Perspectives in Education

Volume 8 Number 2 December 1984

The policy of **Perspectives in Education** is to promote rigorous critical discussion and debate about education, particularly in South Africa. At this stage of South Africa's educational development, the vigorous exchange of views is vital. The major purpose of **Perspectives of Education** is to clarify the issues at stake in the relation between education and South African society.

Perspectives in Education is published jointly by the Faculty of Education of the University of the Witwatersrand, 1 Jan Smuts Avenue, Johannesburg and the Johannesburg College of Education, 27 St Andrew's Road, Parktown, and printed by the Central Printing Unit of the University of the Witwatersrand, Johannesburg.

Perspectives in Education

Volume 8 Number 2 December 1984

CONTENTS

Perspectives on student learning: has the long awaited paradigm-shift occured?

Nico Cloete

The high failure rate of university students in many countries is generating a great deal of concern; one of the remedies prescribed is to improve study skills[1]. According to Svensson[2], the term 'study skills' includes a variety of behaviours such as study habits, study methods, study techniques and study motivation. An analysis of the contents of these programmes show that they are usually based on the personal experience of 'theorists' and on generalizations from traditional learning experiments[3]. Reviews of research into the effectiveness of this approach have generally concluded that there is a moderate relationship between study skills and academic success at the tertiary level[4]. Success has been attributed partially to an increase in motivation (often an extraneous variable) and the improvement in study habits such as planning and organizing study time and materials, more effective note-taking and certain memorization techniques. This approach focuses on the behavioural aspects of learning, consequently the remedy consists of training unsuccessful students to perform the same activities or behaviours as the successful ones[5]. A major problem is that it deals mostly with the symptoms of the study process, whilst disregarding the fundamental aspect of studying, namely the cognitive act of coming to terms with the study material. A brief description of the historical development of learning research will shed some light on the disconcerting finding that traditional study skill courses do not deal with the process of learning or understanding as it is known in the educational setting.

Learning research from a behaviouristic perspective

A recent review of learning research[6] reveals that during the initial phase of theory construction, important experimenters such as Thorndike, Pavlov and Ebbinghaus perceived learning as the acquisition of associations, conditioned reflexes and stimulus-response bonds. This was followed by the various reinforcement theorists such as Hull, Spence and Miller who emphasized the satisfaction of a motive (or drive reduction). Skinner, who is probably the best known reinforcement theorist, was not particularly concerned about motives, but rather with the specific arrangment of stimulus-response conditions that brough about new associations. Within this broad category of learning research, much work was done on related

aspects such as generalization, discrimination, retention, transfer and concept learning. The central issue in this line of research, which is called behaviourism or neo-behaviourism, is the relationship between the two basic units of analysis, namely stimulus and response. A crucial limitation of this model is that the organism (O) that intervenes between the stimulus (S) and the response (R) (S-O-R) is either ignored or inferred from the relationship between S and R, with no attempt to address the organism directly. Within such a framework, it becomes immaterial whether the subjects are human or animal, which explains the preference for the latter in much of this research. Another serious short-coming of using the S-R relationship as a basic unit, is that it deals predominantly with recall or memorization whilst excluding other important aspects of learning. This explains to a large extent why mnemonics is the only learning skill in many study skill programmes. A brief attempt to break the associationist dominance was made by Gestalt theorists such as Wertheimer, Kohler and Kaffka, who tried to explain learning in terms of insight. The sudden reorganization of experience to gain insight, was unfortunately investigated largely in terms of the S-R model. The lack of influence of this potentially fruitful area of investigation can be attributed to the limitations imposed by the basic unit of analysis and by the fact that it dealt with only one aspect of learning. Considering these constraints, the demise of this approach seems fairly natural. A fascinating question, however, is why behaviourism flourished during this period while it was suffering from exactly the same limitations. A related issue that is more relevant to the present discussion, is how a model with obvious flaws established such a long lasting monopoly in the learning research field. Part of the answer can be found in the hegemony of the natural scientific paradigm in psychology[7]. The positivist view states that scientific theories consist of sets of highly general, universal statements whose validity can be determined by means of systematic observation and experiment[8]. The key term for behaviourists is observation, which by implication, led to observable stimuli and responses as the basic unit of analysis, whilst the unobservable internal processing of the organism was excluded.

The overemphasis on observables has been due to a misconception or a 'naive version' of positivist science, exemplified by Hempel's statement, 'It is a remarkable fact therefore, that the greatest advances in scientific systematization have not been accomplished by means of laws referring explicitly to *"observables"* . . . but rather by means of laws that speak of various hypothetical entities . . . which cannot be perceived or otherwise directly observed by us'[9]. It is beyond the scope of this review to speculate about the processes, often psychological, that have led psychologists to adopt and maintain an oversimplified model of science. It is worth noting, however, that as psychology was attempting to sever it's ties with

philosophy and religion, it must have been very tempting to embrace science, which Feyerabend[10] calls the new dominant ideology of the twentieth century. The prevalent attraction of being associated with what is regarded as scientific — and the status to be gained therefrom — is blatantly illustrated in a statement by Greeno in his 1980 review of the 'psychology of learning'. After noting that Hull's neo-behaviourist attempt to provide a strong conceptual link between the psychology of learning and biology had resulted in a gross oversimplification, Greeno concludes that 'this view was plausible when it was advanced, however, and the connection it provided to concepts in the established science of biology contributed significantly to establishing the "psychology of learning" as a legitimate scientific enterprise'[11]. Apart from the embarrassing attempt to establish credibility through association, it seems that the gaining of recognition was more important than the relevance or validity of the enterprise, which reveals more about the psychologist than about the psychology of learning.

The above exposition shows that the absence of learning methods from study skill programmes can be attributed largely to the fact that researchers, working within a behaviouristic paradigm, have provided usable information about only one aspect of learning. Koch[12] has remarked that certain strands of 20th century scientific philosophy adhere to a view that all questions with presumptive content, but which are undecidable by the narrow range of methods employed, are meaningless and therefore outside the domain of scientific enquiry. But a theory of human behaviour that puts man's conception of his world aside as epiphenomenal will never be an adequate theory nor will it prevail in common sense'. Fortunately, it seems that the latter has finally triumphed, because during the last decade there has been a distinct shift towards investigating the complexities of learning from the perspective of the organism or learner. This changing emphasis has been the result of a change in the dominant view of what is scientifically acceptable and also the adoption of a radically different paradigm.

Differences between behaviouristic and phenomenological conceptions of learning

According to Kuhn's[13] theory of scientific revolutions, science progresses in a normal way when most researchers work within a specific paradigm and the results lead to an accumulation of knowledge. Great progress or revolutions occur when the inability of the old discipline to solve pressing anomalies results in a crisis, which is resolved through a change in paradigm. The concept paradigm is used to denote a set of shared values, and also in terms of paradigm as achievement, meaning a commonly accepted way of solving problems. When a new paradigm is adopted the

world itself changes, because not only are new and different things seen when looking at the same reality, but new instruments and methods are used to look at different aspects of reality[14]. An alternative to the behaviouristic conception of positivsm is what has been labelled a phenomenological perspective. In the ensuing exposition a brief overview will be given of a few of the important differences between the two paradigms and how the differences affect various aspects of the study of learning.

A fundamental difference between the phenomenological and positivistic paradigms concerns the basic purpose of science, namely, explanation. In the positivist view, explanation of an event consists mainly in showing that it is an instance of a well-supported regularity. The ultimate aim is thus prediction rather than explanation. This position is rejected from a phenomenological perspective because, it is claimed, a phenomenon is not explained by regularities or predictions. This version of positivism, which is basic to the behaviouristic approach, cannot really tell 'why' or 'what' happens, only 'how'[15]. It should be noted that this a 'naive' interpretation of science, because ultimately, both the natural and social sciences strive for explanatory understanding. In order to achieve this in the social sciences, it is necessary to discover the connections between phenomena by acquiring knowledge of the underlying or fundamental structures and mechanisms through which we constitute meaning[16]. Explanatory understanding consists of both rational and emphatic understanding[17]. Two central aspects of rational action consist of carrying out a logical argument where the conclusion follows deductively from the premises and secondly, an action results from the choice of the most effective means of obtaining an objective. With emphatic understanding, Weber[18] refers to the similarities that may exist between the emotions ascribed to an agent and those that the observer has experienced. When this affective aspect is expanded to include all subjective (cognitive and emotional) states, it is called experiental understanding. Related to this type of understanding is interpretive understanding, which is epistemologically distinct. An important aspect of interpretation is that it depends on, and uses the ability to understand (rationally and/or emphatically) *language*, which means that linguistic utterances are regarded as a type of social action which is a necessary means to knowledge of subjective states[19].

Another crucial difference between the paradigms is the way in which the learning situation is perceived. Positivism requires that the learner as the object of study should be perceived and described as objectively as possible. Phenomenology in contrast, stresses that the focus should be on the learner's own perspective. The first is thus observational or 'from-the-outside', whilst the other is experiental or 'from-the-inside'[20]. Studying learning from the perspective of the learner implies that learning always

occurs in a context, it has a definite content or substance and the learner is conscious of the learning act[21]. By acknowledging the importance of how the learner perceives the demand characteristics of different learning contexts, the phenomenological approach sacrifices one of the main aims of a positivistic science, namely the establishment of general rules or laws. Contextualized descriptions do not refer to the stability of the learner's method across similar situations, but is concerned with the generality of meaning of contexts that appear to be similar to the researcher. The awareness of the learner of the learning act implies a possibility of consciously changing method and approach, which makes the formulation of universal laws even more difficult[22].

Contextualized description requires more of a qualitative than a quantitative typification. Content and context in the learning situation are experienced more in terms of 'what' and 'how' than 'how much'. It is only within a behaviouristic perspective where learning is equated with measured outcome, that the percentage of correct responses becomes important. Inferential statistics form the basis of explanation when the researcher intends to establish relationships between quantified stimuli and responses. When a qualitative description of the process of constructing meaning during learning becomes the result or data of the investigation, quantification and statistical analysis assumes a secondary role. The primary role of social science should be the reconstruction of the ways in which the agents themselves explain their action and the theoretical concepts used should not depart radically from those of the agents[23].

A change in paradigm has implicaitons for the method of data collection. When the major aim of the investigation is to obtain qualitative descriptions, then the use of standardized psychometric tests, forced-choice questionnaires and the counting of numbers of 'correct' associations becomes inappropriate. A method that has been used frequently to study how the learner approaches a text, is to request him/her to summarise the presented material[24]. Similar to a projective technique, this allows the learner to impose his/her own constraints on the order of recall and most important, it reveals the learner's subjective structuring of the material. A criticism of this method has been the subjectivity of evaluating written records or essays. It has been demonstrated[25] that this limitation can be overcome through proper operationalization of concepts and acceptable levels of interrater reliability. Information gained in this way can be verified further by specific (structured) questions that deal with particular aspects of the response, or through verbal probing.

The triumph of behaviourism over introspectively orientated viewpoints has resulted in verbal reports becoming suspect as data[26]. Discrediting

verbalization led behaviourism to a schizophrenic position, because the basic behavioural data in their standard experimental settings are either verbal responses (yes/no, repetition of syllables, etc) or direct derivatives. A frequently used alternative, such as key-punches, is psychologically indistinguishable from verbal responding, except for the means with which the response is made[27]. The vague and indiscriminate use of verbalization by psychologists has, however, contributed to the ease with which reviewers such as Nisbett and Wilson[28] managed to invalidate it. A potentially fruitful method of investigating the learner's method of studying is concurrent verbalization. By instructing a trained subject to 'think aloud' during a learning or problem solving task, a direct trace is provided of the course and mechanism of the learner's cognitive processes[29]. A number of studies have shown a high level of correspondence between concurrent verbalization and other behavioural measures in a variety of different settings[30]. The practical utility of concurrent verbalization has been demonstrated by the work of Newell and Simon[31] on problem solving and the development of computerized chess programmes in the field of artificial intelligence. A second type of verbalization is concurrent probing, where the subject is asked to report on the assumptions and principles used in the learning process. The third group of verbal responses can be classified as retrospective verbalization, where probes are made after completion of the task. Retrospective probes require the subject to interpret what has happened, they can enquire about hypothetical states and about general states, which deal with issues that are not confined to the context of the experiment[32]. Due to the variety of inference and memory processes that mediate between the cognitive process and verbalization, the validity of interpretive probing or introspection has been questioned[33]. Numerous studies have, however, demonstrated that, when conducted properly, there is a remarkably high consistency between verbalized rules, concepts and hypotheses, and succeeding behaviour[34,35]. In a seminal review of the existing literature on the validity of verbalization as data, Ericsson and Simon concluded that 'verbal reports, elicited with care and interpreted with full understanding of the circumstances under which they were obtained, are a valuable and thoroughly reliable source of information about cognitive processes . . . To omit them when we are carrying the 'chain and transit of objective measurement' is only to mark as terra incognita large areas on the map of human cognition that we know perfectly well how to survey'[36].

The content of learning tasks in traditional learning research has consisted mostly of items such as nonsense syllables, random presentation of meaningless symbols, mazes, etc. This practice has been described as being sophisticated in research design while trivial in content[37]. If relevant explanatory understanding of learning is the goal, then the stimulus

material has to be complex and as similar as possible to that encountered in the educational or working environment. It has been remarked that a pleasant prospect of the new approach to the study of learning willl be the revival of the strong connection between the psychology of learning and the practice of instruction and learning in formal education[38].

The adoption of a different paradigm also has an effect on the practical application of the findings. The traditional study skill programmes often consist of the provision of techniques in the form of 'hints or tips' on how to study[39]. A good example of this method is the use of mnemonics to improve memorization. The underlying logic is that research should supply both the learner and the instructor with algorithms (i.e. formulae). Rather than prescribing correct procedures, a more defensible approach, is to attempt to raise the level of consciousness of the 'participants' in order to help prepare them better for future tasks[40,41]. The aim of study skill programmes then becomes emancipation, rather than administering treatment. Emancipation is a very difficult goal to achieve, but it can be attained more easily if the descriptive categories used for theory construction are understandable and relevant to the learner in his/her experience of the learning situation.

Below is a table that summarises the differences sketched in the above discussion.

Table 1: SUMMARY OF DIFFERENCES BETWEEN PARADIGMS

Dimensions	PARADIGMS Behaviourist (Positivist)	Phenomenological
Scientific Aims	Rules/Laws	Contextualized Description
Type of Explanation	Prediction	Explanatory Understanding (experiential and interpretive
Perspective	Objective	Experiential
	Observation Stimulus and Response	Learner
Method of Description	Quantitative and Statistical	Qualitative
Data Collection	Quantified Responses	Verbal Reports and Script Analysis
Stimulus Material	Syllables, symbols, mazes	Complex Reading Material and Problem Solving Tasks
Application of knowledge	Technicist	Emancipatory

The differences illustrated in the table are fundamental with regards to both theoretical orientation and practical implications. The paradigms can also be regarded as complimentary, because each offers a different vantage point of reality[42]. It is so however, only in certain aspects, because reality itself changes when a new paradigm is adopted[43].

'Progressive' research programmes: information-processing theory and learning strategies

The proposition that important advances in science occur through revolutionary 'spurts' has been challenged by the theory of Lakatos, who postulates that progress occurs when a progressive research programme replaces one that is degenerating[44]. A research programme consists of a core of hypotheses, a vast 'protective belt' of auxiliary assumptions and heuristics or problem solving methods. In a progressive programme, theory leads to the discovery of novel facts, whilst in a degenerating programme, theories are fabricated to accommodate known facts and anomalies[45]. A programme can also degenerate when the method of problem solving does not lead to progress, which seems to be the fate of behaviourism in the field of human learning.

There are currently two progressive programmes in the psychology of learning, namely information-processing theory and learning strategies. A brief review of the distinguishing features of both will be given. More comprehensive overviews of the former can be found in Greeno[46] and Houston[47], while the latter has been reviewed by Entwistle[48], Ford[49], Wilson[50] and Gibbs, Morgan and Taylor[51].

Broadly speaking, information-processing addresses the elaborate set of internal or cognitive processes that are involved in the acquisition and organisation of knowledge[52]. During the acquisition of knowledge, stimuli are transformed by sensory receptors and encoded in the 'working' or short-term memory. Processing continues when it is stored in long-term memory and yet another transformation takes place during retrieval from both types of memory before observable responses are produced[53]. There has been a controversy as to whether information processing theory and the traditional S-R conception of memory are mutually exclusive. According to Houston[54], certain types of information that we process depend on association, which does not preclude the S-R model. Two important points that Houston misses in trying to fuse the two approaches are that association is viewed differently by information-processing theorists and that their paradigm enables them to address different aspects of learning. An example is the development of a concept such as schema or or frame to explain the distorting effects of our previous knowledge on our memorisation of new material. A schema consists of the organized body of information that an individual has about an action, event or concept.

Theories based on schemata have demonstrated how the memory of students about details of the same house changed, depending on whether they were prospective buyers or burglars. Knowledge has also been gained on how certain parts of a sentence contribute to overall meaning[55] and the way in which a sentence is affected by its context or surrounding sentences[56]. A related phenomenon is semantic integration, which refers to the fact that when two or more sentences are read, we tend to combine them in such a way that our understanding of the situation is based on both sentences. In order to understand the overall organisation of a coherent story, the expressed propositions are arranged in what Kintsch calls a hierarchical text structure[57]. The learning that takes place in understanding stories can also be perceived as a form of assimilation, in which new information is acquired by fitting it to existing cognitive structures. Learning in a categorisation task, for example, involves adding production rules with conditions that incorporate features of stimuli and actions that constitute the category. The productions are formed on the basis of plausible principles of generalization and discrimination[58].

Apart from investigating how language is understood, considerable progress has been made with the analysis of problem solving behaviour[59]. A salient feature of this work is the description of cognitive strategies used to modify and regulate internal processing during selective perception, storing and retrieval of information and solving complex problems. With regards to the latter, a number of strategies such as sub-goaling, matching, working backward and trial-and-error have been identified. A problem can also be solved through the use of an algorithm and an heuristic method. The former refers to a predetermined step-by-step procedure that, if carried out correctly, will result in success. When an algorithm is not available, an heuristic method can be followed, which means that 'educated' guesses are made about possible fruitful steps. It has been found that students taught to solve problems in an algorithmic way performed best when they encounter similar types of problems, while subjects familiar with an heuristic method did better on problems that required understanding of the concepts[60]. In some of these areas, work has progressed beyond the stage of 'what' happens to 'how' it is acquired. Anzai and Simon for example, have demonstrated how information obtained during problem solving leads to the development of new and more sophisticated strategies[61].

Four important features of research about information-processing are: the emphasis on describing or reconstructing internal (unobservable) processes; data are collected through script and protocol (transcriptions of verbal reports) analysis; the learning tasks (sentences, stories and problems) are much more complex than that used in traditional learning experiments; and the use of computer programming language as a model

for theory construction. The influence of the computer model is illustrated by Simon's statement that the highest level of verification of a theory is when a computer programme can be written to perform a complex task in a similar manner to a human subject[62]. A severe criticism of this approach is its over-reliance on the programming model. Although Greeno claims that the 'choice of programming language has very little impact on the substance of the theory'[63], Osborne argues that conceptualisation often becomes compatible with methodology to the point where an awareness of alternative models become obliterated. He cautions that 'we need to be aware of the risk of sliding into the belief that the last machine which human ingenuity has created gives us the final form of reality. History has repeatedly shown this belief to be untrue'[64].

Information-processing theory adheres to a more sophisticated view of science than neo-behaviourism. It shares the latter's commitment to nomothetic explanation as a goal, empiricism as method of proof, laboratory experiments as its setting and operationism as a way of describing experimental operations. However, it differs radically with regards to other important dimensions of theory construction and research methods. Contemporary information-processing psychologists have rejected extrapolation from a small set of principles, animal data as basic source of information, conditioning as the central problem of learning, lack of interest in pre-existing associations, exclusion of innate capacities and antimentalism. Perhaps the most significant difference is the information theorists' acceptance of mind (i.e. organism) as central object of study. According to Lachman, neobehaviourists regarded 'mind' as 'irredeemably mentalistic, and use of the concept was considered in some academic circles as prima facie evidence that a psychologist was either poorly trained or becoming demented'[65]. Information-processing shares certain assumptions and methods with phenomenology. With reference to Table 1, the similarities are in a focus on the human learner or subject, qualitative methods of description, verbal reports and script analysis as data sources and using complex stimulus material.

A second progressive programme has been called 'approaches' to learning[67] and 'strategies' of learning[68]. The confusion over terminology, which is endemic to work in this field, is partially attributable to the difficulty of separating the two basic aims, namely to investigate how the learner aproaches study material and the kind of understanding or knowledge reached[69]. It may be a mistake to attempt to separate approach from resultant knowledge, because there seems to be a dialectical relationship where, in the synthesis (knowledge), it is impossible to indicate which part is due to approach and which to independent mental operations. The methods used to collect data (retrospective probing and ordering of cards with information) do not lend themselves to such an analysis. In the

present discussion, approach and strategy will be used interchangeably, with both referring to the 'pattern of decisions in the acquisition, retention and utilisation of information'[70]. An example of a strategy is that when confronted with a problem, a learner decides to subdivide it into smaller, more manageable parts. The decision (conscious or sub-conscious) to subdivide, is a strategy because there may have been other methods of solving the same problem.

Theory construction about learning strategies has been dominated by the so-called Göteborg group in Sweden[71,72,73,74] and Pask[75] in England. Pask asked students to give reasons for the way in which they had classified imaginary species of animals. From these responses, he identified two distinct strategies, namely holists and serialists. The latter adopts a narrow focus of attention, concentrating on one feature of a task at a time and using step-by-step learning, while the holist adopts a broad perspective and looks for a variety of inter-relationships. Holists readily pick up the overall picture, are able to build descriptions of topics and describe relations between topics, whilst the serialists identify rules, methods and details but are unaware of how they fit together. Each strategy has its disadvantage (or pathology), because holists tend to over-generalise and look for inappropriate analogies, while serialists fail to look for analogies, which makes it impossible to integrate knowledge. A third type of learner is called versatile, because he/she can use both strategies[76].

Using a similar classification, Svensson characterises holists as focussing on understanding the overall text, searching for intention, trying to ralate the message to a wider context, attempting to integrate what has been read, identifying main arguments and their supporting facts and either reaching an independent conclusion or recognising the conclusion of the author[77]. Atomists on the other hand, having an orientation towards details or surface structure, focus on specific comparisons and on parts of the text in sequence rather than on the most important aspects, memorise direct information and have a lack of orientation to the message as a whole. During interviews atomists reported that they relied on memorising introductory sentences and attempted to visualise tables, parts of the text or the outline structure of the text.

Other theorists have described learners as deep-level processors and surface-level processors[78,79]. In the latter, the student directs attention towards learning the text itself (the sign). Such a reproductive conception of learning invariably leads to rote-learning. In contrast, a deep-level processor focusses on the intentional content of the learning (what is signified) i.e attempts to comprehend what the author is trying to say. This often results in the description and/or justification of the author's conclusion.

A common factor amongst the holists and deep-level processors is the

transformation of the presented information. An important indicator of transformation is level of abstraction[80]. The highest level consists of an integration of themes beyond the context of the original information and is accompanied by a questioning of the validity of the material. A second level is where discrete information is brought together and substantiated with supporting facts. The lowest level of abstraction is where there is an integrating theme without supporting evidence. The atomists and surface-level processors are characterised by the absence of an attempt to transform information, which inevitably results in an emphasis on details and a reproductive conception of learning. An important issue that has been avoided thus far, but which will have to be addressed in the near future, is how intelligence is related to strategy.

Although the main aim of these studies is to provide qualitative descriptions as illustrated above, a link has been established between cognitive approach and academic performance. Marton and Säljö found that students who were able to identify the main points of an article had a better retention on a recall test a few weeks later, whilst those who had to be 'told'only remembered their original impressions[81]. It has also been shown that depth processors perform better on a test of understanding and were able to write better summaries[82 83].

With regards to academic success, it was found that more than 80% of students classified as holists passed all their first term exams while less then 30% of the atomists performed similarly. Atomists who did pass the examinations, used elaborate study techniques and revised thoroughly. They also often complained of boredom and became disillusioned and reduced their efforts. All the rote-learners who worked less than three hours a day failed[84]. The general trend of these findings has been supported in another study[85], but since the sample size in both studies is small (30 and 55), the results have to be interpreted cautiously at this stage. These findings do not mean that holists will necessarily be more effective in tertiary studies; that depends on the demands of the particular system. In the Cloete and Lolwana study, for example, the holists were very successful in the arts faculty, but did not do significantly better than the atomists in the science faculty[86].

Approach to learning is determined both by the content of the material and the demand characteristics of the context[87]. For university students, context usually consists of the demands of the evaluation system, style of instruction, expectations from previous learning experiences and the type of learning material encountered. The influence of context factors have been demonstrated by Marton and Säljö who showed in a series of experiments that questions interspersed between learning tasks have a considerable influence on the type of information that is attended to[88]. They quote Rothkopf who concluded that 'the most intriguing single result

of our work is that the character of questioning tends to shape the character of the knowledge acquired'[89]. It was however easier to induce surface processing than to get subjects to adopt a deep-level strategy[90]. This was supported by Fransson's results, that with complex reading material, depth processors supply the kind of response they believe to be appropriate to the demands of the test situation, while surface processors are limited to descriptive accounts[91]. The use of 'objective' tests may lead to more superficial processing, while expectation of an oral or essay test often results in an attempt at deeper-level processing[92]. Whilst academics frequently proclaim that university study demands deeper-level processing, it seems that students perceive it as requiring memorisation, fact-gathering, conformity and rote-learning[93]. More than half of both Swedish and British first year students studied were classified as surface-processors. Entwistle concluded from this that 'secondary school examinations are encouraging a rote-learning, reproductive approach to studying[94]. This does suggest that the tendency of Black students in South Africa to memorize is not a race or cultural variable as is often proclaimed, but rather a function of the type of assessment procedure that they have been exposed to in their 'special' school and university system.

The third dimension of the learning process, the learner's awareness of learning, has been investigated on the basis of interviews regarding their ideas and beliefs about learning[95]. For one group, learning and knowledge seem to be the same thing, with the aim being to obtain information and to reproduce it. They were not conscious of the fact that learning differed between situations and the only learning methods they were aware of consisted of reading, note-taking, underlining and study-time. Another group, however, reflected on learning as a phenomenon. They knew about study techniques, but were aware that learning can be for different purposes (ie general knowledge) for school or for long-term or short-term results. They also knew that they would have to adopt their approach according to cues (sometimes called cue-seekers) from the instructor or tests. Perhaps most interesting, certain students differentiated between learning and 'real' learning or what is sometimes called understanding. From these results Gibbs, Morgan and Taylor concluded that 'the approach people adopt to learning tasks has to do with their conception of what knowledge and learning is'[96].

There are several notable aspects of the research methods used in the study of learning strategies. The stimulus material comprises learning tasks that are representative of university level course work. Marton and Säljö even used course work from the classroom in the experimental setting[97]. A second feature is that students are often studied during a series of experiments with the aim of investigating consistencies as well as the influence of cues picked up during previous sessions. The main form of

data collection has been through interviews, requiring retrospective probing (interpretive and general states). Interrater reliability for protocol analysis was generally high, exceeding 0,80 in most cases[98]. The validity of this data has, justifiably, been questioned[99] and it will be up to the researchers using this method of data collection to demonstrate the correspondence between reported and actual learning behaviour and to show that data had been obtained with the necessary care and understanding.

Learning strategies have been investigated basically within a phenomenological paradigm, as summarised in Table 1. Although this work departs from a phenomenological-humanistic perspective, it can also be classified within the broad field of cognitive psychology. This implies that it shares many dimensions with the information-processing paradigm and it is possible that they will become even closer when aspects such as the cognitive skills involved in certain learning strategies are investigated. Whilst there are similarities in methods, focus, data collection and stimulus materials, there are also fairly irreconcilable differences with regards to scientific aims, explanatory models with accompanying criteria for proof and application of knowledge. Researchers in the field of learning strategies have certainly made a major contribution towards providing qualitative, contextualised descriptions from the perspective of the learner. The difficulty (or impossibility) of not describing from the researcher's view point is illustrated by the premature attempt to classify learners into dichotomous categories. Apart from leading to oversimplification, it violates the intention of qualitative description. There is also still a number of 'loose' concepts and there is certainly some validity in the charge that the results raise more questions than they answer[100]. It can however not be denied that a valuable alternative paradigm has been brought to the attention of researchers.

The two alternative programmes outlined above are both still in progress and developing. There is certainly evidence that each has a method or approach to problem solving that has already contributed to the discovery of new 'facts' and facets of learning. Whilst participating in the competition between research programmes, it is hardly possible to predict outcome; history is usually the final arbiter in such matters. What can however be claimed at this stage, is that both programmes have contributed to 'a theoretical understanding of the psychological processes involved in school learning, which could become the keystone of a significant new psychological theory of learning'[101]. From such a basis it should be possible to make learning the central component of study skills.

NOTES

1 Committee of University Principals *The Transition from School to University* Proceedings of the National Symposium, Pretoria, South Africa: 18-19 September 1978
2 L Svensson *The concept of study skills* Pedagogiska Institutionen, Gothenburg Universitet, 1981
3 L Svensson *Study skills and learning,* Acta Universitatis Gothenburgensis, 1976
4 N Entwistle & J Thomson and J Wilson 'Motivation and Study Habits' *Higher Education,* 3, 1974, pp 379-396
5 L Svensson *op cit,* 1976
6 J Greeno 'Psychology of learning' *American Psychologist,* 35, 8, 1980, 713-728
7 J Osborne 'The hegemony of natural scientific conceptions of learning' *American Psychologist,* 37, 3, 1982, 258-266
8 R Keat, J Urry, *Social theory as science,* London: Routledge & Kegan Paul, 1982
9 J Hempel The theoretician's dilemma. In H Feigl (ed) *Minnesota Studies in the Philosophy of Science,* University of Minnesota Press, 1958 pp 177
10 P Feyerabend 'How to defend society against science'. In I Hacking (ed) *Scientific Revolutions,* Oxford: Oxford University Press, 1981
11 J Greeno *op cit* p 175
12 S Koch, 'The nature and limits of psychological knowledge' *American Psychologist,* 36, 3, 1981, 257-269
13 T Kuhn, *The Structure of Scientific Revolutions,* Princeton University Press, 1962
14 *Ibid*
15 R Keat and J Urry *op cit*
16 R Bernstein *The Restructing of Social and Political Theory,* London: Methuen, 1976
17 R Keat and J Urry *op cit*
18 M Weber *The methodology of the social sciences,* Oxford: Oxford University Press, 1949
19 R Keat and J Urry *op cit*
20 F Marton and L Svensson 'Conceptions of research and student learning' *Higher Education,* 8, 1979, p 72
22 *Ibid*
23 A Shutz *The phenomenology of the social world.* Heinemann, 1972
24 F Marton and L Svensson *op cit*
25 W Ford 'Recent approaches to the study and teaching of "Effective"' *Review of Education Research,* 51, 3, 1981, pp 345-377
26 K Ericsson & H Simon 'Verbal reports as data' *Psychological Review,* 87, 3, 1980, 215-251
27 *Ibid*
28 R Nisbett, R & T Wilson 'Telling more than we know: Verbal reports of mental processes' *Psychological Review,* 84, 1977, 231-259
29 K Ericsson and H Simon *op cit*
30 *Ibid*
31 A Newell & H Simon *Human problem solving,* Prentice-Hall, 1972
32 K Ericsson and H Simon *op cit*
33 R Nisbett and T Wilson *op cit*
34 F Frankel, M Levine, & D Karf 'Human discrimination learning' *Journal of Experimental Psychology,* 85, 1970, 342-398
35 S Schwartz 'Trial-by-trial analysis of process in simple disjunctive concept — attainment tasks' *Journal of Experimental Psychology,* 72, 1966, pp 456-465
36 K Ericsson and H Simon *op cit* p 247
37 N Entwistle & D Hounsell 'Identifying distinctive approaches to studying' *Higher Education,* 8, 1979, 365-380
38 J Greeno, *op cit*

39 N Entwistle and D Hounsell *op cit*
40 J Habermas *Towards rational society*, Heinemann, 1971
41 F Marton and L Svensson *op cit*
42 *Ibid*
43 T Kuhn *op cit*
44 I Lakatos *The methodology of scientific research programmes*, Cambridge University Press, 1978
45 *Ibid*
46 J Greeno *op cit*
47 J Houston *Fundamentals of learning and memory*, Academic Press, 1981
48 N Entwistle 'Strategies of learning and studying' *British Journal of Educational Studies*, 25, 3, 1977, pp 225-238
49 N Ford *op cit*
50 J Wilson, *Student Learning in Higher Education*, John Wiley & Son, 1981
51 Y Gibbs, A Morgan & E Taylor 'A review of the research of Ference Marton & the Gothenburg Group' *Higher Education*, 11, 1982, 123-145
52 R Gagne, *The conditions of learning*, Holt, Reinehart and Winston, 1977
53 *Ibid*
54 J Houston *op cit*
55 D Genter 'Evidence for the psychological reality of semantic components in A Norman & P Rumelhart (eds) *Expositions in Cognition*, Freeman, 1975
56 H Clark & S Haviland 'Comprehension and the given contract' in R Freedle (ed) *Discourse Processes: Advances in Research and Theory*, Norwood, 1977
57 W Kintsch *Memory and cognition*, Wiley, 1977
58 J Anderson P Kline & C Beasley 'A general learning theory and its application to schema abstraction' in G Bower (ed) *The Pyschology of Learning and Motivation*, Academic Press, 1979
59 A Newell and H Simon *op cit*
60 R Mayer 'Acquisition process and resilience under varying testing conditions' *Journal of Educational Psychology*, 46, 1976, 4-11
61 Y Anzai & H Simon 'A theory of learning by doing' *Psychological Review*, 86, 1979, 124-140
62 H Simon *Models of thought*, Yale University Press, 1979
63 J Greeno *op cit* p 274
64 J Osborne *op cit* p 332
65 R Lachman J Lachman & P Butterfield, *Cognitive psychology and information processing*, Lawrence Erlbaum, 1979, p 41
66 J Osborne *op cit*
67 J Wilson *op cit*
68 N Entwistle and D Hounsell *op cit*
69 J Wilson *op cit*
70 J Bruner *Beyond the information given*, George Allen & Unwin, 1974, p 135
71 L Dahlgren *Qualitative differences in learning as a function of content-orientated guidance*, Acta Universitatis Gothenburgenis, 1975
72 A Fransson 'On qualitative differences in learning — IV' *British Journal of Educational Psychology*, 47, 1977, 244-257
73 F Marton and L Svensson *op cit*
74 L Svensson 'Learning process and strategies — III' *British Journal of Educational Psychology*, 47, 1977, 233-243
75 G Pask & B Scott 'learning strategies and individual competence' *International Journal of Man-Machine Studies*, 4, 1972, 217-253
76 *Ibid*
77 L Svensson *op cit* 1977
78 F Marton & R Saljo 'Learning process and strategies' *British Journal of Educational Psychology*, 46, 1976a, 4-11
79 F Marton & R Saljo 'Learning process and strategies' *British Journal of Educational Psychology*, 46, 1976b, 115-127

80 N Ford *op cit*
81 F Marton and R Saljo *op cit* 1976a
82 F Marton and R Saljo *op cit* 1976b
83 D Laurillard 'A study of the relationship between some of the cognitive and contextual factors in student learning' Unpublished PhD thesis, University of Surrey, 1978
84 L Svensson *op cit* 1977
85 N Cloete & P Lolwana 'Relationship between learning strategy and aspects of undergraduate performance', in press
86 *Ibid*
87 H Simon *op cit*
88 F Marton and R Saljo *op cit* 1976a & 1976b
89 E Rothkopf 'Two scientific approaches to the management of instruction'. In R Gagne (ed) *Learning Research in School Subjects* Peacock, 1968
90 F Marton and R Saljo *op cit* 1976a
91 Fransson *op cit*
92 F Marton and Saljo *op cit* 1976b
93 P Ramsden 'Student learning and perceptions of the academic environment' *Higher Education*, 8, 1979, 411-427
94 N Entwistle and D Hounsell *op cit* 1977
95 R Saljo *Qualitative differences in learning as a function of the learner's conception of the task*, Acta Universitatis Gothenburgenis, 1975
96 G Gibbs et al *op cit* p 137
97 F Marton and R Saljo *op cit* 1976a
98 D Laurillard 'The process of student learning' *Higher Education*, 8, 1978, 395-409
99 J Wilson *op cit*
100 *Ibid*
101 J Greeno *op cit* p 726

Fundamental Pedagogics: It's not what they say so much but who says what and why

Michael Lawrence

> How is it possible that identical human thought processes concerned with the same world produce divergent conceptions of the world?
>
> Karl Mannheim[1]

> People are more likely to become aware of ideas which seem relevant to their problems than of ideas which seem irrelevant, and they adopt those which seem to help in solving their problems.
>
> Vernon K Dibble[2]

> One key task . . . is to criticise other philosophy, not only — even if most importantly — in the interests of truth but also because, whether philosphers will it so or not, philosophical ideas are influential in social, moral and political life. It is part of the quality of life in the present age that those philosophers whose concern for rigour and for truth has been most marked have also for the most part been those philosophers who have exhibited least concern about the character of that influence.
>
> Alasdair MacIntyre[3]

Introduction

The need to write this paper arose from Peter Kallaway's recent contribution to *Perspectives* ('Meta what?')[4]. My contribution, however, does *not* centre on his overall argument but on some important issues raised briefly in his introductory paragraph concerning the 'Enterprise of Fundamental Pedagogics' (hereafter *FP*) per se.

I propose, therefore, to isolate some of these issues as a basis from which to re-open the debate surrounding *FP* and its ideological function. In order to support some of my claims I will employ theoretical arguments within the sociology of knowledge substantiated with reference from the literature on *FP* and personal correspondence between myself and thirteen pedagogicians[5] some five years ago.

Kallaway's hypotheses

Kallaway raises *three* important hypotheses in his introductory paragraph which, although not new, are nevertheless in need of further substantiation. It is upon these hypotheses that I wish to focus.
First, he notes that *FP* arose

> to dress up the blatant politically chauvinist and racist nature of the earlier educational doctrines.

Secondly, he observes that *FP* centred on the need

> for Afrikaner Nationalism to 'depoliticise' the field of educational studies.

Finally, he maintains that the development of *FP* was an attempt to

> find a language and a structure that would allow the appearance that the study of things educational had been taken out of the market place of ideas — of economic pressures, political conflict and ideological contestation.

There is nothing new in these claims. They have been evident in the debate on *FP* for some years[6]. I do not intend here to reiterate many of the issues surrounding this debate. I intend rather to unpack some of the methodological procedures and rules (Kallaway's 'language' and 'structure') inherent in the *actual activity* of *doing FP* as a philosophical enterprise amongst students and practioners. My concern then is with *how FP* tends to produce all the adverse social functions described by Kallaway, ie

- — functioning in a politically chauvinist way
- — depoliticising the area of educational studies
- — taking educational ideas outside the confines of social strucural analyses eg economic pressures, political conflict and ideological contestation.

Preamble

How then does *FP* actually succeed in functioning in the manner described above? To answer this question we need to look more critically at the procedural and methodological rules upon which the enterprise of *FP* is based. This necessarily requires an examination of the phenomenological method since it can be maintained that it is upon this method that the whole paradigm of *FP* is based.

An important caveat should be made here. My analysis is *not* concerned with the espistemological validity of the phenomenological method as practised by the pedagogicians. That is to say that questions pertaining to

whether or not the pedagogicians can actually accomplish what they claim to be able to do with the phenomenological method are of no concern to the analysis to follow. Thus the bona fides of the phenomenological method as practised by the pedagogicians is not in dispute. What *is* central to this sociological analysis is ideological implications and social consequences or functions of *FP*. Consequently issues concerning the truth or falsity of *FP's* claims are of a *logically different order* to an analysis within the sociology of knowledge. As Chomsky points out:

> the question of the validity and the scientific status of a particular point of view is of course logically independent from the question of its social function[7].

My concern then is with what the pedagogician *takes* to be knowledge and not with an assessment of what *deserves* to be taken as knowledge. In this sense, then the pedagogician's method and procedural rules are taken as *given*. From this vantage-point I propose to examine *how FP* actually manages to function ideologically. It is hoped that this will at least be a *tentative* beginning in an exploration of relationships between knowledge, social interests and social structure. Some brief theoretical notes on this relationship will be discussed in the final section of the paper.

The phenomenological method

Kocklemans in a paper entitled 'What is phenomenology'[8] maintains that: '. . . anyone familiar with the situation knows that as soon as he uses the term phenomenology he enters a sphere of ambiguity'.

There is much truth in this assertion. It is, however, not within the scope of the present discussion to handle the disparate definitions that do exist. However, despite this 'ambiguity' some concensus *does* exist regarding the main characteristics of the method. It is these characteristics which will concern us here since they reveal a marked similarity with the method adopted by the exponents of *FP*.

The most exhaustive and extensive discussion of the phenomenological tradition appears in Spiegelberg's two-volume historical-analytical exposition of the phenomenological method[9]. Here, like Kocklemans, he expresses concern as to the varying approaches subsumed under the name of 'phenomenology'. Despite these misgivings, however, he does maintain that there is:

> at least a common core and enough connection between the various versions of phenomenology to allow for a comprehensive account at the introductory level.

These 'versions of phenomenology' will be outlined here in an attempt to firmly locate the methodological position espoused by the pedagogician.

The crucial characteristics which will concern us are the following:

> DESCRIPTIVE PHENOMENOLOGY: This approach involves the direct exploration, analysis, and *description* of particular phenomena, as free as possible from unexamined presuppositions, aiming at maximum intuitive presentation.
>
> ESSENTIAL OR EIDETIC PHENOMENOLOGY: This approach probes the phenomena in question for typical structures of *essences* and for the *essential* relations within and among them.
>
> PHENOMENOLOGY OF APPEARANCES: Here attention is given to the ways in which the phenomena appear in different circumstances or in 'different perspectives of modes of clarity' so as to discern the essence of the phenomena.
>
> REDUCTIVE PHENOMENOLOGY: This involves the suspension of belief and of all presuppositions which are *not* essential to the phenomenon. In this step one is attempting to discern what makes the phenomenon what it is in essence. Those features of the phenomenon which are not essential to it must be excluded, hence the term *reductive*.

There is no doubt that *FP* is steeped within the phenomenological method as described above. In the *Editorial*[10] of the first *South African Journal of Pedagogy* (S A J P) it was categorically stated that phenomenology 'is die wortel waaruit die moderne pedagogiese denke spruit'. It is argued, moreover, that the phenomenological method is the only 'authentic' and 'scientific' way in which to examine the education phenomenon. It is as, Landman points out, 'n vorm van wetenskap' which is autonomous in nature ('selfstandige wetenskap')[11]. As a science, moreover, it seeks only to ascertain what constitutes the essential nature of the education phenomenon. This 'essence', moreover, must *only* be described. As Oberholzer points out the paradigm is of ' 'n beskrywende aard'[12]. It is '... die soek na . . . en *beskrywing* van fundamentele strukture' (my emphasis). The complete methodological and procedural rules to be adopted by the pedagogician as scientist of the education phenomenon is summed up in detail by Gous. He outlines, for instance, the following steps to be adopted by the pedagogician in order that he remain faithful to the methodological imperatives of the adopted paradigm[13].

STEP 1. The intuitive investigation of the phenomenon one has taken as one's point of departure. This means that the investigator makes the phenomenon that he is in wonderment about in the life-world (in this case education) his point of departure and then eliminates everything that is not essential to it . . . (this involves 'reduction').

STEP 2. . . . the preliminary suspension of setting aside of all faith,

superstition, dogma, opinions, theories and philosophies of life and the world. This step is also called 'epoche' or bracketing. This does not mean that these matters are totally discarded, but they are temporarily left out of account so that the investigator can study the phenomenon without prejudice . . .

STEP 3. The next step is to separate the essential features of the phenomenon from the non-essential and incidental. At this stage the essence or eidos is then named, and categories from which criteria can be derived are constituted (designed). This is the eidos-seeking investigation into the essence.

STEP 4. Now the phenomenologist investigates the various modes in which the phenomenon manifests itself . . .

STEP 5. The investigator must now examine the categories he has designed and determine whether they are in fact ontic (irreducible) and universally valid techniques and whether they do indeed represent indispensable conditions for the existence of the phenomenon.

STEP 6. The relationship between the various categories must be traced . . .

STEP 7. The hermeneutic act or act of description-and-interpretation is strictly speaking not a separate step, since it occurs throughout the entire procedure . . .

Commentary

In order to reveal the extent to which *FP* functions as a form of ideology and social control the following features of *FP* will be examined

- — the purely descriptive nature of the method
- — *FP* methodological commitment to a description of the essential nature of the educational phenomenon
- — the *reductive* procedure or 'purposeful bracketing' of the pedagogician.

FP as theory of science

In an attempt to locate the orientation of *FP* the evidence seems clearly to suggest that the practioner may be located within what Popper[14] calls 'methodological essentialism'. This theory of science postulates that it is the 'aim of science to reveal essences and describe them'. As a paradigm for scientific analysis, moreover, the methodological essentialist assumes that such an orientation constitutes:

> . . . the best, the truly scientific theories . . . (which) . . . describe the 'essences' or 'essential nature' of things — the realities which lie behind the appearances.

Turning specifically to the position adopted by South African pedagogicians it is clearly evident that they adopt the position described by

Popper. That is to say that the pedagogician assumes that the thrust of his analytical task as scientist is to discover and *describe* the true nature and universal features of the education phenomenon. Implicit here is the assumption that behind all the everyday manifestations of education (ie 'appearances') one will, through the phenomenological method, arrive at the *invariant* features ('essences') of what constitutes education and, thus, one will arrive at its 'essence'. This methodological distinction between 'appearance' and 'essence'[15] is succinctly described by one pedagogician as follows:

> . . . thus when the educationist is faced with inconsistent, changeable, subjectively personal and varying forms of educational situation and practice, he must transcend these in order to penetrate to the inner *essentials*. Western and oriental, Calvinistic, Islamic, Catholic, Protestant, American, Russian, Bushmen and similar varying forms in which the kaleidoscope of educational situations and forms may be encountered, obscure the constant and universally valid essentials of education. This variety of *contingent* characteristics envelops the essentials of education with an atmospheric cloud that impedes access to inner realities. This philosophical crust of forms to which essentials adhere and are entangled must be removed or penetrated so that the essentials, with their obvious and centuries-old characteristics, may be encountered and separated in order to reveal them clearly[16]. (my emphasis).

This essentialist methodological thrust is evident in the literature of other practising pedagogicians. As Oberholzer points out:

> The phenomenological method must in the first place be seen as a reflection which is aimed at penetrating the essential meaning of the phenomenon . . . it also entails a description of the essence[17].

Pienaar also aligns himself with this essentialist methodological position:

> The German people more than anyone else are very fundamental thinkers. They ask questions like 'what is education' . . . the so-called oti-questions and are very keen to go down to the roots of the phenomenon and it is this attitude which fascinates the South African pedagogue[18].

He continues and emphasises the paradigm's concern for the 'universal' aspects of the phenomenon which will:

> '. . . arrive at ontologically-irreducible, eidetic essential categories which are constant and universal'.

In this manner the pedagogician 'scientifically' attempts to penetrate the essential nature of the education phenomenon. This essence, described in terms of structures, are universal in nature and occur in all educational situations irrespective of historical and social context. Thus:

> 'the student of Fundamental Pedagogy seeks verifiable, systematic and universally valid knowledge'[19]. The paradigm is therefore 'a phenomenological . . . reflective proclamation and enunciation of a certain reality, namely the education reality'.

In this manner, then, the *FP* attempts to ask 'what are the real essences of the educational reality' in the hope that they may 'uncover the fundamental structures of a certain reality'. He continues and maintains that these fundamental structures have 'apodictic evidence' thus assuming the status of self evidence. This means that 'as far as the pedagogical reality is concerned they are inevitable structures. They *cannot* be absent' (my emphasis). This mean accords with that given by Popper of the essentialist theory of science:

> Such theories are neither in need of or susceptible to further explanation: they are ultimate explanation and to find them is the ultimate aim of the scientist[20].

FP as ideology: phenomenological description and essentialism

A central characteristic of the social control and ideological function of *FP* may be discerned from an analysis of methodological essentialism. The fact that the phenomenon is merely *described* to ascertain its *essence* is a case in point. The methodological commitment to pure phenomenological description does, by definition, exclude any philosophical analyses of an evaluative or speculative nature. Within the pedagogician's methods explorations of an evaluative nature are ignored on the grounds that such analyses are not faithful to the essence of the phenomenon. Such analyses are, therefore, unscientific given the pedagogician's procedural rules as scientist. Consequently any attempt at transcending the methodological parameters of *FP* to the level of *conjectural theorising* about the education phenomenon are deemed illegitimate by methodological fiat.

This is perhaps most clearly evident in the pedagogician's position vis-a-vis British analytical philosophy of education. The pedagogician's critique of this paradigm is based solely on the grounds that such analysis *transcends* the purely descriptive so as to include evaluative and normative educational considerations. Oberholzer[21] argues, for example, that philosophy of education in the *analytical* mould is merely ''n konglomeraat' and, therefore, invalid as a paradigm on the grounds that it does not

orientate itself towards the 'essential nature' of the phenomenon. Thus in criticising such analyses he argues that within analytical philosophy of education '. . . die uitgangspunt is die geleë in *wat is* nie, maar in *wat behoort is'* (my emphasis). This methodological prescription is succinctly summed up by UNISA course tutors:

> . . . the main conditions are that all educationists must think about the same question, namely the educator's reality, with the aim of coming to know its structure *as it is and not as it ought to be* philosophically. Pedagogics is only descriptive and should *neither prescribe* for, nor weigh up one education against another[22] (my emphasis).

Consequently *any* mode of educational thinking that takes the phenomenon of education as *structurally* problematic ('wat behoort is ') does not achieve the status of science since it obscures the essence ('wat is') of the phenomena. Such a mode of thinking 'wil probeer om wetenskap te wees, niks meer en niks minder nie' and is reduced to:

> . . . general talk, superficial inquisitiveness and ambiguity thus being blind to the essences. These efforts concerning the non-essentials may suitably be described as unscientific[23].

A further more critical look at the notion of 'essence' may also reveal at more *subtle* levels how *FP 's* procedural rules assume the status of ideology by functioning as a form of social control.

The implicit assumptions embedded in the distinction held by *FP* between the *essential* and the *empirical* nature of the phenomenon is a case in point. This distinction is the direct result of the methodological analysis in which matters pertaining to the factual and empirical world are *excluded* from analysis. Eidetic phenomenology, for instance, involves what Natanson calls 'a moving away from matters of fact to essences, from empirical to essential universality'[24]. Consequently through this methodological procedure the pedagogician is committed to:

> . . . attend to the character of the given, *setting aside* that which is *contingent* and secondary and noting that which shows itself as universal[25] (my emphasis).

Thus in the words of Kullmann et al[26] an essentialist orientation is a-theoretical and non-conjectural in so far as it is an 'interdict to ignore scientific hypotheses per se'.

Spiegelberg[27] substantiates this claim and argues that such an orientation adopts a position of 'a turning away from a preoccupation with . . . theories and hypotheses'.

This emphasis then, on the essence of the phenomenon involves a

blatant dismissal of the empirical, contingent and, therefore *changing* social world.

Marcuse's analysis of the concept of *essence* is helpful here since it clearly suggests the political conservatism inherent in the concept[28]. He argues, for example, that methodological attempts to ascertain the universal and essential in the '*critical tension* between them (essences) and factual existence' (my emphasis). It does not, therefore; lead to a revelation of 'what could and should be'. Consequently, Marcuse concludes that such a methodological commitment to the *essential* 'no longer means setting reality *against its potentiality* and what exists against what *could* be' (my emphasis).

Marcuse also observes the *abuse* of the concept of essence and notes the extent to which it was employed for the 'ideology of authoritarian forms of domination'. He argues furthermore that:

> The intuition of essence is misused to established orders of value in which the relations of hierarchy and subordination required by the established order are derived from the 'essence' of man, of nationality, and of race.

The political and social function of this static conception of the 'essential' has also been noted by Adorno[29] in his critique of the founder of the phenomenological movement, Edmund Husserl. He comments, for example, that the phenomenological method 'resigned itself to the simple *reproduction* of that which *is*' (my emphasis). It is for this reason that Adorno regarded Husserl as the 'most static thinker of his period' since the phenomenological method tended towards the reification of the *given*. Such a position, moreover he felt could 'well lead to the political domination of an absolute ideology'.

In conclusion *FP* assumes the status of consensual science[30]. The sociological implications of this have been succinctly noted by Gouldner[31].

> On a sociological level, it is in effect an effort to identify a hidden, *common* ground among *warring* views and a rhetoric serving to win consent to a method aimed at producing consensus.

Reductive phenomenology

While an attempt was made above to reveal the ideological implications of the descriptive and essentialist nature of *FP* it remains to look at the methodological imperative of 'purposeful bracketing' as a form of social control and ideology.

Earlier it was claimed that the reductive phenomenological turn involves a suspension of belief ('purposeful bracketing') of all presuppositions

which are not essential to the phenomenon. This methodological stricture attempts to direct the pedagogician towards what constitutes the phenomenon in its essential nature. Those features of the phenomenon, therefore, which are *not* essential to it must be *excluded* from any discussion directed at the status of the phenomenon. This important procedural rule is described by Rooyen as follows:

> . . . all biased schemes, existing theories, one sided interpretations, partial concepts and traditional definitions of the pedagogical phenomenon must provisionally be placed in parenthesis so that the phenomenon be given the chance of revealing itself[32].

Pienaar comments on this 'bracketing' and clearly outlines its importance for *FP* as a paradigm. He maintains that since the paradigm involves the 'essentialist analysis' which attempts to 'discover or disclose that which makes the phenomenon what it is' one 'must eliminate everything that is not essential to it. This, necessarily involves suspension or setting aside of all faith, superstition, dogma, opinion, theories and philosophies of life and the world'[33].

In one fell swoop, then, the ambiguous political reality of the pedagogician qua pedagogician is obliterated since, as Natanson observes, the reductive procedure involves:

> . . . purposeful bracketing of what we know about ourselves and our world from the sources of science, history, psychology and all other spheres of explanation. What we have to put in brackets is . . . fellow-men, cultural objects, society and its institutions[34].

By adopting such a methodological position, therefore, the pedagogician's relationship to the prevailing *structural* features of society (e.g. CNE) is excluded from critical debate as are all the other political and economic contingencies surrounding the analyst as Bernstein notes:

> The ideal phenomenologist systematically removes himself from the pragmatic interests of everyday social and political life. He must engage in the rigorous discipline of bracketing and performing epoches . . . as pure theorist he is *not* directly concerned with *judging, evaluating or condemning existing forms of social and political reality, or with changing the world*[35] (my emphasis).

Thus, by 'suspending' or 'bracketing' in order to concentrate on the

'essential' and its description, the pedagogician leaves the education phenomenon as *given* and, therefore, as *unquestionable*. Gellner, employing the term 'suspension' rather than 'bracketing', comments succinctly as follows:

> The alleged suspension constitutes a kind of *vindication*, a *justification* of the ordinary world as such, leading it to be treated as ultimate in its own sphere, and no longer as a rival or dated scientific theory. The suspension, then, in effect says — this is the world you actually live in, and at least as a Lebenswelt *its standing is unquestionable*[36] (my emphasis).

Although Gellner's comment avoids a detailed sociological analysis of the implications of such a position the legitimatory function of the pedagogician's role as scientist is self-evident. Elsewhere for example, Gellner anticipates the functional consequences of such a position and argues:

> So what phenomenology does is not to teach us to hold the ordinary world in special pincers, ready for examination — for that we do anyway — what it does is to *reassure and reconfirm its status*. Previously the ordinary world was just the place in which we appeared to live, but which we had learnt to doubt and query: now, by being called Lebenswelt, it is in a curious kind of way restored to its full pristine confidence. By so calling it, we imply that at least 'our world', as Lebenswelt, *is not in doubt* (my emphasis).

Conclusion: towards a sociology of knowledge

I have tried in this paper to explore the basic relationship between *FP*, the social interests it serves and the social structure in which the pedagogician finds himself. In this respect my argument has been a *tentative* exploration in the sociology of knowledge. Of course, far more groundwork needs to be done before a more *systematic* sociology of *FP*, as a form of knowledge, is achieved. Indeed a separate paper could quite easily be developed to explore many of the theoretical issues involved.

Nonetheless my basic contention has been to argue that any analysis of *FP that confines itself solely* to *FP* per se without trying to see the correspondence between it and the broader social structure will tend to be inadequate. The limitations of an analysis that ignores these structural concerns rests, I believe, on the false assumption that a system of knowledge *FP* can only be viewed as separate from *interests* of the *producers* of that knowledge. This, however, is not to suggest that such an analysis is of no concern. The sociology of knowledge serves only as a reminder as to the one-sidedness of such analyses. Indeed, it is for this

reason that we find exponents of the sociology of knowledge drawing a distinction between the *intrinsic* (or *immanent*) interpretation of a thought-system and an *extrinsic* analysis[37]. The former approach for instance, examines a given system of thought only in terms of its internal meaning, logical structure and interrelations. The extrinsic interpretation, on the other hand, attempts to probe a thought-system *beyond* what is said in order to examine the possible relationships between a thought-system and the social structure within which the producers of that system *practise*. One is also concerned with the possible consequences and functions of that system in terms of the social interests served by it. The 'ultimacy of social structure'[38], then, is seen as an important extra-theoretical factor. Within such a framework the sociologist attempts:

> . . . to relate the particular thoughts expressed by individuals to their more basic and underlying world conception (Weltanschauung), ultimate values, interests, beliefs and sentiments[39].

By taking these factors as significant we begin to understand more fully how 'social conditions may influence groups toward one or other intellectual mentalities[40].' We are then placed in a position where we may come to see how a community of thinkers tends to be:

> . . . limited by the social heritage and the structure of the society in which they exist ie why specific ideas are not likely to attain acceptability[41].

Thus we come to see how:

> . . . certain ideas may be generated and sustained because in a *given context* they are more *expedient* formulations for furthering and legitimating particular aims and interest[42], (my emphases).

It is my contention that *FP* and its deployment of the phenomenological method is in the *interests* of the practising pedagogician and the educational fraternity and political order to which they are ultimately accountable. This, however, is not to suggest that there is a *necessary* relationship between the phenomenological method and *conservative* social interests since phenomenology as a philosophical position has been reconciled with Marxism[43]. Rather, I maintain that a relationship, though not *logical*, exists between *FP*, social interest and social structure. I, therefore, concur with Barnes[44]

> . . . that interests *inspire* the contruction of knowledge out of available cultural resources in ways which are specific to particular times and situations and their overall social and cultural contexts (my emphasis).

Perhaps, then, Kallaway's concern about the fact that a history of pedagogics has not been written is warranted. However to appeal only to the 'history of ideas' in explaining *FP* will, I believe, be inadequate. Theoretical support from the sociology of knowledge is inescapable. After all, the sociology of knowledge developed out of the history of ideas as a direct reaction to the *limitations* of such an historical approach[45].

NOTES

1 K Mannheim, *Ideology and Utopia*, New York; Harcourt Brace, 1936
2 V K Dibble, 'The Sociology of Education' in J E Curtis and J W Petras (eds), *The Sociology of Knowledge*, London: Duckworth, 1970
3 A MacIntyre, *Marcuse*, Fontana/Collins, 1970
4 P Kallaway, 'Meta What?' *Perspectives in Education*, 7, 3, 1983.
5 Letter dated 14 July 1978. Replies hereafter referred to as *correspondence*
6 See P N G Beard and W E Morrow (eds), *Problems of Pedagogics*, Butterworth, 1981
7 N Chomsky, 'Psychology and Ideology', *Cognition* 1, 1, 1972
8 J J Kocklemans 'What is Phenomenology?' in *Phenomenology: The Philosophy of Edmund Husserl and its Interpretation*, Anchor Books, Doubleday and Co., Inc. 1967
9 H Spiegelberg, *The Phenenological Movement: A historical Introduction, The Hague:* Martinus Nijhoff, 1976
10 'Editorial', *South African Journal of Pedagogy* SAJP, 1, 1, July 1967
11 W A Landman, 'Die Moderne pedagogiek as vorm van Wetenskap', *SAJP* 1, 1, July 1967
12 C K Oberholzer, *Inleiding in die Prinsipiële Opvoedkunde*, Pretoria/Brugge; J J Moreau en Kie, 1954
13 S J Gous and W A Landman, *Inleiding tot die Fundamentele Pedagogiek*, Afrikaanse Pers-Boekhandel, 1969
14 K R Popper, 'Three views concerning human understanding', in *Conjectures and Refutations: The Growth of Scientific Knowledge*, Routledge and Kegan Paul, 1963
15 The distinction between 'appearance' and 'essence' may be traced to the Greek philosophical tradition in which a distinction between *Doxa* and *Epistême* was held. The former refered to the multifarious appearances of the changing empirical world while the latter refered to knowledge in the 'genuine emphatic sense'. This latter form of knowledge, therefore, was seen as 'free from all relativity with regard to subjects, their standpoints, and vicissitudes of their lives . . . genuine knowledge is perpetually true, under all circumstances and for all men'. See Popper, *Conjectures and Refutations*. The sociological implications of this are discussed later.
16 Lecture handouts, University of Cape Town, Higher Education Diploma, 1970
17 Oberholzer, *Inleiding*
18 Correspondence, Reply by J J Pienaar, 22 August 1978
19 C J G Kilian, 'Fundamental Pedagogy', *SAJP*, 5, 2, December 1971
20 Popper, *Conjectures and Refutations*. Following Popper there is a marked anti-intellectualism in this kind of 'essentialism', a suitable position for the pedagogician so constrained not to challenge the ideological foundations of CNE. As a 'theory of truth', for instance, methodological essentialism is paradigmatically committed to a search for indubitable truth as his methodological starting point. Lauer, for instance comments: 'to know an

essence is to know that which is necessary and hence eternally true. Knowledge as such cannot be revised, since by definition, knowledge is necessarily true, and therefore eternally true' (mine). See Edmund Husserl, *Phenomenology and the Crisis of Philosophy,* translated by Q Lauer, Harper Torchbooks, 1965. See also W Morrow's critique of the pedagogician's theory of truth in *Rhodes University Bulletin,* 5, 1, March 1980, 'The Nature of Education: A reply to Pienaar'

21 Oberholzer, *Inleiding*

22 J C G Van Vuuren (ed), 'Orientation in Pedagogics', *Study Manual No 3,* University of South Africa

23 W A Landman ''n Fenomenologiese Werkwyse', *SAJP* 6, 2, December 1972

24 M Natanson, *Literature, Philosophy and the Social Sciences: Essays in Existentialism and Phenomenology,* Martinus Nijhoff, The Hague, 1966

25 Natanson, *Literature*

26 M Kullman and C Taylor 'The Pre-objective World' in M Natanson (ed), *Essays in Phenomenology, The Hague:* Martinus Nijhoff, 1966

27 Spiegelberg, *The Phenomenological Movement*

28 H Marcuse, 'The Concept of Essence' in *Negations: Essays in Critical Theory,* Penguin, 1968

29 T Adorno in *The Dialectical Imagination: A History of the Frankfurt School and Institute of Social Research, 1920 – 50, Boston:* Little Brown and Company, 1973

30 Perhaps the most important reason why Popper accuses methodological essentialism of anti-intellectualism leading to the status of ideology as argued in this paper. He notes: 'The doctrine which I have called "essentialism" amounts to the view that science must seek ultimate explanations in terms of its "essences": if we can explain the behaviour of a thing in terms of its essence of its essential properties — then no further questions can be raised, and none need be raised'. See K R Popper *The Open Society and its Enemies,* Vol 1. Routledge and Kegan Paul, 1945

31 A W Gouldner *Enter Plato: Classical Greece and the Origins of Social Theory,* Routledge and Kegan Paul, 1965

32 R P Rooyen 'Pedagogiese "Doel" of "Bestemming"?' SAJP 4, 2, December 1970

33 J J Pienaar and T A Viljoen *Fundamental Pedagogics,* Hayne and Gibson, 1971

34 M Natanson *op cit*

35 R J Bernstein *The Restructuring of Social and Political Theory,* Basil Blackwell, 1976. See also B E Bykovsky 'The De-objectivation of Philosophy', *Voprosy Filosofi,* Vol 2, 1956. Bykovsky comments on 'reduction' and 'bracketing' and observes that: '. . . the aim to be free from all partisanship prevents it from entering the problems of actual life and social reality'

36 E Gellner *Legitimation of Belief,* Cambridge University Press, 1974

37 W Stark *The Sociology of Knowledge: An essay in aid of a deeper understanding of the history of ideas,* Routledge and Kegan Paul, 1958

38 A Child, 'The Existential Determination of Thought' *Ethics,* Vol *L11,* 1941

39 G De Gré, 'The Sociology of Knowledge and the Problem of Truth' *Journal of the History of Ideas,* II, 1, January 1941

40 *ibid*

41 *ibid*

42 B Barnes *Interests and the Growth of Knowledge,* Routledge and Kegan Paul, 1977

43 See E Paci *The Function of the Sciences and the Meaning of Man,* Heinemann, 1972 and B Smart *Sociology, Phenomenology and Marxian Analysis,* Routledge and Kegan Paul, 1976

44 B Barnes *op cit*

45 G De Gré *op cit*

Is 'Res' worth it? A comparison of the University performance of black bursary recipients living in and out of residence

George Pavlich and Mark Orkin

Introduction

Universities, like other large organizations in the public sector which depend for almost all their income on an annual grant from the exchequer, face the repetitive problem of deciding how to allocate resources among competing priorities that are worthwhile in different ways. The problem acquires an especially painful human dimension for the committee which has to decide how to allocate bursary funds, since its judgements will in many cases determine whether a prospective student is able to contemplate attending university at all. One of the particular dilemmas it will face is this: if it gives bigger grants to some students, so that they can afford to live in a university residence, it will have to make fewer or smaller awards to others. When might this be worth doing?

This question has become especially pressing lately for English-language universities in South Africa. The reason is that they have been permitted to admit an increasing number of students who are classified black, ie 'Coloured', Black (African) or Indian; and among these students the proportion who have experienced severe socio-economic and educational disadvantage is much higher than among white students. In the case of such students, the question is this: how much redress may be gained by attempting to give them the opportunity to live and study on campus?

Before we apply our data to the issue, let us elaborate the context a little. Until 1983, the Government required that black students apply for individual Ministerial permits to attend 'White' universities.[1] Even so, the percentage of black students at the University of the Witwatersrand, for example, roughly doubled in five years, from 5 percent in 1978 to 11 percent in 1983, when there were 583 Blacks, 213 'Coloureds' and 891 Indians at Wits.

As from 1984, the Government abandoned the permit system. It has been surmised that, despite this concession, 'there is not going to be rapid growth in the number of black students at the "open" universities',[2] because they have been increasing their matric-based entrance requirements. However, Wits has recently adopted a rather different policy, of seeking 'to ensure that students of academic potential who have

been educationally disadvantaged would not be disadvantaged when they apply to the University'.[3] So, at least at Wits, the increase in the proportion of black admissions can be expected to continue, and perhaps accelerate.

Now many of these black students, especially the 'Coloureds' and Blacks, come from working class families, in which the parents are poorly educated and have ill-paid jobs.[4] In some instances, these are single-parent families headed by the mother, who does menial labour for long hours at poor wages to provide for several children.[5] This obviously greatly diminishes 'the degree and quality of attention which a child receives in the home'.[6] Indeed, parents, especially fathers, may actively oppose their children's continuing in education, and prefer them to get a job and bring in money as soon as possible.[7] Typically, the home is noisy and chronically overcrowded for many Blacks, without electricity, and set in a rough and squalid township environment,[8] from which the student has to travel considerable distances to get to university.

Moreover, these students would have suffered schooling which by Government design is racially segregated and still grossly inferior to that enjoyed by their white counterparts — despite the Government's recent undertaking to work towards parity in the provision of facilities and teaching staff.[9] The depressing pattern of statistics is well known. In 1983, the average amount spent on each pupil in the school system for Blacks, administered by the Department of Education and Training, was R192 (including both capital and current expenditure). This was less than one seventh of that for whites, R1385. There were on average 43 pupils per teacher in Black schools, as compared with 18 for whites.[9] If one takes matriculation plus some professional teaching qualification as an adequate training for teachers, one finds that 77%, ie more than three-quarters, of Black teachers were under-qualified, as against only 3% of whites.[10]

The corresponding figures for 'Coloureds' are somewhat better. Thus, in 1983 the average capital-plus-current expenditure per 'Coloured' pupil was R593, less than half that for whites; the pupil-teacher ratio was 27:1; and 59% percent of 'Coloured' teachers were under-qualified.[11] But the situation remains more similar to that faced by Blacks than by whites or Indians. (For the latter, the per capita expenditure in 1983 was R872; the teacher-pupil ratio was 24:1; and the proportion of under-qualified teachers was only 18%).

So we may safely say that among the admissions of the English-language universities are increasing numbers of 'Coloured' and Black students who, because of their poor schooling and comparatively ill-educated home backgrounds, need as much educational intervention as the university can provide, yet who will not benefit optimally from that provision unless they can live in conditions more favourable to study than they can find at home. Here is clearly a prima facie case for trying to place such students in 'res', ie

university accommodation. And when one diverts scarce resources to do so, do they in fact fare better than if they had stayed at home?

The answer to which we are led, by the evidence we shall analyse in this paper, is a clear 'yes'. In the next section of the paper we describe the students we studied, show how we constructed the various indices, record the sequence of statistical tests we used, and justify our technical decisions. In the final section we review the results in a non-technical way and stress their implications.

Sequence of inquiry

The subjects in the study

The study was conducted under the auspices of the Undergraduate Bursaries and Scholarships Committee at the University of the Witwatersrand,[12] and was conceived in order to be able to take advantage of the records of the Bursaries and Scholarships Office. So the subjects comprise all Black and 'Coloured' students who received bursaries for the 1982 academic year, registered in various faculties and for different years of study.

There were 151 Black students and 41 'Coloured' students, a total of 192 in all. However, matric results were missing for nineteen of the students, so that for statistical operations involving matric performance the number of subjects is 173.

As it turned out, in both the larger and smaller sets of data Blacks outnumbered 'Coloureds' by three to one among the 'non-res' category, and nine to one among those in 'res'. This breakdown reflects in part the pattern of University and bursary applications resulting from the demography of the region and the quantity and quality of secondary education made available to the respective ethnic groups; and in part the University's academic and residence admissions priorities. Since the frequency of 'Coloured' subjects is not enough to allow reliable comparisons, and since — as we noted earlier — education for 'Coloureds' is second only to that for Blacks in its neglect by the state, we have pooled the two categories for the purposes of our particular analysis.

Hypothesis

Given the considerations we developed in the Introduction, the formal hypothesis we shall be testing, for our group of Black and Coloured students, is that the university performance of 'res' bursary students, according to measures stipulated below, is superior to that of the 'non-res' bursary students. This hypothesis is directional, so that where relevant the level of significance we report is for the one-tailed rather than the two-tailed test.

Chi-square test with dichotomized university performance

For a first, crude test of the hypothesis we measured the university performance of our subjects with a dichotomy. We distinguished those who performed well enough to proceed to the next year of study, in terms of the rules for their year and faculty, from those who were not permitted to proceed. This variable, of 'proceed' versus 'not proceed', was then cross-tabulated with the independent variable of 'res' versus 'non-res'. The results are shown in Table 1.

Table 1: DICHOTOMIZED UNIVERSITY PERFORMANCE BY ACCOMMODATION

		'Not proceed'	'Proceed'	Total
'Non-res'	No.	63	77	140
	%	45,0	55,0	100.00
'Res'	No.	20	32	52
	%	38,5	61,5	100.0
Total	No.	83	109	192
	%	43,2	56,8	100.0

Chi-square = 0,66; d.f. = 1; p = 0,42

It may be seen from Table 1 that approximately 62% of the 'Coloured' and Black 'res' students were permitted to proceed to their next year of study, as compared with 55% of 'non-res' students.

Is there any way of deciding whether, for the numbers at hand, this difference is appreciable? In this study, we are in each test cosidering all the Black and 'Coloured' bursary students at the University for whom the relevant data are available, ie not a sample but the entire measurable population. It is usually argued by statisticians that in such a case it merely remains to report the figures, and assess their importance in the light of one's theoretical concerns. Significance tests, on this view, are only relevant to the question of whether one can generalize from a given sample to the population from which it was drawn.

However, Blalock[13] argues that if one is questioning whether the 'differences among subpopulations delineated in various ways' could not have arisen simply by chance, 'then it clearly makes sense to make significance tests even when one has data for the entire population.' In other words, one wishes to know whether one may make inferences about the causal processes that may have generated the present population data, in such a way that the present population would be functioning as a sample

of the undefined population of future Black and 'Coloured' bursary students.

On this understanding we accordingly, here and subsequently, make the appropriate significance tests, taking $p<0.05$ as our criterion of significance throughout. In this instance we find that the difference in university performance between 'res' and 'non-res' bursars — when using a crude dichotomy as our measure — is not significant: p is much greater than 0.05.

Difference-of-means test with university performance index

Although the chi-square test used above has the advantage of not making any assumptions about the shape of the distributions of the students' results, it is very insensitive because it does not make use of the higher levels of measurement which the University records in fact allow.

We thus defined an index of university performance as the ratio of subjects passed to subjects attempted, in order to be able to conduct an appropriate t-test.

It may be objected that this index is potentially misleading because it does not differentiate for a given faculty between someone who, say, attempts four subjects and passes two, and someone else who — perhaps because he/she has been referred to the University's academic support programme — attempts only two academic subjects, and then passes one. Both have an index of 0,5, yet it is reasonable to judge that the former performed better.

This becomes a problem only if there actually are appreciable differences in the numbers of subjects being attempted by 'res' and 'non-res' students. So we checked this in advance. First we used the F-test to verify the equality of variance of the two distributions, even though the smaller group size was actually large enough to assume normality. and then we ran a t-test on the difference in the mean number of subjects attempted by students within the respective groups.

Table 2: THE NUMBER OF SUBJECTS ATTEMPTED FOR 'RES' AND 'NON-RES' STUDENTS: DIFFERENCE-OF-MEANS TEST

	No.	Mean	Standard deviation	Variance	Min. value	Max. value
'Non-res'	140	4,14	1,71	2,93	1	9
'Res'	52	4,08	1,77	3.13	1	9
		t = 0,24 d.f. = 190 p = 0,81 (two-tailed)		F = 0,06 d.f. = 51 and 139 p = 0,81		

As Table 2 reports, both the variances and the means of the two distributions were effectively indistinguishable. It is thus clear that this objection to our chosen index falls away as a matter of empirical fact. (Had it not, we might have had to try and index university performance by a ratio of the number of subjects passed to the number of subjects that should have been attempted. But this index would have faced the grave problem in turn that the number of subjects which, say, second and third-year Arts or Science BA students 'should' attempt is too flexible to specify confidently.)

So at this stage we were in a position to make a more discerning test of the hypothesis, using our chosen index of university performance. Table 3 reports the results of a t-test for unrelated samples of equal variance.

Table 3: INDEX OF UNIVERSITY PERFORMANCE FOR 'RES' AND 'NON-RES' STUDENTS: DIFFERENCE-OF-MEANS TEST

	No.	Mean	Standard deviation
'Non-res'	140	0,67	0,38
'Res'	52	0,81	0,45
		t = -2,17; d.f. = 190; p = 0,015 (one-tailed)	

The table shows that when we apply our university performance index, ie the ratio of subjects passed to subjects attempted, to Black and 'Coloured' bursary recipients, it takes a mean value of 0,81 for those of them who live in 'res'. This is significantly higher ($p<0.02$) than the value of 0,67 for their 'non-res' counterparts. It follows that the null hypothesis, that the performance of 'non-res' students is equal to or better than that of 'res' students, is decisively rejected.

Put more colloquially, when we examine Black and 'Coloured' students on bursaries we find that students living in 'res' at university perform demonstrably better than 'non-res' students. The former group passes four-fifths of the subjects they attempt, the latter two-thirds.

Identifying differences in previous academic performance

The above looks like an exciting and important finding. But it would be premature to place too much confidence in it without checking whether the evident difference between 'res' and 'non-res' students is in fact due to a prior variable in respect of which the groups might well differ, viz previous academic performance at school. There are always more applicants for 'res' at Wits than there are places. And it may be that who is

then admitted to 'res' is decided partly on matric performance. . . in which case it might not be surprising to find that 'res' students subsequently do better at university!

We prepared to consider this as follows. We first converted symbols for each matric subject to numerical scores using the following scales:

Higher grade	Standard grade
A = 8	A = 6
B = 7	B = 5
C = 6	C = 4
D = 5	D = 3
E = 4	E = 2
F = 3	F = 1
G = 2	G = 0

We then, for every person, took the mean for their six or seven subjects, and used this as the overall score representing their matric performance. When the respective faculties at Wits do this, they weight particular subjects according to their purposes. For example, the English score is doubled in the Arts Faculty. However, since we were working with students in several faculties, we did not weight any subjects.

There were two minor complications. Firstly, students who had matriculated before 1975, ie before the differentiation between higher and standard grade, were classed as having completed their examinations in the higher grade because they would have been writing what were designated 'A-stream' matrics. Secondly, students who had done the GCE (General Certificate of Education) of the Associated Examining Board were rated for each subject on the following scale, and then the mean taken as before:

Result obtained	Assigned score
1	8
2	7
3	6
4	5
5	4
6	3
7	2
8	1

Using these overall scores for each student, we were able to test whether there was a significant difference between the mean matric performances of the 'res' and 'non-res' groups. The result of the t-test is set out in Table 4.

Table 4: INDEX OF MATRIC PERFORMANCE FOR 'RES' AND 'NON-RES' STUDENTS: DIFFERENCE-OF-MEANS TEST

	No.	Mean	Standard deviation
'Non-res'	126	4,60	0,79
'Res'	47	4,86	0,78
		t = -1,95; d.f. = 171; p = 0,053 (two-tailed)	

The test shows that, on our pre-specified significance level of p = 0,05, the mean matric performances of the two groups are not distinguishable, strictly speaking. However, the difference is very nearly significant, and could well prove to be so for a larger group of students. So it might seem that one's confidence in our finding should be discounted to this extent. In other words, might it be that 'res' students are indeed doing better partly because, as a group, they have slightly better matrics?

Correcting for previous academic performance: analysis of covariance

Our data allows us to consider this question. For we do not only know how 'res' and 'non-res' students performed, as groups, in matric and then at university. We know for each student his or her matric score and subsequent university performance index. By employing the analysis of covariance to take advantage of this extra information, we can resolve the issue. The technique in effect allows us to ask what would happen to the respective university performance indices if the mean matric scores between the two groups were to be equalized.

At a more sophisticated level, the technique also allows us to check whether the university performance index is affected by the interaction between matric score and residence. An example of interaction would be if, say, the extent to which matric score affected university performance was different as between 'res' and 'non-res' students). The figures are displayed in Table 5.

The table must be understood at two levels. Firstly, it shows that university performance index does differ significantly as between the two groups (for the variable residence, p = 0,03), and that this difference is not affected by such differences between matric scores as may exist between the groups (p = 0,60) or by a conceivable interaction between matric and residence (p = 0,75). In other words, our finding that Black and 'Coloured' students do better at university when in 'res' is not due to the extent, if any, to which students in 'res' can be expected to have better matrics.

Table 5: ANALYSIS OF COVARIANCE: UNIVERSITY PERFORMANCE INDEX BY RESIDENCE AND MATRIC SCORE

Source of variation	Sum of squares	d.f.	F-value	P
Residence	0,798	1	4,71	0,03
Matric	0,048	1	0,28	0,60
Interaction 'Res' by Matric	0,017	1	0,10	0,75
Total model	0,862	3	1,70	0,17
Residual	28,649	169		
Total	29,512	172		
			R-square = 0,029	

Secondly, the narrow selection of variables available for inclusion in our study are not finally strong predictors: they explain only some three percent (R-square = 0,029) of the overall variance in our university performance index. This is reflected in the fact that the overall model, comprising the separate effects of the variables as well as their interaction, is not significant ($p = 0,17$). However, this is because the introduction of the covariate, matric, and its interaction with the factor, residence, add almost nothing to the variance explained while destroying the parsimony of the model. Taken on its own, residence is significant in the amount of variance explained ($p = 0,03$).

Conclusion

Expressed without statistical technicalities, this study has found, in considering Black and 'Coloured' bursary recipients at the University of the Witwatersrand, that the university performance of students living in 'res' was appreciably better than that of 'non-res' students. It has also established that while 'res' students may have had marginally better matrics than 'non-res' students, this turned out not to be relevant to the difference in the respective groups' university performance.

'Res' students were found to pass almost exactly four-fifths of the subjects they attempted, as against two-thirds for the 'non-res' students. The difference is important: it would mean that in the case of the Commerce Faculty, for example, an average black first-year student in 'res' would be permitted to proceed, whereas a 'non-res' student would not.

Our study has been narrow in scope. Two related kinds of factors deserve empirical investigation. On the one hand, one would want to know what it is about being in residence that allows students to do better — eg better conditions in which to study, readier access to the library, a mentor scheme, etc. On the other hand, there are the possible features of living out of 'res', especially those most affecting black students, which we mentioned at the outset: such as the long time spent travelling each day, and no peaceful place to study. It would be worth finding out which of these are most disadvantageous, to see whether the University can ameliorate them, eg with study centres and a bus service.

But in the meantime our results demonstrate that, for the students we considered, the favourable effects of residence are appreciable, and must be taken into account when bursary priorities are established.

NOTES

1 *The Open Universities in South Africa and Academic Freedom, 1957-74*, Cape Town: Juta, 1974, p 9.
2 'Race issue is no open and shut case', *Times Higher Education Supplement*, 24/2/1984.
3 'Wits spells out new admissions policy', *Rand Daily Mail* 12/1/1984.
4 B Unterhalter, 'A content analysis of the essays of black and white South African high school pupils,' *Race* Vol 14, No 3, 1973, p 313.
5 Allie Dubb, 'Impact of the city' in W D Hammond-Tooke (ed), *The Bantu Speaking Peoples of South Africa*, London: Routledge and Kegan Paul, 1974.
6 'Education' in P Worsley (ed), *Introducing Sociology, 2nd edn* Harmondsworth, England: Penguin, 1977, p 218; see also Jo Mortimore and Tessa Blackstone, *Education and Disadvantage*, London: Heinemann, 1982, Ch 2.
7 R K Muir and R Tunmer, 'The African's drive for education in South Africa', *Comparative Education Review*, 1965, p 309.
8 Muir and Tunmer, *op. cit.*, J S Kane-Berman, *Soweto:Black Revolt, White Reaction*, Ravan Press, Johannesburg 1978.
9 *Interim Memorandum on the Report of the HSRC on the Inquiry into the Provision of Education in the RSA*, RSA, 1981, p 1.
10 *Survey of Race Relations in South Africa 1983*, Johannesburg: South African Institute of Race Relations, 1984.
11 *Ibid.*
12 The study was suggested to the Committee by Professor A G Schutte, Head of the Department of Sociology, and conducted with the assistance of Mrs H M van Lingen, Bursaries Officer. We should like to acknowledge their support.
13 H M Blalock, *Social Statistics, 2nd edn*, New York: McGraw-Hill, 1972, p 238.

A proposed course for teacher education

Aleta Zietsman and Michael Gering

Introduction

The 'vicious cycle' in the South African education systems has been debated extensively: the majority of matriculants are underprepared for further academic study after twelve years of schooling — a direct result of the desperate shortage of professionally qualified teachers[1].

It is argued in this paper that the academic support programme currently in operation at the University of the Witwatersrand could be extended to provide an alternative to students — namely to be trained as teachers. The discussion will focus on science teacher training and is essentially concerned with an alternative to the BSc(Ed) degree, an option not entirely successful in attracting students to the profession[2].

Admission to the programme

Selecting students for academic support has been a major concern since the inception of such programmes at some South African universities. In addition to this concern, File has noted a 'criterion of legitimacy', requiring administrators to acknowledge that students evaluate such programmes primarily in terms of their own concerns — success or failure, three or four year degrees and naturally, career expectations[3].

A selection procedure has been proposed in which the matriculation class is used as a control group to identify those individuals who are talented but disadvantaged — thus ideally suited for academic support[4]. This group of students will be labelled 'gifted' (instead of disadvantaged) with the concommitant self-fulfilling aspects[5].

Assuming that such a group of students could be brought together in an academic support programme, the possibility of enticing them gently to a teacher-education option is exciting. Such students are probably likely to go back and work in their communities, thus make a small, but powerful contribution to alleviate the shortage of professionally qualified teachers.

Outline of a teacher-education course for science and mathematics teachers

The proposed course is roughly the equivalent of a BSc degree plus a higher education diploma. It must be stressed that it is not the equivalent of

a BSc(Ed) degree and does not entitle a student to proceed to an MEd degree. The education credits do not count towards a pure BSc degree, although a student could be advised to do the first-year education option for remedial and supportive purposes. A student choosing the education options must be well aware that the course leads essentially to a career in teaching and is an easier option than the BSc(Ed) and therefore without its advantages concerning higher degrees. The criteria for the purpose of employment as a teacher in this country have been taken into account, thus ensuring that the proposed course is 'legitimate'.

A student who obtained this degree will be able to teach at any level in a secondary school. However, if the disastrous state of science and mathematics teaching in disadvantaged communities is taken into account, one assumes that such teachers will teach the senior pupils (standards nine and ten) and hence teaching aimed at that group will be emphasised in the programme.

A B Sec Sc degree — educating efficient teachers.

The education options described here are essentially the teacher-education components of the course, although the lecturers and tutors of the pure BSc subjects would in effect be assisting in skills-training, as indicated later.

Students from disadvantaged academic backgrounds need assistance in adapting to the complex academic aspects of life at university[6]. Acknowledging this, Education I will mainly focus on the basic skills needed by these students. Two fundamental components of basic skills are envisaged, assuming that four lecture periods (two for each component) will be available per week:

(i) Education IA will focus on language skills, concentrating on aspects such as general fluency, note-taking, text-, summary-, and report-writing. Ideally tutors of this component will work closely with the lecturers and tutors of other first-year courses to identify specific needs of the students.

(ii) Education IB will deal with subject-specific skills. This component could become part of the teaching of the subjects; for example in Physics I the tutorials could be used as small-group tutorials in which skills such as the translation of graphs into 'physics', estimation of orders of magnitude and the use of algebra in arguments will be practised in a subject-specific context[7]. Towards the end of the year students will give one microteaching lesson dealing with one specific skill. No attempt will be made to introduce any specific teaching skill at this stage — the exercise is simply meant as an introductory experience in teaching.

Many of the basic skills needed to pass academic subjects overlap with essential skills needed by science and mathematics teachers — the interpretation of graphs in physics and chemistry, the ability to analyse problems in physics as well as several other examples which can be cited in this context. These skills are neglected in the conventional teaching of academic subjects as well as in teacher-education, perhaps because it is assumed that everyone should be able, for example, to estimate orders of magnitude by the time they reach university.

The formal evaluation presents a problem, since no pen-and-paper test could be used. In-formal evaluations by tutors seem to be a solution, although one forsees reluctance on the part of the exam-tied administrations to accept such evaluations.

Education IIA and IIIA will contain Theory of Education, the curriculum currently presented to the HED students, and will be spread over two years in two lectures per week.

The components Education IIB and IIIB will be called Teaching Skills. These courses will be both school-based and skills-based, and are modelled on the Joint Studies Programme at Chelsea and the school-focused programme of combined initial and in-service teacher-education IT-INSET[8].

In Education IIB and IIIB the methodology tutors will work with one (or two) groups of six students in the classroom of a participating teacher for one day every second week over the two years. Problems with time-tables come to mind immediately, but the existing time-table for a student in the academic support programme could be easily negotiated to set one day per week apart for these courses.

The students in Education IIB will select a teaching skill after the classroom observation for discussion during the week following the classroom visit. The students might interview the teacher and pupils to elicit intentions, assumptions and motives for classroom action. These interviews and the observations of the students are then used as a basis for feedback, evaluation, discussion and exploration of the specific aspect of teaching under study[9]. Winkens found that skills selected by an Educational Studies Department might not be considered of high priority by the students at all[10]. Allowing the students to select skills for study will eliminate this problem — assuming that the team has identified general skills of importance with their tutor before the observations in the schools are started. Further exploration and discussion of teaching skills could take place every week following the school visit in the form of microteaching, interaction analysis and simulations[11].

Education IIIB will have an approach similar to the IT-INSET programme[12]. During this year the teacher will select an area of the

curriculum for consideration by the team on their visiting day. The teacher might select a particular area because it is problematic, unsatisfactory or needs further development. The teacher (or one of the students) presents the lesson and the rest of the team observe the children's activity during the lesson, the quality of their learning and the teacher's actions. After the lesson the team analyses what happened, judges the value of the lesson and plans developments for the next visit. The team is thus involved in a process of curriculum evaluation and development, and in their discussions draw on the theory (from the Theory of Education component) relevant to their problem.

Education IV will include Methodology of two teaching subjects as well as the other official requirements for an HED, namely Religious Instruction and Language Tests. Since the students in an academic support programme would be involved in the third-year study of one or even two of their academic subjects, this component is designed as above to ensure a tolerable workload for the students.

An example shows the possible combinations of academic courses for which the student will be awarded a Baccalaureus in Secondary Science Teaching:

Year	Science options	Education options
I	Mathematics (half-course) Physics (half-course) Chemistry (half-course) Zoology	Education I
II	Mathematics (half-course) Physics (half-course) Chemistry (half-course)	Education II
III	Physics II Chemistry II	Education III
IV	Physics III	Education IV

The following comments are relevant with regard to the example above:

(a) A student will obtain only two credits in the first year — in this example Zoology I and Education I.

(b) Four credits are obtained in the second year since the half-courses in the three first-year subjects are completed.

(c) Three credits are obtained in third year and two in the fourth year.

(d) The Physics II, III and Chemistry II courses are not the usual major courses designed for ordinary BSc degree purposes, but are aimed specifically at future teachers. The Physics IIM and its equivalent in Chemistry are such courses already in existence at the University of the Witwatersrand.

The preparation for effectiveness in the proposed programme

The programme aims at educating teachers who would operate effectively and competently as secondary science and mathematics teachers. It does this by tackling major problems in teacher-education, namely:

(a) Teachers and trainee-teachers criticise initial teacher-education programmes for being too theoretical[13]. Vreken found in a survey of teachers in White secondary schools in the Transvaal that newly-qualified physical science teachers viewed their initial difficulties in teaching as a result of an academic bias in their teacher education diplomas[14].

(b) Students perceive educational theory as irrelevant to their needs[15].

(c) There is a lack of evidence as to how educational theory affects practice[16].

The proposed programme, being skills and schoolbased while developing theoretical knowledge (education and other) concurrently, makes provision for the acquisition of specific, professional and academic skills in the context of issues of interest to a school and teachers. There is also an emphasis on the usefulness of theory in terms of demonstrable relevance to professional practice in the classroom. There are thus ample opportunities to investigate the influence of educational theory on the practice. The academic subjects, such as Mathematics etc, are not as remote to the students as for example in an HED year, and the students can draw from these subjects to practical effect in the classroom.

Students have had roughly twelve years' first hand experience of teaching while at school, with powerful formative influences on their conception of what teaching should be. A brief encounter with other ideas and influences is unlikely to change those conceptions[17], but close and democratic participation in a teacher-education programme over a period of four years might have a more pronounced effect and prepare a newly qualified teacher better for the job.

Essential to a succesful teacher-education programme would be the common agreement of the three parties concerned in teaching practice, that is the teachers, students and lecturers/tutors, as to what should be achieved during the teaching experiences[18]. This should be achieved in the programme's approach to teaching practice. In addition to establishing consensus between the three parties, limited in-service training is provided for the teachers in the teams. The influence of this on the dismal situation in science teaching in disadvantaged communities can only be welcomed — whether such influences are limited or not. Better relationships between the university and the schools can also be established, thus resulting in more effective teaching if schools are to accept support from the universities more readily[19].

Conclusion

The proposed course is aimed at solving several problems on a limited scale: the provision of qualified teachers, the problem of the legitimacy of a four-year degree and the problem of how best to support students with a poor academic background.

The programme relies on the dual-criterion admittance system to select highly motivated and talented individuals, and has as its cornerstone the Basic Skills course (Education I). Instead of choosing to become teachers, the onus is on the students to choose not to.

This article is based on a term-paper submitted in partial fulfilment of a degree of Master of Education. Helpful discussion with Professor David Freer of the Department of Education, University of the Witwatersrand is gratefully acknowledged.

NOTES

1 A P Hunter *University of the Witwatersrand, Johannesburg: Its response to the distinctive educational and research priorities of South Africa.* Johannesburg: University Printer, 1983.
K B Hartshorne 'Black secondary school leavers: trends in Senior certificate/ Matriculation 1960 — 1982'. *INDICATOR,*South Africa, 1983.
The concept of a vicious cycle has been laid to rest by G Myrdal in *The challenge of world poverty,* Harmondsworth, Middlesex: Penguin, 1970.
2 Very few students have graduated with a BSc(Ed) as opposed to the more popular BA(Ed) — discussion with Professor Freer.
3 J File 'Selecting students for academic support' *AsPects 4, June 1983.*
4 *M Gering and A Zietsman* 'University entrance in an academically non-homogeneous society'. *South African Journal of Education,* 3 (4), pgs 181-184, 1983.
5 R Rosenthal and L Jacobson *Pygmalion in the classroom.* New York: Holt, Rinehart and Winston, 1968.
6 A P Hunter *op cit.*
7 J Ogborn (ed) *HELP: Small group teaching in undergraduate science.* London: Heinemann, 1977.
8 D Harris 'Professional and theoretical perspectives in teacher training: a school-based study' *European Journal of Teacher Education,* 6 (1), pgs 41-49, 1983.
P M E Ashton, E Henderson, J Merritt and D J Mortimer *Teacher education in the classroom: Initial and in-service.* London: Croom Helm, 1983.
9 D Harris *op cit.*
10 M C Winkens An investigation to determine whether or not any growth in competence in selecting teaching skills takes place during the last three weeks of a six-week teaching experience. (Unpublished research report, MEd., University of the Witwatersrand, Johannesburg).
11 E Stones and S Morris *Teaching practice: Problems and perspectives.* London: Methuen.

12 Ashton *(et al) op cit.*
13 Ashton *(et al) op cit;* Harris *op cit;* T R Bone 'Current developments in teacher education in Scotland' in D Lomax (ed) *European perspectives in teacher education,* London: John Wiley, 1976; W Carr 'Treating the symptoms, neglecting the course: Diagnosing the problem of theory and practice.' *Journal of Further and Higher Education,* 6 (2), pgs 19-30, 1982.
14 N J Vreken *Verslag oor die ondersoek vakwetenskaplike en vakdidaktiese opleiding-van Natuur-en Skeikunde onderwysers.* Potchefstroom: PU vir CHO, 1977.
15 D Davis and W J Roper 'Theory and Practice in teacher education.' *European Journal of Teacher Education,* 5 (3), 147-153, 1982.
16 Bone *op cit.*
17 E Stones 'Teacher education and pedagogy'. *Journal of Education for Teaching,* 7 (3), pgs 217-230, 1981.
18 Winkens *op cit.*
19 J M Niven 'The upgrading of teachers in the Natal-KwaZulu region: The eye of the needle' *Paidonomia,* 10 (2), pgs 41-57, 1982.

John Sebidi on the formula 'separate-but-equal'[1]

Mark Dorgan

Hopes that the De Lange Committee's Report[2] on education would provide the blueprint for a first step towards some kind of integration in South African education, albeit only at the administrative level, were dashed in 1983 by Minister Viljoen's statement in an interview on the Afrikaans service of SABCTV[3] that the De Lange Report would be 'interpreted' according to the government's non-negotiable policy of separate development — separate education for separate 'national' groups, each having their own 'culture, values, etc.' It therefore came as no surprise that the White Paper[4], in line both with the abovementioned policy and the principles of the new constitution, insisted on separate education systems for the four 'population groups', education being regarded as an 'own affair'. Emphasis was however laid on the goal of equality for the four groups.

This reiteration of the formula 'separate-but-equal' returns to the centre of the educational debate in South Africa the questions, 'On what basis separate?' and 'Can there be separate, but equal?' These are questions considered by John Sebidi in his M Ed Research Report, *A Critique of the Formula: Separate-but-equal in the South African System of Education*[5]. I believe that a critical look at Sebidi's position will provide a good medium for clarifying some of the central issues in the present dilemma.

I will begin by outlining Sebidi's argument, after which I will focus on what I see as central problems in his position. I will conclude by exploring the implications of my argument for the issue of separate education in South Africa today.

John Sebidi's argument

In his introduction, Sebidi contrasts the De Lange Report's emphasis on 'separate-but-equal' with the Verwoerdian formula of 'separate-but-unequal', saying that this shift, along with the highly emotional issue of Black disenfranchisement, makes a consideration of the formula 'separate-but-equal' highly topical[6]. He argues that not only does the four-part education system mirror a system of variable social status, but also represents a wasteful duplication of services[7]. Even moderate Black education organisations like ATASA have called on the government to

introduce equality in education by introducing one system of education under one department of education[8]. His central thesis in the report is 'separate cannot be equal'[9].

Sebidi's first chapter looks at the kind of arguments traditionally used to justify separate education for different groups — culture-based justifications[10] and job-opportunity justifications[11]. The former involve the assumptions that everyone knows what culture is, that culture 'naturally' forms the basis for education and that the culture of the Black people is irredeemably distinct from and unlike everyone else's culture. Further, a conservationist approach to culture is assumed — that Black culture must be preserved, kept static and protected from the 'evil' of westernisation. Documents like the Eiselen Commission Report also confuse race and culture.

Job-opportunity justifications, on the other hand, set a ceiling on Black labour (manual labour), seeing it as distinct from White labour. Implicit in this kind of justification are the assumptions that certain skills (eg Mathematics) cannot be used by the Black child, that the socio-economic reality for which schooling must prepare the Black child is somehow given and fixed and that Blacks have 'all doors open' to them in their 'own community', but not in the White sector. Sebidi argues that these assumptions are prescriptive, rather than descriptive, that they ignore the role of schooling in constituting the socio-economic reality and that they make the Black person a foreigner in his own land, while White immigrants are openly accepted. Sebidi further notes that job-opportunity justifications rely on culture-based justifications, so that it is the latter which should be centrally examined.

Chapter one is concluded with a consideration of what might constitute a 'relevant justification'[12]. It is noted that the abovementioned justifications are not based on 'reasonable grounds' and are thus not '*relevant* justifications'. Relevant justifications depend to some extent on context (see R Barrow[13]). Sebidi believes that the De Lange Report correctly identifies the context as consisting in the 'benefits to be distributed'[14].

Sebidi's second chapter reconstructs culture-based arguments in the following logical form:[15]

> *Major Premise:* A schooling system transmits only one culture
> *Minor Premise:* In South Africa we have a diversity of cultures
> *Conclusion:* Therefore, in South Africa we need different schooling systems to transmit different cultures.

This argument is attacked by attacking the major premise. It assumes that one of the functions of schooling is to transmit culture and that there should be one schooling system per culture. Sebidi says that these assumptions require that we examine both the notion of 'culture' and that

of 'schooling'. The former is the task of chapter two, while the latter is dealt with in the third chapter.

Sebidi distinguishes between two approaches to culture:[16] one which reifies and mystifies culture (as in official and some Black Nationalist approaches), seeing it as fixed, natural, absolute and thus sacred, and one which recognises culture as learned behaviour, a lived response to an environment, according to human needs. He favours the latter and sees environment-orientedness as leading to a distinction between two types of culture — Culture 1 (privatised, regional, insignificant, non-competitive practices or customs) and Culture 2 (public, dynamic, politico-economically/nation specific and competitive response to a common environment). Culture 1 in South Africa would refer to tribal or group-specific practices, while Culture 2 would, according to Sebidi, cut across the society, by virtue of our common socio-economic and political reality. The final step in the argument states that it is Culture 2 that schooling is concerned with, and thus we need one schooling system for one society in South Africa to reproduce and develop our one culture.

It is concluded that the argument outlined above as characteristic of culture-based arguments, fails in that both the minor premise and the conclusion rely on a Culture 1 version of culture. The chapter ends by noting that the Black Nationalists, as a result of their failure to distinguish between Culture 1 and 2 and to examine the functioning of the school, fall into the same trap as the authors of official policy, with the result that in their case they slip constantly from references to Culture 1 to references to Culture 2, resulting in an incoherent position.

Chapter three begins with a distinction being made between lifestyles (private expressions of Culture 1) and life-chances (characteristic of Culture 2)[17]. Life-chances are seen as dealing with knowledge and power and to emphasise Culture 1 is seen as a luxury in the 'competitive nastiness of the real world'[18]. Sebidi expands on this by exploring the education/job-opportunity link[19]. He sees the following notions as belonging to the same category — Culture 2, life-chances, equal opportunity and schooling. Schooling enhances or disadvantages one's life-chances according to the equality of opportunity and the way in which it transmits Culture 2.

From his argument thus far, Sebidi admits that in principle separate schooling could conceivably equally transmit Culture 2 to different groups, but that he will argue in chapter four that the context precludes this being so in practice.

Sebidi then reconstructs job-opportunity justifications for separate schooling systems in the following way:[20]

> *Major Premise:* Different politico-economic environments necessitate different schooling systems
>
> *Minor premise:* There are different politico-economic

environments in South Africa
Conclusion: Therefore, there is a need in South Africa for different schooling systems

This time it is the minor premise he wishes to attack. Firstly, the participation by the greater part of the Black community in the so-called White politico-economic environment as the work-force indicates that there are not different politico-economic environments in South Africa. Secondly, that this could conceivably be the case, that Black economic activity could somehow be separated from White, is a fantasy.

Theories that link White South Africa with a first-world economy and Black South Africa with a third-world economy as if they are somehow developing independently of one another are seen as false because of their failure to take into account the role of the Black community in making a White first-world economy possible and the role of the White community in maintaining the Black economic reality at third-world level[21]. So too, the homelands are considered by Sebidi as not having the potential to become self-sufficient politico-economic units[22].

The argument thus collapses because of the falsity of the minor premise.

The final sections of chapter three draw a distinction between schooling and education[23]. Sebidi first notes that schooling is inextricably bound up with the political and socio-economic structures of a particular society. The function of schooling is to 'equip those who go through a particular schooling process with the wherewithal to cope credibly with the realities of their environment within which their life-chances are determined'[24]. He notes that this sort of account of schooling is the equivalent of what R S Peters calls training[25]. He goes on to criticise Peters for his emphasis on 'liberal education' — that which is intrinsically valuable. Peters' distinction between education and training and the emphasis given to the education component, Sebidi criticises as being misleading, bourgeois and philosophically untenable. Besides the fact that is is based on a classical model of education designed to serve the needs of a free class of men in a society where slaves performed the labour, it is impractical in terms of the requirements of our social reality, and people like A N Whitehead[26] have argued that training and liberal education are inextricably interlinked. All Sebidi offers us on the nature of education as distinct from schooling, however, is that it goes on right through one's life[27].

Sebidi concludes the chapter by saying that from his argument it can be concluded that South Africa, as one political and socio-economic unit, needs one schooling system.

The final chapter addresses the question of whether there can be a separate but equal schooling system in South Africa. Sebidi first notes that the government recognises the existing inequalities in education[28] and has committed itself to eradicating these, but only within the context of

separation. It is thus relevant to consider whether it is possible to have both separation and equality in schooling in South Africa. The claim is made that both those who argue that separation and equality are compatible *and* those who argue that they are incompatible, show an insensitivity to the fundamental role played by context. Just as the question, 'Is it right to kill?' requires a specification of the context in order to be answered, so too with a consideration of the compatability of the notions of separation and equality. What makes separation discriminatory and thus unequal or separation non-discriminatory and thus equal is the *relevance* of the justification. Like murder and execution, they are materially the same, but their justifications are different. As Sebidi has illustrated in his chapter two, the arguments for separation are based on irrelevant justifications and thus, educational separation in South Africa is discriminatory rather than simply differential[29].

Sebidi supplements this argument by appealing to a dominant-dominated model of South African society[30]. While the social inequalities remain, he argues, separation of schooling can only perpetuate those inequalities. In the end, the issue is an issue of power. Sebidi concludes that 'In the present South African dominant-dominated context, *separate* is certainly unequal'[31].

Some criticisms of Sebidi's argument

Culture 1 and Culture 2

While I appreciate that Sebidi's creation of the Culture 1/ Culture 2 distinction is designed to show that the official notion of culture is limited, it is essentially an artificial distinction which leads Sebidi into the questionable position of accepting that that notion of culture does indeed apply to some part of what constitutes culture. His characterisation of Culture 2 as dynamic, public and an expression of the way society copes with the environment implies that Culture 1 lacks these qualities — is static, private and not linked to the environment, as the authors of official documents in South Africa assume. I believe this is false. The practices which constitute Sebidi's Culture 1 are just as much an expression of coping with one's environment as his Culture 2, just as dynamic and just as public.

My criticism then is that Sebidi should have distinguished between the official notion of culture — static, localised etc. — and what in fact constitutes *all* culture — the practices of the society, from the most fundamental right up to the most complex institutional practices. The latter should have been characterised as adaptations to the environment at all levels, changeable and public in the sense of being socially acquired.

The question which arises out of this criticism is, 'How then could Sebidi

cope adequately with the localised elements of culture *and* those cultural practices which persist across society?' My answer is that it would have been more tenable for him to have made a distinction at the level of schooling, that is, he should have given a more acceptable account of culture and then made a distinction between institutional and non-institutional schooling. I will expand on this below.

Schooling and education

If Sebidi had given a characterisation of culture such as that suggested above, he would then have had to deal with the question, 'How do we acquire these survival strategies that make up culture?' My answer to this is that we acquire them from our homes, our social interaction *and* from our schools. In other words culture is transmitted via both institutional and non-institutional schooling.

Non-institutional schooling can be seen to transmit language, religious beliefs, customs and values at least. Institutional schooling also deals with language and incorporates some of the home-acquired values, but its main task is to transmit those elements of culture which cannot otherwise be transmitted — a common communicative medium, economic, political and legal survival skills and so on. If one accepts this argument, then localised elements of culture are left to parents and the society at large to transmit, while the institutional school is left with the task of transmitting the more universal and complex elements of culture. We should,as educationalists, be concerned with both kinds of schooling and those areas in which they influence each other or overlap.

Having given this alternative characterisation of schooling, I must note that Sebidi's distinction between schooling and education leaves much to be desired. His account of schooling is similar to my account of institutional schooling, but there is no motivation given for distinguishing between schooling, and education in his research, except insofar as it parallels Peters' distinction between training and education. But Sebidi rejects Peters' notion of education and then merely notes that education goes on throughout one's life. Or perhaps he is accepting Peters' account of education, but saying that it does not really concern us in the light of the importance of schooling in South Africa. I believe that there is both a moral and a longical reason for developing an adequate account of education as opposed to schooling.

That culture is transmitted, both in and out of schools, raises certain moral questions. Firstly, does anyone have the right to stop a member of the society from being exposed to certain elements of the culture? Secondly, how do we prevent cultural transmission from being merely indoctrination ? If we accept the basic principles of equality and freedom of choice, then in answer to the first question we must answer, 'No-one'.

This suggests that there is a moral ground for insisting on freedom of social interaction and, implicit in this, integrated schooling.

It is the second question that leads us to an argument for the necessity of an adequate notion of education. If we accept the rationalist position, that is, that it is possible to apply universal principles of logic, coherence, consistency and so on, without distortion by your cultural background, then we have an avenue for reflection on our culture. But by reflecting rationally on one's culture one can come to reject or modify elements of that culture and look critically too at the culture of others. In order to prevent schooling from being indoctrination then, schooling must of necessity include an educational component — teaching the skills of rational critical reflection and decision-making.

Clearly then, I agree with Sebidi when he rejects Peters' notion of education for its impracticality, but my reason for doing so is because my account of education is instrumental — it facilitates rational discourse and the positive modification of society and its culture.

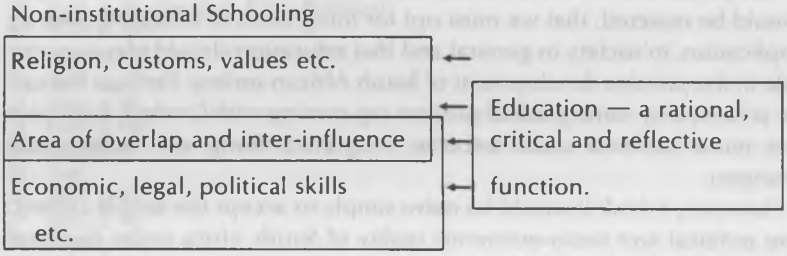

Fig. 1. INSTITUTIONAL SCHOOLING, NON-INSTITUTIONAL SCHOOLING AND EDUCATION

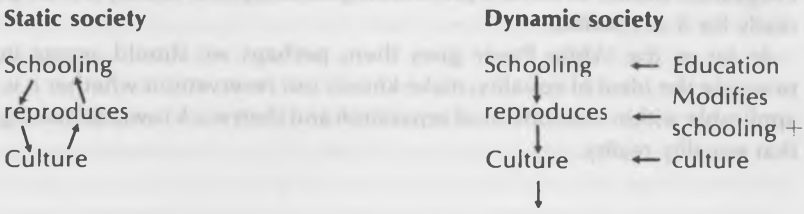

Fig. 2. EDUCATION OVERCOMES THE PROBLEM OF INDOCTRINATION

Separation and equality

I cannot but agree with Sebidi when he says that given the present political and socio-economic context in South Africa, separate cannot be equal. However, the moral principles of freedom and equality I have already mentioned, if seen in conjunction with my characterisation of schooling, suggest that to have separate schooling for different groups will deprive *all* groups thus separated of exposure to other elements of their society and thus of South African culture. This will limit their choices on the one hand and impair their application of rationality in their reflection on their society due to limiting their experience on the other.

Conclusion — the implications for South African education today

Having thus built on Sebidi's analysis of the formula 'separate-but-equal', I must of necessity return to the question of what implications this has for South African education today. What stance is to be taken on the White Paper?[32] Which way should we be heading?

The simple answer is that the separation insisted upon in the White Paper should be rejected, that we must opt for integration in schooling and, by implication, in society in general and that education should play a crucial role in the positive development of South African society. Perhaps this can be achieved by some gradual process (eg starting with Grade 1, each year one more standard could become integrated, along with other social changes).

However, I think it would be naive simply to accept the simple answer. The political and socio-economic reality of South Africa today does not promise this kind of ideal solution in the foreseable future. While the present official policy is followed, I think that the only workable alternative is to foster the development of the quality of schooling and the inclusion of education within the bounds of the present situation so that, if and when integration should become a practicable possibility, the society will be as ready for it as possible.

As far as the White Paper goes then, perhaps we should accept in principle the ideal of equality, make known our reservations whether it is applicable within the context of separation and then work towards making that equality reality.

NOTES

1 S J Sebidi, *A critique of the formula: separate-but-equal in the South African system of education,* 1983, M Ed Research Report, Wits University, Johannesburg
2 *Provision of education in the Republic of South Africa: Report of the main committee of the HSRC investigation into education,* 1981, HRSRC, Pretoria
3 Interview on the programme, 'Om die waarheid te sê', SATV
4 *White paper on the provision of education in the Republic of South Africa 1983,* 23 November 1983, Government Printer, Pretoria
5 S J Sebidi, *op cit*
6 *ibid.* p (i)
7 *ibid.* p (ii)
8 *ibid.* p (iii)
9 *ibid.* p (v)
19 *ibid.* p 3f
11 *ibid.* p 6f
12 *ibid.* p 10f
13 R Barrow, *Moral Philosophy for Education,* 1975, George Allen and Unwin, London, p 89
14 HSRC Report, *op. cit.* p 207
15 S J Sebidi, *op. cit.* p 15
16 *ibid.* p 17
17 *ibid.* p 34
18 *ibid.* p 36, (quoting Brian Bullivant)
19 *ibid. p 36f*
20 *ibid.* p. 39
21 *ibid.* p 41
22 *ibid.* p 42
23 *ibid.* p 45f
24 *ibid.* p 47
25 *ibid.*
26 *ibid.* p 49
27 *ibid.* p 46
28 *ibid.* p 54
29 *ibid.* p 58
30 *ibid.* p 58f
31 *ibid.* p 63
32 (see ref. 4)

The subjectivist explosion

Charles Morris

There is in England a growing tendency amongst education students, especially those who have done a little sociology, to dismiss as 'subjective' any statement concerning education, history or society, and in extreme cases to apply this epithet to any proposition whatsoever. 'Well, it's all subjective, isn't it? is commonly aimed at views which the speaker finds repugnant, and for which he can find no reasoned rebuttal. He then assumes that as it is, allegedly, 'all subjective anyway', the ideas or facts that have been put forward become automatically invalid, or, at least, can now be ignored. Commonly linked with this are other dogmatic statements, again allegedly self-evident, such as 'All knowledge is socially conditioned', or 'There is no such thing as knowledge', or 'My ideas are as good as yours'. One is forced to wonder how a student teacher, in particular, can reconcile his vocation with the holding of this extreme subjectivist position. Does he not believe that in *some* respect his ideas are objectively better than those of the children he will teach?

A comprehensive review of these issues is beyond the scope of this discussion but there are some brief comments I would like to make. Commonly, it is the 'revolutionary' student who holds subjectivist views, which he seems to think, mistakenly, support his unorthodox attitudes. Now the theory of total subjectivity is far from new. Two thousand years ago Protagoras claimed that there was no objective, independent reality 'out there' for our statements to correspond to, hence all statements had necessarily to be subjective. This did not, however, lead him to unorthodoxy and rebellion, but to the reverse. It is meaningless to believe in a cause, or that a principle is true, if there is no truth. There can be no basis for idealistic denunciations or revolutionary fervour if the only reality is that which each man creates for himself. When all opinions are neither true nor false, when each man's ideas are as good (or bad) as any other's, one may as well accept majority values and practices. The rejection of objectivity led Protagoras, plausibly enough, to be an arch-conservative. He did not know whether the Gods existed, but he was sure that they should be worshipped.

On different grounds, it is sometimes argued that, although sensation may accurately reflect the real world[1], perception, being incapable of

accepting sensation at its face value, distorts it out of recognition. To support this, the experiment is often cited in which people claim to see as circular a coin which can only, in view of its position, appear as elliptical. This is undoubtedly true, but surely it must be seen as the striving of the mind for objectivity. The fault (?) of those who thus misdescribe what they actually see is due to their transcending their own immediate (and misleading) view of the coin, and giving a statement about the properties of the coin itself. Rather than perception falsifying the objective world by a subjective distortion of primary sense-data, it tries, by interpretation of such data in accord with the laws of light, and by integration with previous experience, to give a more accurate picture of what the thing is in itself. The mind, it seems, is incorrigibly bent on being objective, in spite of being hampered by misleading sense-data.

The denial of the possibility of knowledge is usually based on the claim that no proposition is indubitable, which may very well be so. But in this respect, what is required is adequate evidence which can only be judged within a context. The accepted criteria of adequate evidence may well vary within different fields of knowledge, but absolute certainty is not required. The testimony of three people that Mr Jones was present in the room with them would normally constitute adequate evidence for this statement to rank as knowledge, but there is always scope for possible doubt; perhaps the Martians have replaced him by a robot, an indistinguishable facsimile. Possible doubt does not rule out knowledge, it is only reasonable doubt that does so.

In common usage, 'to know' is clearly differentiated from 'to think', 'to believe', and 'to be sure'; if meaning is to reflect usage (which surely it must) 'to know' has a distinct and legitimate meaning in its own right, as it is nonsense to assert that 'No-one knows anything', or that 'there is no real knowledge'. If it is true that no proposition can be indubitable, it follows that indubitability is not a condition of knowledge, not that knowledge does not exist. The methods of proving a statement may vary from discipline to discipline, but the logic of proof remains the same. Briefly the attempt to refute the possibility of knowledge on the grounds that no proposition can be indubitable is, at best, misguided and, at worst, a deliberate attack upon the rational consideration of evidence. In fact it is hard to see how any field of study could justify its continued existence if it seriously maintained that it had no criteria of adequate evidence or that it was intrinsically impossible for such criteria to be properly applied.

A less extreme version of subjectivism asserts that while one can properly make objective statements about the physical sciences, this is not possible in the study of such areas as history and society. All social thinking, it is claimed, is partial and slanted because it originates from individuals who are immersed in a particular society and its assumptions. Now there are two

meanings to 'partial'; one is that of being incomplete, of being limited; the other, that of being biased. All knowledge is partial in the sense of being incomplete, but this does not prevent it from being true. The statement that the English Health Service imposes fees for certain dental treatment is a statement of partial truth: it does not give a comprehensive picture of the English Health Service, although it is true as far as it goes. But the partial nature of truth is not particular to the field of social sciences; equally in the physical sciences all statements are partial. For example, that iron rusts is true, but it neither represents, nor claims to represent, the whole truth about iron. All knowledge is necessarily partial as it draws attention to some particular aspect of the totality of existence. A statement that comprehended this (perhaps 'The Whole is One') would belong to the province of mysticism rather than that of knowledge.

The objection grounded in the second sense of 'partial' (that is, biased) is equally misconceived. The objective truth of a proposition is related to the tenet of the proposition, not to the nature of the speaker. A mathematical system originated by a lunatic may be invalid, but it is not proved invalid by reference to its source. Lysenko denied importance to hereditary factors in the growing of wheat. This was later shown to be false, not because of the ideological bias of its author, but because it was not borne out by the evidence, and its application did not produce the predicted outcome. To refute a proposition requires a rational examination of evidence and arguments (and, where possible, experiment); it is not sufficient to show that the speaker is emotionally or ideologically biased. If a 'subjective' statement means a statement with the content of which the speaker is strongly emotionally or ideologically involved, then it must be conceded that a subjective statement can, at one and the same time, be objectively true.

A more profound objection to the possibility of making objective statements is often put forward, which relates to the alleged structuring nature of the mind. The question of how far we impose our structures of understanding on 'what is out there' in order to make it more comprehensible and manageable is one, I suggest, which can never be resolved. Kant claimed that time, space and causality had no existence in the 'real' world, but existed only inasmuch as they were structures imposed by our mind on primary sense data in order to make them comprehensible. If this is the case, then we cannot appreciate reality as it exists (noumenon), but only reality in so far as it is structured by us (phenomenon). No Kantian type theory, however, can reduce us to a subjectivist position if we assume (a) that there *is* an independent, noumenal, world, and (b) that the basic structuring processes of mind *are* held in common, and that variability in structuring occurs only at a more superficial level which can be corrected by a return to fundamental modes of experiencing. Emotional and cultural

factors may hinder us arriving at phenomenally objective statements and in extreme cases may make it impossible, but this does not preclude, in general, the possibility of objective agreement being reached, nor the desirability of attempting to establish conditions conducive to this. Extreme cultural differences may affect what we see, but resulting disagreements are not beyond investigation. In my own experience, a poster of a landscape (as seen by me) was stated by a Nigerian to be that of a car. Having regarded the poster more closely, I noticed for the first time that there was a small car in one corner, and although initially what we saw was affected by cultural factors this did not prevent us arriving at an empirical agreement about the poster eventually, although we might still have disagreed over importance.

The implications for education of the extreme subjectivist standpoint are far-reaching. They cast doubt on whether the position of a teacher who holds such views is tenable in what is basically a traditionalist education system. Education has been much concerned with helping children to establish suitable objective standards and procedures, which is of particular importance in view of the exaggerated claims and mis-statements which proliferate in a society dominated by the mass media. We need to consider seriously whether a 'subjectivist' teacher can work in our present education system without doing violence either to the system or to his own conscience.

I have said nothing so far about the consequences that might follow from a general acceptance of the subjectivist position. These are probably more complex than they would appear, and would require an article in themselves. It does, however, seem at first sight that many values that men have held dear have rested on an implicit basis of the possibility of objectivity and truth, and without this basis, human life would be impoverished. It is perhaps the ultimate irony in the claim that all statements about society are subjective, that commonly its exponents demand the sort of general assent to it that could only legitimately be required if it were objectively true. But as it is itself a statement about society, this cannot be so, on its own showing. If it is as it claims to be — just another subjective view — then there is no call for anyone to accept it, unless the situation were such that he would suffer were it not so.

NOTES

1 I shall assume this to be so. In the last analysis I think it can be neither proved nor disproved.

Notices

We apologise to our readers and subscribers for the delay in the publication of this issue of **Perspectives in Education.** Volume 8 Number 3 is to be published early in 1985.

We would like to remind our readers that all papers published in the *Articles* section of this journal have been refereed by our Consulting Editors, a list of whom is provided inside the front cover. Papers published in the *Discussion* section have not been refereed.

List of contributors

Volume 8 Number 2 December 1984

Nico Cloete	Counselling and Careers Unit University of the Witwatersrand
Mark Dorgan	Department of Education University of the Witwatersrand
Michael Gering	Department of Physics University of the Witwatersrand
Michael Lawrence	Education Research Unit University of Bophuthatswana
Charles Morris	Circira Teachers' Training College Umtata, Transkei
Mark Orkin	Deputy Director South African Institute of Race Relations, Johannesburg
George Pavlich	Graduate Student, Department of Sociology University of the Witwatersrand
Aleta Zietsman	Department of Physics University of the Witwatersrand

CONTRIBUTIONS

The Editors will welcome contributions in the form of comments on local events or questions, original articles, discussion of articles published in previous issues, reviews, items for the 'Notices' section, and so on.

Contributions should be sent to:

Perspectives in Education
Department of Education
University of the Witwatersrand
P O Box 1176
Johannesburg
2000

Contributions should not ordinarily exceed 3 000 words in length, and should be typewritten on one side of A4 paper, double spaced, with ample margins. Three complete copies should be submitted. Proofs will not be sent to authors for correction.

There is to be no separate 'Bibliography'. References should be kept to a minimum. All notes (which includes 'footnotes' and references) are to be numbered consecutively in the text (in Arabic numerals, in parenthesis, *on* the line of the text), and should be listed at the end of the article, as 'Notes'. Titles of papers or chapters cited are to be enclosed in quotation marks; titles of books are to be underlined. Examples:

NOTES

1 Carole Pateman *Participation and Democratic Theory*, Cambridge: Cambridge University Press, 1970.
2 PF Strawson 'Freedom and Resentment' in *Freedom and Resentment and Other Essays*, London: Methuen, 1974, pp 15-23.
3 L Althusser 'Ideology and Ideological State Apparatuses' in BJ Cosin (ed) *Education, Structure and Society*, Harmondsworth: Penguin, 1977, see p 81.

Substantial quotations (more than about 3 lines) should be indented, shorter quotations should be enclosed in single quotation marks. Omissions from a quotation should be indicated by three dots.

SUBSCRIPTIONS

The annual subscription rates for this journal are as follows:

Individuals	R 10	Overseas individuals	R 20
Institutions	R 20	Overseas institutions	R 30

Single issues (if available) at R3,50 each.

All correspondence about subscriptions should be addressed to the address given above.