in a structured way over an entire course of study[36].

* or that, if taught, any particular person ought to do the teaching. It may be that academics, librarians, study skills counsellors and educational consultants all have roles to play and it is nobody's

exclusive prerogative. However I think there is good evidence that the subject teacher has a unique and indispensible role and that any decision bypassing or preempting this would be dangerously shortsighted.[37]

* or that, if taught, teachers would require any special qualification or accreditation. It may be that it is best taught by subject practitioners who unselfconsciously use the same skills in their daily work as academics and who can pass them on to apprentices.[38] It may, however, be better taught by someone who has consciously analysed the skills into their components and who can claim to understand the area of knowledge and expertise in a manner more suited to teaching it than the practitioner's knowledge would be. Or it may even be best taught by those who have a professional stake in organising and maintaining those repositories of information - the libraries - to which the skills are designed in part, for giving access.[39] I think there are good reasons for believing that all have a part to play. The problem might turn out to be orchestrating their separate parts.

I do not have the answer to these sorts of questions. However for those of a mind to search for answers (and I would like to be counted among them) a number of things should be kept in mind pertaining to the idea of a concerted attack on the information skills question.

* it is likely that only a minority of academics at present realise this as a 'problem' or something to be concerned about[40]

* there are known factors seriously inhibiting partnerships between academics and librarians[41]

* there are known factors inhibiting the likelihood of educational consultants becoming actively involved in course design with academics[42]

* there are known factors which inhibit study skills counsellors from being accepted as legitimate teachers or sources of knowledge pertinent to the learning of academic subjects

* the faculty reward system is such as to disincline academics, often very strongly, from being concerned with teaching improvement - that is, with investing time or effort in improving student learning[43]

Notwistanding these apparent obstacles (and doubtless there are others as well)

I am inclined to accept and advocate Roe's, McInnis' and Ford's view, and it is this which I hope this conference will explore critically. In brief, the view is that if a solution exists, it will most probably lie in a dialogue between academics, educational consultants, librarians and study skills counsellors[44]. If, out of that dialogue, it appears that some sort of partnership or collaboration is the next step (and I think it may be the case), there would regrettably be little or nothing in the way of a tested model in existence.

This - the problem of a lack of precedent - may be an insuperable obstacle. To do anything in this area, it seems, may be breaking new ground in a conservative institution. However the optimist will not let that prevent the first step from being taken, which is dialogue. Following that, I imagine that some pilot projects may be set up here and there on particular campuses; small projects of an exploratory, collaborative nature, trying out various options for giving information skills their due role in student learning, and bringing together academics and their supporting colleagues in a closer relationship than has hitherto been achieved.[45]

Notes and References

1 See Powell (1965), p.1

2 Rogers (1980), p.69, describes similar skills as 'search strategies.'

3 Roe has documented this neglect: see Roe(1981), pp 3,7,26-7

4 See Roe (1981) pp49-50: more librarians than academics seem concerned about the issue at present (p.73).

5 Roe (1981) p.63.

6. Reference works are defined by McInnis (1978) on p.6; Hacker & Rutstein (1978) p.108, give a brief summary of these elements; a comprehensive listing is available in Stoffle (1975) pp.36-44

7. Roe (1981) traces the history of this recent sort of development (p.8).

8. there has been a closer movement between the two in recent years, but it has been chiefly recognised only in secondary schools: see Roe (1981) pp 34, 53, 60-61.

9. See Main (1980) p.3 only one in two hundred UK students ever consult one of the more than 100 study manuals in print

10 the books consulted were:
Carman & Adams: Study Skills - a Student's Guide for Survival (John Wiley, 1972) - 13 pages on library skills
Raygor & Wark: Systems for Study (McGraw-Hill, 1970) -10 pages
Marshall & Rowland: A Guide to Learning Independently (Longman Cheshire, 1981) - 16 pages
Smith: Best Methods of Study (Barnes & Noble, 1958) - 13 pages

Library publications containing search skills include:
Fjallbrant & Stevenson: User Education in Libraries (Clive Bingley, 1978)
MLI Associates: How to Use the Library (Allyn & Bacon, 1966)
Abrash & Johnson: Library Skills (McGraw-Hill, 1970)
Lee (ed.):Library Orientation (E.Michigan Uni. Library, 1971)
Carey: Library Guiding (Clive Bingley, 1974)
American Library Association: Bibliographic Instruction Handbook (1979)
Finn, Ashby & Drury: A Teaching Manual for Tutor-Librarians (The Library Association, 1978).

11 On the other hand, see Main (1980), pp.19-20 who cites the recognition of the importance of library skills on the part of a number of study-skills workers

12 McInnis refers to the problem of blaming others (1978, p.18) and Roe (1981) mentions criticism of the didactic approach of many reader-educators (p.53).

13 Ford (1979) refers to academic libraries as historically paradoxical partners in the process of university education (p.25)

14 Roe (1981) p.31

15 This is also observed by Rogers (1980) p.78 and McInnis (1981) p.5

16 Roe (1981) p.31

17. Lubans (1978) claims that US teachers do not know how to use libraries, and Roe (1981) speaks of the two professions each with a vested interest in maintaining their identities (pp.27-8). Kirk (1974) deals with the difficulties of reeducating faculty attitudes and the lack of library influence on classroom events (p.88) and this whole area is central to the problem McInnis (1981) attempts to address throughout his whole book (see p.3).

18 Gibbs (1981) p.viii

19 Gibbs (1981) pp.53-4 ventures the view that library skills themselves may be less amenable, however, to the techniques he proposes

20 Gibbs (1981) p.viii; see also Main (1980), where the whole of Chap.4 is spent on describing his experiences in this area.

21. I have drawn from McInnis (1981) pp. 88-123.

22 Ford (1980) analyses the concept of information needs in relation to the problem of coming to know a discipline (p.100) . Roe (1981) describes a number of experiments in independent study, and their implications for information skills (p.47)

23 See McInnis (1981) p.4 on the inseparability of research and teaching Roe makes a similar point (1981, p.2) and adds that most academics are more concerned with research and regard the library as a research rather than a teaching resource

24 Pearson (1980) points out that teachers typically have plenty of library experience from their undergraduate and graduate careers (p.406).

25 Rogers (1980) draws attention (p.75) to a problem underlying this claim: it involves the fact that reference tools are products of 'reconstructed logic' whereas academics tend to follow the patterns of 'logic-in-use' in information retrieval; this causes, in part, the estrangement between the academic and the librarian. See also p.77 for the implications of this for teaching.

26 A number of writers have observed the silence of the Higher Education Literature on the matter of library and information skills. Pearson (1980) reports a literature survey evidencing this virtual silence (p.406) and Roe (1981) reports in detail a survey of contemporary Higher Education literature with the same result (pp.6-14).

27 Roe (1981) p.3 describes teaching philosophies as varying along a continuum from 'deependers' to 'spoonfeeders'; I have avoided this controversy here.

28 Roe observes that (1981, p.2) in spite of the widespread use of these teaching methods, many students do most of their learning from library sources.

29 Rogers (1980) p.74 makes the interesting point that since the inception of citation indices it has become possible for the student to mimic the inquiry style of practitioners. Against this, Ziman (1968, p.123) warns against believing that 'knowledge' lies in having access to primary literature . Texts are more likely to meet the student's knowledge needs at many stages of intellectual growth.

30 It is not my purpose in this theoretical paper to examine or even list the practical solutions that have been advanced from many quarters to address the problems of teaching information skills. This is, however, something a future paper ought to do, perhaps along the lines of Pearson

(1980) who has (pp.404-5) listed examples, from his experience, of how this can be successfully carried out.

31 Kirk (1974, p.83) quotes an 1883 Columbia University Annual Report to illustrate that this induction is no less difficult to achieve today than it was then: '...students often spend half their time in the library finding out what they don't want to know, and the remaining half in getting confused notions of what they do want to know'.

32 I do not know if there is any reliable evidence regarding the competency levels of Australian academics in information skills; however US writers often quote survey data regarding teachers in that country and their widespread general incompetence to use libraries: see Rogers (1980) p.77.

33 McInnis (1978, p.124) believes that 'high level library competence calls upon a wide range of knowledge and skills...and probably involves a particular kind of mental quality...which is not just picked up by the bright student (but) must be taught'

34 Rogers (1980, p.77) observes that teaching information skills may call for additional class time; Lubans (1978, p.4) believes, on the other hand, that 'the concept of 'information use' has to replace some other aspects of a teacher's method rather than be added to the existing curriculum'.

35 Roe (1981, p.2) appears skeptical about this prospect. 'Educators...are eloquent about the crucial role of the library...and even those who teach in a way which effectively discounts it speak warmly of it...(yet) they typically concern themselves little or not at all with how their students use library resources'.

36 Pearson (1980, p.402) for instance cites the need for 'bibliographic challenges of increasing complexity over a four-year period...by deliberate design, not just by accident or coincidence'.

37 Roe (1981, p.74) eloquently appeals for a 'more effective partnership between teaching/learning and the management/use of resources' in order to avoid this glaring hiatus in responsibility.

38 Read's article (1975, pp61-4) is a good example of a 'this is how we did it' account of experimental projects in educating teaching faculty so that they can, in turn, better teach information skills to their students.

39 Lubans (1978, p.vii) observes how in the recent decade 'educating the library's clientele in the principles of bibliographic organisation and their practical application to the information-seeking process is becoming a dominant concern of a growing segment of the ...library community' The interesting special role of 'tutor-librarians' has emerged (See, eg. Ford, 1981, p.25 where a detailed account is given of how a tutor-librarian might function in collaboration with academic staff and a student in need of information resources). Roe (1981, pp41-3) gives an account of current developments in reader education services.

40 McInnis (1981, p.4) believes that the available evidence suggests that 'most instructor-researchers have a limited acquaintance of and appreciation for library research, especially research that is not narrowly focussed on their individual interests! Interviews with library-using staff on the UNSW campus support this, and suggest that there are many instances where earlier information-skills components of courses that were run successfully and had strong student support have been squeezed out as other course components were brought in.

41 There is ample evidence to back this up; see, e.g. Rogers (1980,p.75) who discusses the 'estrangement ' between the two groups, and Roe's research (1981, pp.2,22,33) who points up the areas of conflict between the two groups of 'knowledge-managers'. See also Ford (1981, p.24) who analyses the problem in terms of the conflict between 'academic' and 'non-academic' groups on campuses and argues that this venerable distinction is archaic and belongs only to a simplistic model of teaching and learning more suited to the 19th century.

42 This is a similar problem to the preceeding one. Roe mentions it (1981, p.33) and Ford (1981, p.24) argues for the cost-effectiveness of working towards making 'teaching and learning...the concern of a team of people including students, teachers, librarians, educational technologists, and counsellors, all of whose roles are vital to learning'.

43 Probably the main obstacle to partnership between educational consultants and academics is the faculty reward system; McInnis correctly identifies the importance of this (1981, p.13) 'while quality of teaching is considered, research and administrative experience are the primary determinants of faculty salary levels'.

44 I have been told (private communication from David Reeder of the UNSW Library) that Nancy Fjallbrant has a project going at the University of Goteborg, Sweden, involving upgrading of academic staff in information skills. Educational Development Units can offer workshops for academic staff in the hope of increasing their concern and involvement in this area (this is being attempted by T.E.R.C. at the U.N.S.W., Sydney). Pearson's and Rogers' accounts of experiments, cited above, are also typical of what could be attempted. The whole aim of McInnis' book is to produce an approach by which academics, in their course teaching, might integrate information skills into general research techniques; the proposals of Roe and Ford, discussed in this present paper, enlarge the scope of McInnis' aim by bringing in the roles of study skills counsellors and educational consultants. Roe (1981, p.45) gives some interesting examples of 'Departmental Initiatives' in this area which are rare enough, but instructive to examine.

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Learning Skills in a Disciplinary Context: Some Working Models

Discussion Paper
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by

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Abstract:

Students need to develop appropriate skills. Some guidance is better given in the disciplinary context and integrated into their normal coursework. Four different Learning Skills programmes for first year students - in the faculties of Medicine, Science, Engineering and Economics & Commerce at the University of Melbourne - are described. These are considered in the light of proposed models.

The Learning Skills Project (LSP) was launched at the University of Melbourne in 1978. Experience and necessity in changing circumstances have shaped its form and progress. Initiated by the Student Counselling Service (SCS) and subsequently transferred (on the recommendation of the Academic Board) to the Centre of the Study of Higher Education (CSHE) as an extension of its staff development programmes, the LSP has developed a variety of activities and programmes within faculties. While student learning continues to be its central focus, the CSHE project team works with academics within faculties rather than directly with students. Its re-location and the change of approach has allowed the LSP to engage in a wider range of co-operative activities and operate more effectively. Many more students are receiving guidance in developing learning skills appropriate to the nature of the disciplines and their perceived needs than was possible previously. A close relationship is maintained with the SCS to ensure the continued provision of more intensive assistance for the students requiring it. However, while approaches have changed the working principles underlying them have remained constant and, as research and practical experience accumulate, are upheld with even greater conviction.

Two articles recently published in the 'HERDSA News' describe in more detail the progress of the LSP over its five years of life, its underlying philosophy and the range of practical activities it presently encompasses (Bowden, 1982), and develops our argument for integrated learning skills programmes (Hancock, 1982). They also provide a fuller explanation and justification of the assertions we

make in this paper, which focusses on the range of activities in which we are presently engaged and on four different faculty-based programmes in particular.

First consider the assertions that serve as the working principles underlying our approach.

Working Principles

1. Tertiary students need to develop appropriate learning skills and this should be viewed as part of a normal ongoing developmental process. The needs will be different at any point in time, and a continuing aim of the LSP should be not only to draw staff attention to these, but also to assist them to guide their students' development.

2. There is no one right way to study and no single-package solution; learning is complex and involves emotional, social, environmental and skill factors as well as intellectual ones, all of which are related to individual circumstances.

3.. 'Study skills', though important, cannot be usefully taught or learned in isolation from the other factors, or from the whole context of a particular learning task.

4. First year students benefit from early guidance in learning and practice in building the academic skills required to handle the tasks that first confront them as they make the transition from one environment to another which is quite different - with all that this implies. The guidance should not be confined to the first year however.

5. It is a fundamental teaching responsibility to assist student learning, their approach to which is affected by students' perception of departmental attitudes. Curriculum, presentation and assessment procedures which reward deep rather than surface learning are to be encouraged.

Activities

We are now engaged in a wide range of activities within most of the faculties of this large university. While there are exceptions, the majority rest within eight main groupings:

1. General addresses about the LSP to Faculty staff
2. Faculty staff workshops on requested themes
3. Shared tutorials
4. Segments in lectures
5. Orientation and re-orientation programmes
6. Consultancy service for teaching staff
7. Staff development courses
8. Development of resources - references, information sheets, teaching aids

These are described and illustrated more fully elsewhere (Bowden, 1982). In the context of this paper such a list simply suggests the

variety of tailor-made activities that has developed in collaboration with academics to meet the different needs and circumstances. The divisions are arbitrary, of course, and less clear in practice. As Bowden points out, there is inevitably overlap between our learning skills activities and assistance given to academic staff with their teaching, and 'on many occasions, initial contact with academic staff on issues related to their students' learning has led to discussion of teaching methods and performance'.

Working with students individually and in small groups (and in a counselling mode) may still be the most authentic and effective way - and a preference now shared by most researchers and practitioners in the field. However, this campus has about 16,000 students, a hard-pressed teaching staff, and one specialist counsellor who may be able to assist 300-400 students annually - not necessarily those most in need. Therefore, the LSP team has deliberately given priority to seeking ways of reaching and informing large groups of first year students, particularly through their teaching staff and within their academic timetable; and to strengthening the resource network by which individual students recognised as needing particular assistance will be encouraged to seek it at the most appropriate time and reference point.

By working conjointly, members of the LSP come to understand better the different disciplinary environments to which the staff and students belong, while the academics involved expand their understanding of student problems and their teaching repertoires. This leads to their taking over the learning skills components which become in due course an integral part of their normal teaching. So it is that each time a joint venture is undertaken, the LSP team sets out to move gradually from a central participating role to one of background consultancy. We are then free to begin again with different staff or faculty groups, confident that those programmes already underway will continue with little need of support from the outside.

Faculty-based learning skills programmes - four examples

1. Medicine

It has taken four years for this programme to reach its present form. As is frequently the case, the early impetus came from one enthusiastic member of the teaching staff, whose interest at that time in understanding more about learning and the implications for teaching was encouraged by his Dean. The Dean put Dr N in touch with us and a joint venture began. After some background reading and discussion, Dr N decided to offer his first year Anatomy students a series of lunch hour small group discussions on study methods, each with a specified theme: listening and notetaking in lectures; planning and managing time; reviewing and summarizing; preparing for and performing in examinations. He announced the programme in lectures, stressing the voluntary nature of participation. Three-quarters of his class wanted to come. The level of response confirmed his own belief that students were needing this kind of guidance. Dr N convinced the Faculty of it - but had an acute logistical problem to solve.

In its first year, the pilot programme consisted of 4 spaced lunch hour sessions for 4 different groups of about 20 students each. For these, Dr N selected materials from a range of resources collected as part of the LSP and planned the sessions in close collaboration with a LSP team member. Although he undertook sole leadership of the groups, Dr N consulted regularly with the LSP team as the programme progressed. The sessions were designed to be informal discussion groups, but each one focussed on a particular theme and introduced basic information on that theme - well-tried principles for example - and provided the opportunity for students to discuss and exchange practical ways by which such principles might be applied to the study of Anatomy. From the outset, ground rules for the programme - of attendance and participation, for example - were set on a contractual basis. As part of this agreement, students undertook tasks between sessions which required them to experiment with different methods and strategies of their own choosing, and to report back on the experience. Throughout the programme, Dr N used his knowledge of his subject, course and faculty to illustrate and relate, but not to dictate to the students nor to allow the sessions to become remedial tutorials in Anatomy. The emphasis throughout was on assisting participants to take responsibility for their own learning and for developing the methods and skills most appropriate to the discipline and compatible with their personal style, goals and circumstances.

Participants filled in a simple evaluation sheet at the end of the programme. The results showed they had been most satisfied with it, while the critical comments invited were mostly of the 'there should be more of it' and 'every student should benefit from sessions like these' kind.

The Faculty endorsed the continuation of the programme provided Dr N took responsibility for it, and the sessions were scheduled into the first year time-table for the following year. The programme has since become an integral part of the first year curriculum, with strong support within the Faculty. Although still run by Dr N, it is now recognized as a legitimate part of his over-all teaching load.

2. Science

The 1983 Learning Skills (LS) programme in the Faculty of Science is in its second experimental year as a Faculty endorsed joint venture with the LSP, now combined into a Faculty Re-orientation Programme for all first year students. From 1978 several different approaches had been tried. Initially, with the Dean's approval, we ran a series of small group lunch-time sessions for volunteer first year students, co-led by an interested academic in the Faculty. It was then hoped that this member of staff would in turn enlist a colleague to co-lead a similar series with him - and so on. In this sense the experiment failed. This was at a time of dwindling financial resources within departments with teaching staff taking on ever-increasing loads. It was not possible to recruit the extra group-leaders needed.

However, while failing to meet one of our aims for it i.e. to generate the desired 'pyramid' effect, this experiment succeeded in another. It triggered interest within the Faculty and demonstrated numerically

the extent of student interest in 'learning how to learn'. In particular, the Faculty Committee of Undergraduate Studies sought further information and contact. Subsequently, an informal sub-committee (Chairman of Undergraduate Studies, Science Faculty Student Adviser and CSHE-LSP team members) was formed to develop a Faculty LS programme - initially for first year students - to be combined with a restatement of faculty procedures and requirements. It was generally acknowledged that there was a demonstrated need for the latter, and by that time there were enough individual members of staff prepared to argue for the inclusion of LS components. From this point the project gained the advantage of official faculty endorsement and a greater prospect of establishment.

On enrolment days in 1982, all entering Science students were given a simple handout as part of their faculty kit (an annotated reference list of 'how to study' books selected for their likely appeal and relevance to this student group). At the same time they were alerted to some of the differences they might find between secondary and tertiary study, and to the Learning Skills workshops to be offered later. Early in second term, all first year students were invited (by posters and direct lecturer reference) to a Faculty Re-Orientation Programme to be held during lunch-hours. About 200 students attended. In the first session certain administrative requirements were clarified - relating to course changes, assessment, unit combinations and so on. Focus then shifted to 'lecture note-taking' - with different approaches and strategies demonstrated. Towards the end of the session, participating students were asked to complete a short questionnaire, to identify both common areas of study difficulty and the students interested in joining the small group workshops that would follow. Six members of staff (drawn from the CSHE-LSP team, Student Counselling Service, and the Faculty) later led one or more of these workshops.

This organizational approach fitted reasonably well within the large, complex faculty structure, and the feedback from participating students was again quite positive; but the usual difficulties of contacting students and finding common free time for the groups to meet resulted in a time lag between the large group sessions and the small group workshops - and a subsequent fall-off of both interest and attendance.

Consequently, the sub-committee planned some changes for the 1983 programme. It decided to offer a series of large group sessions at certain points during the academic year - with topics and times most likely to match immediate academic demands. For example, the first session, scheduled for the fourth week of term, was to focus on 'listening and note-taking in lectures'; the second, on 'managing time and reviewing'was held a few weeks before the end-of-term unit exams.

A 're-orientation' to Faculty administrative and assessment procedures and a continuation of the 'time-management' theme will provide the content for a third session to be held early in second term. A fourth session will be offered in third term for all who have attended earlier ones. At each session, students are reminded of the resources available to them for individual follow-up, and encouraged to form study syndicates among themselves. A member of the CSHE/LSP team and a counsellor will be available to co-lead continuing small groups within the Faculty if students ask through the faculty office for

this. In general the Faculty has undertaken the advertising and practical arrangements, and the CSHE/LSP the session planning and materials used. The latter includes a 20 minute videotape, a set of transparencies and printed summaries, which will be revamped at the end of the year as a package of teaching aids for leaders of future programmes. The planning committee intends to incorporate new elements into this programme year by year - e.g. in 1984 with the co-operation of the reader services librarian, sessions on information access and research reading will be held in the library itself.

3. Engineering

LS activities in this Faculty began three years later than they did in the Faculty of Science, but have reached the same stage of development. The main first year courses in Engineering are provided by the Science Faculty, and the LSP already had credibility among some of its senior staff. So it was that LS workshops were first offered to new students in 1982, and at the direct request of the Dean - one outcome of a meeting he convened between senior staff and the LSP team at the beginning of that year. The programme was planned and run conjointly with the first year course co-ordinator. Brief presentations during two introductory lectures were followed by the workshops later in the term. Again 'listening and lecture note-taking' was the topic for the lecture period and the later workshops focussed on strategies for 'summarizing and reviewing' and 'time-management'.

1983 saw the early large group contact expanded to full lecture periods which (together with the later workshop times) were slotted from the outset into the official academic timetable. The co-ordinator also felt that this year students identified by faculty as underachieving should be given priority to attend the workshops and be encouraged to do so - while participation still remains open to all comers, as in the previous year. Topics for these workshops will be decided upon after the co-ordinator has interviewed students and common problem areas emerge. The sessions will be led by Faculty staff and the LSP team in combinations most likely to provide pertinent subject and method expertise. A pool of staff members has been formed, who have expressed themselves willing and available to attend and/or lead workshops at short notice.

4. Economics & Commerce

Seeding of the current LS programme in this Faculty also began four years ago, and in much the same way as it did in the Faculty of Medicine. Again, the very fragile seedling depended for its survival on the interest and commitment of a single member of the faculty. Early contact with the LSP strengthened his convictions and encouraged him to expand his endeavours. From the outset, however, our experimental programme took a different shape from any of those previously described. While facing the problem common to the major faculties of this campus (that of devising something for large groups of first year students), Dr M first sought to build on what he had already begun within his own teaching of a first year course in Economic History.

It had been Dr M's practice for some years to encourage students from his courses to approach him individually with any study difficulties. His personal style and ready availability made it easier than is often the case (for new students in particular) to do so. They came in droves. In this way he became increasingly concerned by the number of first year students in particular who lacked the skills (though not the desire or intellectual ability) to accomplish the academic tasks immediately required of them - of research reading and essay-writing, in particular - skills which it is often assumed have already been acquired. He also realized that, although wanting to continue to provide assistance of this kind, it was taking a disproportionate amount of his time.

This had led him to experiment with ways of incorporating basic information into his lectures and tutorials accompanied by guidelines in handout form. By the time he met members of the LSP in 1978 (at a CSHE lunch-hour seminar on the topic of 'the entering student'), Dr M had already blended strong skills components into the course work for Economic History 1. However, as his reputation grew, it was not only students from the courses he taught who trooped to his door. Encouraged by the existence of the LSP, he sought and received his Dean's approval to include an introductory LS session in the Faculty's Orientation Week programme for entering students, using that occasion to alert them to the lunch-hour sessions to be offered later during first and second term. At his request we shared the planning and leadership of these sessions. The O-Week presentation outlined the differences new students might expect to find between secondary and tertiary learning, the skills they would need to acquire, and the sources of assistance available to them on campus. We also spent some time demonstrating different ways of taking, organizing and storing lecture notes. A short video-tape and printed handouts accompanied the session. In the three lunch-hours that followed the themes were 'research reading and assignment writing'; 'summarizing and reviewing'; and 'test performance and related administrative procedures'. About 100 students attended each session.

Again it was the large numbers interested (and the Dean's backing) that convinced the Faculty that a need existed and should be addressed. Recognition was given to Dr M's enterprise and some faculty funding given to support it in the following year. It also generated interest in the LSP, and we were invited to lead a number of staff seminars within the Faculty on various 'student learning' themes. We subsequently shared with the regular tutors a series of tutorials in various first and second year courses, e.g. on 'essay-writing as a process', at the time the student groups were given their first essay topics. These kinds of activities are continuing, and represent a chain reaction effect, as tutorials are being shared with different teachers each time.

When Dr M resigned from the staff in 1981 to take an appointment elsewhere, one of his colleagues became the co-ordinator of the O-Week programme and also willingly undertook the continuation of the LS sessions. He 'sat in' on Dr M's presentations, inherited his materials, and consulted with us. We also agreed to share the sessions in 1982, but this year a member of the LSP team is attending simply as an observer. We believe it is worth retaining this link, to ensure that the programme continues, although it now seems established

as an integral part of the first year teaching. We are also well aware of its inadequacies, particularly that there are no small group workshops to follow, as there are in the Faculty of Medicine. On the other hand, the programme in Medicine is still more vulnerable, as its continuation still depends too much on the same one member of staff.

Models

What are the similarities and differences in these four examples? What do they have in common? Do they represent different or similar models?

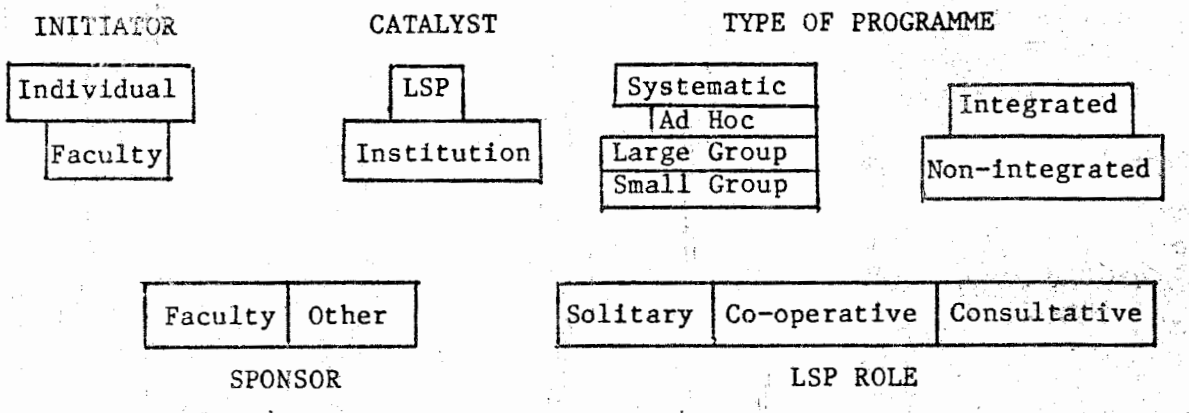
By reducing each to basics we find that the programmes described have been initiated either by an individual or a faculty; that there has been an institutional and/or LSP catalyst; that the type of programme can be described as either systematic or ad hoc, and the content as integrated (i.e. LS development with subject matter) or non-integrated; and that each involves large student groups with some additional small group interaction. Every programme is faculty-sponsored and conducted within the faculty for all students in a given year. The LSP team is involved in each, with its role ranging from active co-operation to background consultancy only.

We have called this set of common dimensions an Overview Model and then applied it to each of the programmes in turn (Figure 1).

By comparing the flow-charts we can see those for Medicine, Science and Engineering are very similar. All three programmes are faculty sponsored. They are systematically organized with large group followed by small group contact - although Medicine is the only one in which the LS and subject matter are fully integrated and the LSP role consultative only. We also note that the Engineering programme is built into the students' academic timetable, with the other two only partially so. To some extent these differences could reflect different stages of programme development. As the LSP team become less directly involved in the Science and Engineering activities, for example, and 'hand over' to academic staff members, both programmes should be better integrated and the three flow-charts merge.

On the other hand, the Economics & Commerce chart highlights variations that cannot be explained by a stage of programme development. They suggest some fundamental differences in programme type. The chart shows both systematic and ad hoc dimensions with components of integration and non-integration. The large group sessions (systematic) are followed by tutorials shared by the LSP team members with regular tutors. These are fitted in when and how tutors request them (ad hoc). For example, two consecutive tutorials may be shared when an assignment topic is handed out, to consider not only the topic itself but also the process of essay-writing and strategies for handling the task. This represents the integrated component in the small group work. We would see it as desirable that these dimensions be strengthened as this programme develops. In the other faculty examples the structures of the courses do not include tutorials, so the opportunity for integrated activities needs to be developed through the scheduled workshops. These are therefore likely to move towards partial integration only. In the Economics & Commerce

Overview model



Programme Flowcharts

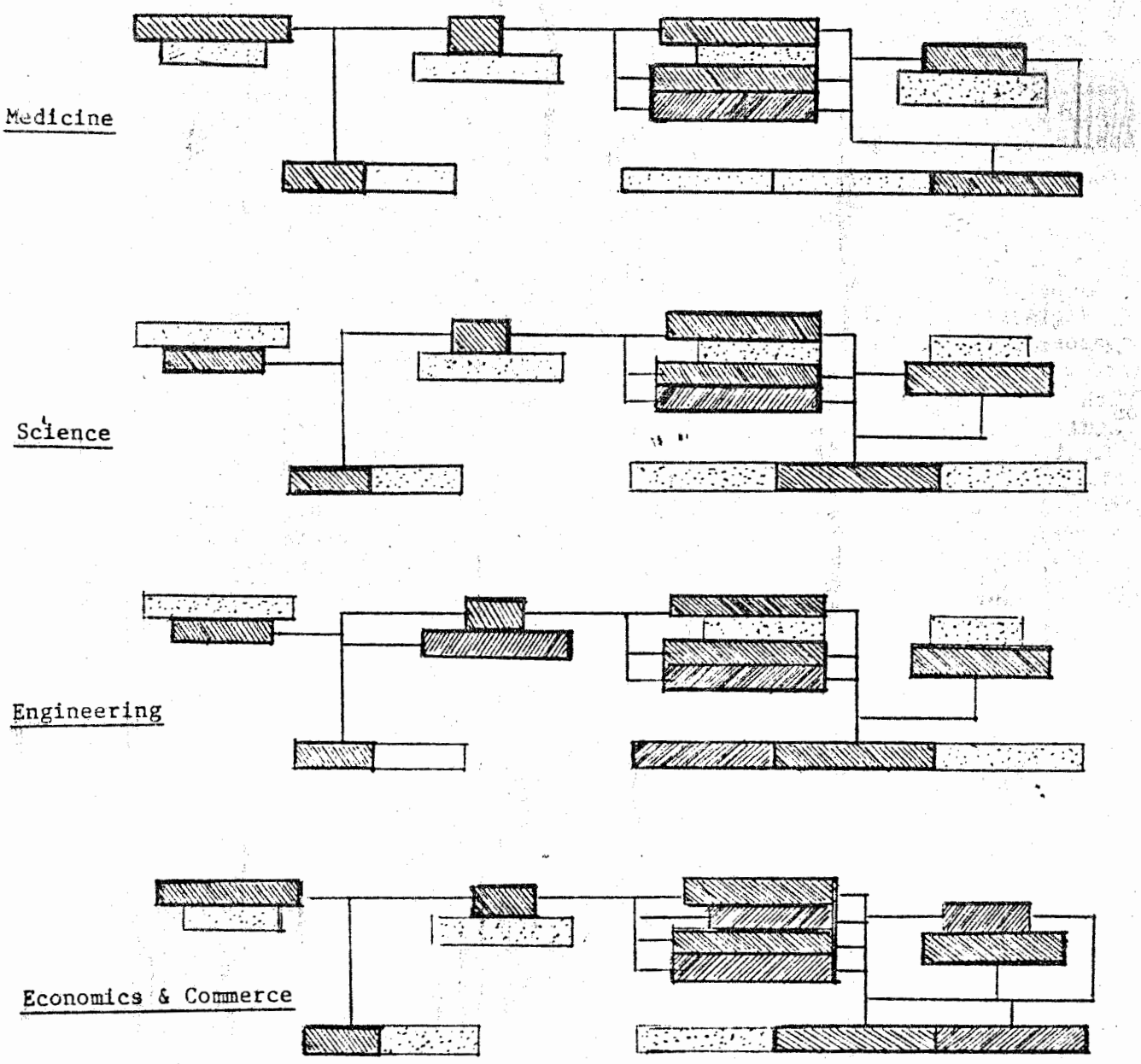


Figure 1: Model for provision of LS assistance to students

programme it is also likely that the role of the LSP team will continue to be both co-operative and consultative as the ad hoc shared-tutorial arrangement continues.

The variations shown on the Initiator and Catalyst dimensions of the four are important only in they reflect differences in origin and are seen to fit the essential elements of the overview model.

So we find that our four programme flowcharts can be collapsed into two working programme models and each demonstrates a different combination of the essential elements of the overview model. We would argue then that the overview model contains the principal aspects to consider when undertaking and developing learning skills activities, and also provides the basis for programmes to become definable models themselves.

Conclusion

We have described four programmes and drawn out an overview and two working models for dealing with large student groups. The descriptive histories illustrate the evolutionary nature of their development, an application of the principles and the 'tailor-making' approach to which we have doggedly adhered. They are far from adequate and touch only the tip of an iceberg of student need. On a campus the size of the University of Melbourne there will always be problems of numbers, time and insufficient resources - with organizational difficulties present and compromises needed. But by pooling our resources with teaching and counselling staff in the way described we believe the available people and time are being more effectively used than before, the referral network strengthened and more widely known and used, the continued provision of some LS assistance assured, and the quality of the teaching and learning thereby enhanced in some way.

However, further questions spring to mind regarding the models we have devised. Are they merely artifacts of this institution and the people in it? or could they apply elsewhere? Would programmes within similar disciplines in other institutions fall into the same or different models? Perhaps discussion at the conference will provide some answers - or raise more questions?

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ESSAY WRITING: MEANING AS A WAY TO LANGUAGE

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> We have said goodbye to the concept of a static universe ordered into majestic and definable neatness and to the concept of time as a uniformly flowing stream, and [we have] seen the erosion of the idea that great architecture is a matter of the ordering of spaces in relation to climaxes such as the altar, the throne, the theatre proscenium. It becomes less an art of *composition* concerned primarily with the picture which the building makes from certain preferred viewpoints, and more an art of *juxtaposition* in which a most important part is played by the shifting viewpoint of the moving observer and by the super-imposition of varied impressions upon one another in an almost unpredictable way. One might almost say that it now invites his participation in an open-ended experience of space rather than his obedience to the direction of an architectural pageant-master.[1]

What Gauldie has said here is not new, but it touches on the core of what I want to talk about: the conflict between relativism and absolutism, or directionalism as I prefer to call it, in student learning and especially in essay writing, and the reverberations this conflict sends back on language and the meaning of language for those like us who have to help students with their learning processes.

To bridge the rather wide gap between architectural relativism and student bungling, let me introduce the Perry Report of 1968[2], in which the Director of Study Counsel at Harvard University, William Perry, makes the point that the basis of student problems in coming to terms with their studies is to a large extent a problem of coming to terms with relativism, of moving from an absolutist to a relativistic-pluralistic outlook, and further on to what Perry obviously sees as the ideal goal, a standpoint of committed relativism. By absolutism in the student context, Perry means the attitude that truth is definable and findable and that *authority* is right, provided, of course, that it is the *right* authority. Relativism, Perry claims, is the individual's revolt against absolutism and Perry defines it as the excessive individualism which denies all external reference points and takes refuge, so to speak, in the response "Well it's really only a question of your opinion against mine then". The third stage in this visibly

Hegelian movement Perry sees as the stage where we move out of absolute relativism - if you will forgive the pun - and commit ourselves again but on a broader basis. We are not looking for the universal truth value of the answer any longer, neither for its purely personal truth value as at the second stage, but for the answer's rightness under conditions, i.e., its truth value in context.

The movement Perry here finds reflected in his students' intellectual-social development is the same Gauldie outlined in the historical development of the concept of beauty and truth in architecture. In a further correspondence to Gauldie's evolutionary view, Perry also places his students' development in a historical context. He analyzed sets of examination questions given at Harvard from the year 1900 till 1960 on the assumption that "the kind of operation called for by an examination question expresses the examiner's conception of knowledge of his subject". And over that period he found "at a conservative estimate" an increase from slightly under 10% to 48% in the number of questions which required a relativistic answering frame, or, as Perry puts it, "two or more frames of reference".

According to Perry, there has, then, been a move towards relativity in outlook in university studies as well as in art; but there is the difference that whereas this move has led to a loosening of form outside universities, inside these institutions it has had the opposite effect. Against this background I want to place what I have to say today about language and meaning and the interrelation between the two as it surfaces in student essays and student problems with writing essays.

As every other composition in this world, an essay is a *Gestalt*. In the case of the essay, the whole arises out of the interplay between form and function. As a *literary* form, the essay is, in Bacon's words, "ancient". As a *form* its job is to provide direction and certainty and in this regard, it has moved in the opposite direction to other art-forms. Novel readers a long time ago abandoned the demand of a neat satisfying all-conclusive ending; and earlier than that, the reader abandoned the liking for the omniscient author who knew, judged and presented his characters directing at every little turn the reader's concept of character and event. Similarly, the drama no longer has to have a beginning, a middle and an end. Not so the essay.

The more the reader has been left to his own directives in other artforms, the more directional the essay has become. It must have a beginning, a middle and an end. The three parts must be interlocked in the set formula: "First you say what you have to say, then you say it, and then you say that you have said it". Furthermore, it must have a central proposition, but only one, otherwise it confuses. And everything else you might want to say has to serve as support for that proposition. And finally, whether visibly subjective or apparently objective in style, its final impression must be that the author is omniscient. "Be positive" we say, "Convince your reader", "don't say 'this essay attempts to show . . .', say 'this essay demonstrates . . .' Don't use passive (i.e., indecisive) forms, use active forms".

In other words, the *form* of the university essay provides certainty and direction; everything, in fact, that its *function* militates against. Universities are places of inquiry, we tell our students. Academics are professional doubters; and universities are therefore places of

uncertainty. "For every answer we find, there are likely to be ten new questions raised", as the Dean said in his recent welcome speech to our new students. The function of essays is to give a voice to all this inquiry; its form serves to impose order on the uncertainty, make it intelligible. A good essay in fact arises exactly out of the tension between its form and its function. The function gives life to the form. The form directs and disciplines the function. This means that the form keeps the function under control according to set conventions and individual taste. It follows that it is also exactly on that borderline between form and function that limits and boundaries of personal and cultural kinds occur.

There are two points I want to raise in continuation of this. One is the student in relation to the essay; the other is the historical evolution of the essay. The second is a mere sketch, a mere suggestion actually, so we will start with that. We are only concerned with the English essay.

Now for very obvious reasons, I cannot trace student essays back more than three or four years. But as student essays are training grounds for professional essays, we may have a brief look at the latter. The literary-philosophical essay was the first to develop. The scientific essay grew out of it and separated from it in many real and many ostensible ways. One need go no further back than to the turn of this century to see the changes that have happened to essays on literary criticism. There was room for little whimsicalities and extraneous material of the kind acknowledged experts in literature and invited guest speakers can still permit themselves, but which students and scientists must steer out of at all costs. There were few text-references. Little tidbits of Shelley, Madame de Staël, Shakespeare, the Bible are floating everywhere; and if the reader needs any firmer reference than these authors' names the fault obviously lies in his education. Plagiarism is rampant. Apparently, no further acknowledgment of fellow essayists is needed than empathy with the viewpoint copied. Especially is this so with essayists borrowing from essays in other languages. What mattered above all was in the essay to achieve a unified personal and elegant whole, to give the reader an aesthetically satisfying experience.

This demand on essays still stands, but in the case of university essays it has become coupled with the over-riding demand to provide a discipline-specific intellectual challenge. "Listen to me" is the hidden message of scholarly and scientific essays around the turn of the century. "I dare you" is the equivalent message of university essays today.

Interestingly enough, the increasingly stringent intellectual challenge has led to and been accompanied by various other changes. We have mentioned how form imposes direction and discipline on function. We also mentioned that function gives life to form. Nowhere is that second part seen more clearly than in the need we have today to classify essays: science essays, social science essays, humanities essays, not to mention the subcategories below these classes. Some of these differences arise out of differences in the disciplines. Others are superimposed conventions. And concomitantly, the formal framework for each type has narrowed; the conventions have stiffened. There is no longer as great a personal freedom in exploring form when writing within one's discipline as there was 80 years ago. But if Perry is right, we may have to see

this as the condition under which we have gained greater individual freedom in exploring content matter.

Some of the changes which have happened do indeed seem to support Perry's analysis. I shall deal with two, the relatively new conventions dominating text references, and copying, and I shall restrict the discussion to within the framework of the essay of literary criticism which is the one I know best. The very strict demands concerning footnoting of literary texts, which are a norm today but certainly were not even as late as after World War 1, are an indication of increased social and educational diversity. Even among the in-group reading literary criticism, the unifying framework which guarantees common knowledge no longer exists. That is, although both writer and reader may have a literary education, they may still not share the same set of literary allusions and these therefore have to be referenced to a much greater extent than used to be the case, when the reader was simply not educated unless or until he had acquired the common set. The demand to acknowledge fellow critics may similarly be seen as an indication of greater individualization. The convention of acknowledging the views of another writer rather than flattering him by copying is essentially an act of differentiation, rather than identification. This convention implies acknowledgment of personal diversity reflecting as it does a "thou versus I" attitude as against the earlier group-identification: "we". Both changes then underscore the demand for intellectual challenge, as it invites the reader to check out the writer rather than accept his views.

As befits these moves we have also seen a change in terminology. Walter Pater, writing in the late nineteenth century, produced "Essays" and "Studies", while John George Robertson, a considerable critic of Germanic literature from the period around 1890 to his death in 1933, wrote "Essays" and "Addresses". The modern day counterparts to these members of the "literati" are, however, plainly and simply "critics", and their writings "papers" or "articles". In other words, the essay, the paper and the article are not three mutually independent kinds of writings; the latter two, which virtually apply to the same form, have developed out of the essay and they still bear unmistakable marks of that parentage. The difference, I suggest, is a corollary of the changes we have already discussed. Thus, again, footnoting and referencing are antiartistic devices which break the unity of style and thought in the name of academic/intellectual integrity, thus changing an essentially artistic literary form into a purely functional. In contrast, plagiarism - as we now call it - is an artistic device; it involves the internalization of a germinal idea and the recasting of that idea to make it in tone, style, nuances of meaning an integral part of a new whole, the overriding aim of which is to be aesthetically pleasing.

This is, in rough and sketchy outline, the historical evolution of our "papers" and "articles". However, the matter does not rest there. For like the human embryo, the schoolchild and student appears to have to pass through the phylogenesis of his profession in his own intellectual development as an academic embryo. Right up through the school years, including HSC, essay writing is largely the process of internalizing material and returning it in an aesthetically pleasing and captivating form. When the schoolchild enters university, that process is called plagiarism, subjective superficiality, failure to really come to grips with the issues; but the exercise is still called

"essay writing". When the postgraduate student attempts his first "article", there is - hopefully - a quality difference between that and his last undergraduate "essay", but there is not actually a difference in kind.

With that, we are back at the beginning. The function of a university essay today is to raise an intellectual challenge, to voice an individual's doubts and suggestions. Its form is to direct and discipline that challenge. The greater individual freedom in the treatment of content is facilitated by, indeed compensated for by a concomitant subdivision, narrowing and hardening of form. Yet, how much genuine difference is there? Have we done more than pushing one set of boundaries out a bit and substituting a new set of boundaries for another? - - - - Actually this question is about to rupture the form of my paper by breaking out of the disciplined line my inquiry is supposed to take, so I will hurriedly leave it. But I'll nevertheless leave it in. For it serves two purposes; partly, it proves my thesis regarding the conflict between form and function, and partly, it leads me back to the students' problems of essay construction.

Much student strife with essays derives from a confusion of function and form, arising on that borderline where the two conflicting forces have to be harmonized. The students look in their reading merely at finished products, from which they deduce that the order imposed on material by authors is in fact there from the beginning as a wholly inherent quality of matter. As their essays don't come out like that, they can obviously not write. "Oh, I have it all in my head" they say, "but it won't come out on paper". "How many drafts have you written" I ask; "One", they answer. And how at university do we attempt to teach them? Not really at all. A good essay is an inherent dialogue between form and function. But despite the importance of essays to a student's career, little effort goes into teaching him that dialogue. In fact, in so far as we teach at all, we tend to separate the two elements into one bundle of content matter and one bundle of purely mechanical "skills", served out at two different counters, while the student is left alone to analyze, synthesize and reconcile his separate bundles.

Of these bundles, it is study skills that we are primarily concerned with here, and with these in their conventional form I have become thoroughly disillusioned. In fact, I believe that the only reason why these bundles help, when they do, is not because they teach the students anything new. To most of the students the skeletal information they offer is "old hat", "like being back in school again" as they say. But the information works in so far as it reassures the somwehat analytically self-confident student that if that's what "they" want here too, in general terms, then he'll just have to see if he can work out what it means specifically with regard to his particular content bundle. In this he will be assisted by the content matter itself as it imposes some of the required "skills" on the students when they start dealing with it in the prescribed manner by imitating the lecturing approach or through absorbing the largely implicit directions the tutorials offer. As I said before, the methods of inquiry required by a particular discipline have played a part in determining the form in which the inquiry is expressed. So with or without study skills bundles, the student will acquire aspects of the form as he lives himself into his discipline. The unconscious and therefore uncritical way in which this largely happens is, I believe, reflected in the way students will consider the essay requirements of their favourite

department quite reasonable while judging those of others negatively as they fail to conform to that pattern. It is also reflected in university teachers' general inability to explain the process of essay writing in their own discipline in other than the tritest of phrases; identical, in fact, with those of the skills bundles. In other words, the skills become understood as the sum of experience in a particular discipline, are from then on identified with that discipline and do then, far too often, rule out understanding in terms of other disciplines.

There is, however, a large number of students who enter university at a stage in their personal development at which words still have a normative rather than a relative meaning; to whom relativism as cosmology remains merely a threatening possibility; these students would be far happier, far better able to cope, if function were fixed and form fluid; and to these students, study skills bundles of the generalized kind are of little help, may indeed on occasion do more harm than good. I shall demonstrate this claim by discussing two items, both a *sine qua non* in every self-respecting study skills bundle. They are the key-word analysis of essay questions and the instruction-words-explained list.

Let us consider the second first as it is mainly an outgrowth of the first. Look, if you will, at the following example; it is from Anderson *et al.*, but that is in itself insignificant; practically any list would have done.

> *Examine critically*: act as judge or critic, appraise.
> *Evaluate*: examine the various sides of a question and try to reach a judgment.[4]

One may well ask what the difference between these two entries is in terms of practical approaches to essay writing. "Appraise" means "evaluate", "evaluate" means "examine critically", that phrase in turn means "act as a judge", and a judge must "examine the various sides of a question and try to reach a judgment". Circular explanations of this kind are typical of these lists and they work against their aim by giving the appearance of deep subtle differences where in fact there are none; and they make students labour at finding differences where none exist. If such lists must be produced, it would be better to deal instead with the words in grouped categories and try to emphasize the basic similarity in approach rather than insignificant sophistications in formulation. And further, take the words "evaluate" and "analyze"; it can be argued that these are not instruction words on the same level as the rest. Whatever instruction words are used, these two invariably underlie them. Even when the student is asked to "describe", he can only do so on the basis of analysis and evaluation. -Describe in relation to what framework? Which elements in the *X* to be described relate to that framework? These questions have to be decided in order to select what elements go into the essay and that can only be done on the basis of analysis. Further, it must be decided which of the elements to be included are the most important, for the ordering/structuring of the essay depends on that, and that can only be done by evaluation.

When such lists are compiled it should be realized that students with a normative approach to language will take advice they are offered literally. I'll give you just one example. Late last year a student brought me an essay draft. The question read "Relate Simone Beauvouir's life to her work". The student had looked up "relate" in a list of instruction words and decided that she could not do it, because how on earth do you relate if you are not allowed to analyze? The problem with

this kind of advice is an exact equivalent to that which has become known as the hidden curriculum. The implicit messages that these lists send out constitute hidden advice, and as they are meant to stand on their own, without an instructor, any conflicts between their implicit and explicit messages remain perhaps too often undiscovered.

Furthermore, it may be worth remembering before one starts predigesting dictionaries for students in this fashion that lecturers and tutors rarely put quite as much thought into their choice of instruction word as these lists imply. And when they do make a deliberate choice, it is often directed by stylistic taste rather than by an awareness of any differences in the analytical process involved in answering. Study skills teachers tend to complain that lecturers and tutors have merely the vaguest idea of the relative complexity of varying analytical processes suggested by instruction words; why then set up apparent distinctions between instruction words which imply that each has been chosen with an analytical-evaluative nicety which accurately reflects equivalent niceties in the answering process?

Now, before we get cornered with the problem where then we think the question's meaning lies hidden, let us follow up our demolition project with an attack on the key-word analysis of essay questions, and let us take our starting point in the Simone Beauvoir question. Continuing to follow her study skills book to the letter, the student had isolated two "key" phrases: Simone Beauvoir's work and Simone Beauvoir's life, and had proceeded to write part one: the story of SB's life, and part two: the story of SB's work. The two were totally unrelated. But the student had reasoned that if she was not to analyze, it must mean that counterposition equalled relation. The first response when I tell this story is for people to say that this student was not university material. And I would answer that this is putting the blame in the wrong place. Once she had been told that the two parts were mutually irrelevant, that she could not answer the question without analyzing, a name had merely been put to her own undefined unhappiness about the paper. In the two remaining days before the deadline, this student managed without help to make a B-paper out of the original mess. This in itself, I believe, should prove her "right" to be a university student. But furthermore, students are encouraged to seek study skills advice. How can anyone blame them when they do? And how can they be blamed if they trust that the advice they read must make sense, and trust it to the point where they are prepared to construct interpretations which strike them as absurd rather than doubting the advice? For if they permit themselves to question the advisers, where then will they get advice? It seems far safer to assume that the fault lies in their own twisted minds and to continue despite what is their own better judgment.

To bring out more specifically the trap in the key-word analysis approach, consider one more example. The question was set in Politics. "What impact did the Mongol overlordships have on the state tradition that had emerged in Russia by the sixteenth century?" Last year, 20 Politics I students tried analyzing that question in my study skills groups and the unanimous first suggestion was to use the key-word analysis. Proceeding accordingly, they soon established as key words all the noun phrases; "impact", "Mongol overlordships", "state tradition", "Russia" and "sixteenth century". When asked to establish a focus for the essay, they turned to their key-words and narrowed down the choice to "Mongols" and "Russia". The isolation of noun phrases without

attention to their conceptual interrelations allows a mental rewriting of the question into a far simpler answering process: a chronological narrative starting with the Mongol invasion, in relation to which "impact" is seen as the story of what the Mongols did. This then leads automatically on to part two: the story of Russia not *by* the sixteenth century but *in*. Such is the associative power of the juxtaposition "Russia" and "sixteenth century". Moreover, this reading gains - again associative, not analytical - confirmation from the label "state tradition", which was readily rewritten as "patrimony". Patrimony was in fact the state tradition to emerge in Russia by the sixteenth century, and as Russia is the prototype of that form of government, the students have heard a lot about it in lectures and were thus, with their experience of school so recently behind them, mentally expecting to have to write about it.

All this means that the weight of the students' answers would have lain approximately a hundred years later than the teacher intended; yet, chances are he would not have noticed how fundamentally wrong they went. Based on past experience, I feel safe in predicting that he would have seen the discussion of the sixteenth century as an attempt to define the "state tradition" which, however, tended to include too much detail, while failing fully to account for its rise. -And if you sense an echo of a typical teacher in that last sentence, then that was my intention. Neither would the teacher's benevolent interpretation have been wholly misguided, for, as mentioned, the majority of students do eventually pick up, by osmosis, what is required of them, by which time they will be doing the "right" thing as spontaneously as they now do the "wrong" thing.

How is that possible? Look again at the question. In the process of answering, the students would, by lucky coincidence, have *described* a number of influences but in language which would have given the appearance of analysis and categorization. And why? Because the reading for the topic had already been selected and predigested for them. This, for instance, is the reading list for this particular question, listed with it, so there is no chance of mistake:

T. Szamuely, *The Russian Tradition*, chs. 2-5
T. Riha, *Readings in Russian Civilization*, vol. 1, ch. 15 (George Vernadsky "The Mongol Impact on Russia").

One look at this list and you will see that no matter how much the students think they have to write about the Mongol invasion in broad terms, they will be led by their noses - and inclination to follow orders - to write about what "they" want, rather than about what they themselves think the question asks. The focus is given. And the language too. It is by stylistic contamination, so to speak, that first-year students come (the more is their luck) to give the appearance of having analyzed.

The fact remains, they have not analyzed, not categorized, not had in mind a particular theoretical framework which gave direction to their discussion; and in this lies my *key* objection to the key-word analysis. It is largely a superfluous exercise, which contributes nothing to the students' understanding of the *process* of answering. At best it gives merely an initial indication of the area in which the student is to be working; at worst, by its isolation of mere labels, it encourages a simplistic re-writing of the question which fits the student's past experience and present intellectual stage. It does not

challenge the students in any way with a concept of study which could confront them with their need to develop; instead it provides the student with an escape route; furthermore it counteracts intellectual development directly by nourishing in the student a feeling of being the victim of a dichotomy at the centre of the study process, caught between what they think their instructions ask them to do, and what they later find that "they" wanted them to have done.

I suppose it is now time that we lay ourselves open to attack by committing ourselves to our own approach to students and essays. A brief analogy may help. We all know that in letters, one often has to read between the lines to get the full meaning. In essay questions, we suggest, one has to read between the key-words to get the meaning. It is, we claim, the interrelationship between key-words, not the key-words themselves, that should receive primary attention, if we are to learn anything about the process of answering from our question analysis. What matters, in other words, is how the key-words interlock, not what they are. In the Politics I question, for example, we are not meant to discuss "Mongols" or "Russians", but "changes"; and those changes will have to be formulated within a theoretical framework of types of governments and constitutions. Yet the word "changes" nowhere appears in the question. It is instead the closest I can get to a definition of the meaning arising out of the linguistic interrelationship of the elements in that question. It labels the question's *Gestalt*, if you will, and arises out of the mutual limitations and modifications placed on the noun phrases by exactly those minor words, which the key-word analysis encourages students to overlook.

In themselves, the noun phrases are merely free-floating labels; the unity of the question is carried by the structure: "What impact did . . . on the state tradition . . . in . . . by . . .?" Notice how this reduction highlights what is to be the focus of the essay by retaining the question's coherence. By reading the question this way the student learns something of the analytical process involved in studying for and writing this essay. Notice also that it has been achieved by leaving out references to the data to be analyzed, while retaining the reference, "state tradition", to a theoretical framework which will determine the treatment of the data. This is important, and it is important to draw the students' attention persistently to this, for left on their own, they will invariably see those terms as most important which carry the strongest independent, because most heavily concrete, reference. In contrast, the units we have just pulled together only carry meaning in context, by which we mean that the words "impact" and "state tradition" must be set against the students' course in Politics, which in this case lends them their specific meaning.

In general terms, then, what we attempt to demonstrate to our students is that academic-type questions always contain two elements: data and theory; and we tell them that the aim is always to bring these two into a mutually enlightening relationship. We show them how sometimes one or the other of the two elements may be implied rather than stated and we introduce them to complications as when the data to be analyzed is in itself somebody's theory, or as when the data to be analyzed is the prototype on which the theory was formulated, which can make it particularly difficult to distinguish between significant and insignificant detail in the absence of contrasting material, although it also makes it particularly difficult not to say the right things in between the rest. Instruction words, on the other hand, we teach them to

look at largely as flourishes. Apart from a very few, such as "review" and "summarize" which may indicate a genuine genre difference, we tell them instruction words are there because sentences of instruction would otherwise not be grammatically complete; we also tell the students that at most these words imply a desire for a little surface style variation, and that, as a rule, they imply nothing, but may be safely ignored as long as the underlying demand to a discipline-specific analytical process is fulfilled.

All round, our experience as Study Skills teachers has served to confirm the linguistic tenor that words carry little meaning outside of context. To put it in terms of the title of this paper: meaning is at least as strong a guide to understanding language as language is to understanding meaning. Look again at the Simone Beauvoir question. This essay might equally well have been set in a literature course as in a sociology course as happened on this occasion. The particular guide to instruction words which my student had followed explains "relate" as the act of "bringing one part into relation with another". But the process this explanation *means* would have varied greatly from a literary to a sociological context. In sociology, the meaning has to do with how we construct reality out of our individual experiences, how somewhere or other our personal background influences our theories, ideas and concepts. In literature, relating life to work would involve looking at the remodelling of autobiographical material into art, the transformation of the finite into the infinite. Sociology, which is less lofty, might have said the construction of the general out of the specific. -And, as we saw in the case of my student, without any such specific reference, the word has no meaning.

I have made a number of claims in this paper which I shall now have to gather together. One is that there is an essential dichotomy between the form and function of the essay and that the successful essay depends upon the resolution of that dichotomy. The second is that the essay has undergone considerable changes and diversifications during this century, and that the individual student's ontogenetic development in essay writing still reflects the essay's phylogenetic evolution. Further, a large number of students enter university at a stage in their development where writing is still an imitative, largely unanalyzed process of learning by osmosis, a process, moreover, which they believe they have about mastered. They are therefore very ill-equipped to deal with the demands placed upon them at university, not least because the process of learning by unconscious absorption continues within the various disciplines, while the feeble attempts to provide analytical awareness of the processes involved are severed from the content which determines the process.

It has also been claimed that this situation is aggravated by the fact that a large number of students come to university with a normative attitude to language meaning, which makes them approach directions offered very much with an oracle faith in their infallibility, which causes these students to make the worst use possible of the directions given them, but which, it needs to be said, is often supported by the air of oracular certainty with which many of these directions are offered. It has also been claimed that, because of the particular relationship existing between form and function in essay writing, "how to" advice outside of context becomes so generalized as to be virtually meaningless. Our first conclusion then is that subject and study skills teachers as much as their students need to develop a

relativistic attitude to language, need to learn that meaning is embedded in context, not only when we deal with subject matter, but also when we discuss processes, and that advice therefore only gains meaning when related to context. Our second conclusion is that we fail our students, in fact we will never fully support their learning efforts, as long as we keep splitting off the "how to" from the "what". These two aspects ultimately determine each other to such an extent that study skills without context are a language without meaning, a no-language, a void; while on the other hand, content without methods and skills is a bewildering shapeless and undifferentiated mass. And this is how at present a very large proportion of our first-year students experience both.

1 Sinclair Gauldie, *Architecture* (London: O.U.P., 1969) p. 79.

2 W.P. Perry Jr., *Forms of Intellectual and Ethical Development in the College Years: A Scheme*, Report, Bureau of Study Counsel, Harvard University (Cambridge, Mass., 1968).

3 Perry, p. 6.

4 Anderson *et al.*, *Study Methods: A Practical Guide* (Sydney: McGraw-Hill, 1969), p. 50.