TEACHING THE TEACHERS OF TEACHERS

TERTIARY TEACHER EDUCATION

IN

PAPUA NEW GUINEA

A THESIS

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN THE INSTITUTE OF EDUCATION,
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ABSTRACT

This thesis is centred upon the development, implementation and evaluation of the Bachelor of Education (Tertiary) BEd T. program at the University of Papua New Guinea, which aims to promote quality teacher educators. The program has its rationale in cognitive development theory, research on approaches to learning and the literature concerning adult and teacher development in the Melanesian context.

The theoretical position adopted is that teacher development is a form of adult development and the promotion of quality teacher educators, a function of higher stages of development. Consequently, the intervention curriculum had two major expectations: to improve the level of cognitive development; to improve the quality of potential teacher educators.

The following evolved as research questions.

* What factors influence the learning of Papua New Guinea teachers undertaking higher education?

* Does the experience of the special curriculum promote greater cognitive development than increased general education at the University?

* What is the perceived impact of the BEd T. students in the teachers' colleges?

* What are the contextual factors that influence college lecturers' teaching and students' learning?

No one research methodology was considered appropriate to address these research questions because the theoretical position required a combination of qualitative and quantitative data. The methodology adopted was multi-disciplinary in scope and used structures from the following perspectives: ethnographic; illuminative evaluation; case study; quasi experimental.

The research concluded that:

The biggest single factor that influenced teachers' learning at university is their own misconceived expectations of learning compared with university expectations. This is exacerbated by learning through English as a second language, where the main problem is the lack of conceptual equivalence between western and Melanesian epistemologies.

It was also found that the intervention curriculum did promote significantly greater cognitive development in the BEd T. students, as measured by the Student Process Questionnaire who in turn were perceived to be making a strong positive impact in the teachers' colleges. However the fullness of impact appears to be potentially muted by the mechanistic curriculum operating in the colleges, as well as by the conservative bureaucratic administrative practices of Government agencies.
DECLARATION

"I certify that this thesis does not incorporate without acknowledgments any material previously submitted for a degree at any University; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text".

G.D. McLaughlin
ACKNOWLEDGMENTS

The role as co-ordinator of the Bachelor of Education (Tertiary) Program at the University of Papua New Guinea has provoked me to reflect on the varied and many issues that might promote increased quality in teacher education in this country, which are in some way elaborated upon in the following chapters.

I would especially like to dedicate this thesis to my mother and father, for whose goodness I will always be lovingly grateful.

I pay tribute to the many colleagues whose advice and discussions have helped shape this research. Particular thanks too are given to my supervisor Dr. Roy Cox whose role as critical friend and mentor has resulted in the generation of deeper insights into the problems that have been investigated.

Sincere thanks are also extended to my students, especially those in the Bachelor of Education Tertiary Program, to Ms Judy Totabu who devotedly typed the manuscript and to the Dowd Family who tirelessly assisted in editing and final presentation. Special gratitude is also extended to my wife Julie for her understanding, co-operation, support and patience during the period of study for this thesis.
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ABBREVIATIONS

AA Achieving Approach
AIDAB Australian International Development Assistance Bureau
AM Achieving Motive
AS Achieving Strategy
ASI Adaptive Style Inventory
ANCOVA Analysis of Covariance
BEd Bachelor of Education
BEd I. Bachelor of Education (Inservice)
BEd T. Bachelor of Education (Tertiary)
CAE College of Advanced Education
CS Community School
DA Deep Approach
DM Deep Motives
DS Deep Strategy
ESL English as a Second Language
GPA Grade Point Average
LSI Learning Style Inventory
MACS Mathematics for Community School
MBTI Myers Briggs's Type Inventory
NEB National Education Board
NDOE National Department of Education
NITE National Institute for Teacher Education
PMIS Port Moresby Inservice College
PNG Papua New Guinea
SA Surface Approach
SD Standard Deviation
SDU Staff Development Unit
SM Surface Motives
SPQ Study Process Questionnaire
SRC Student Representative Council
SS Surface Strategy
SSCEP Secondary Schools Community Extension Project
TEMLAB Territory Mathematics Laboratory
TPI Teaching Performance Index
UPNG University of Papua New Guinea
CHAPTER ONE

THE RESEARCH PROBLEM

"Mine was the distant aim, the longer reach, 
To teach men how to teach men how to teach."

A.B. Ramsay – Epitaph on a Syndic.

PURPOSE OF THE STUDY

Quality education in a developing country depends for the most part on the quality of its teachers (Beeby, 1966; Fuller, 1987), who to a large degree are dependent upon the quality of their teacher educators (Maraj, 1974; Kenehe, 1981; AIDAB, 1989). The Bachelor of Education (Tertiary) (BEd T.) program conducted by the University of Papua New Guinea, has an explicit mandate to improve the quality of new teachers' college lecturers and thereby improve educational standards in the community (primary) schools of this newly independent developing country (Ross, 1987:4). This thesis documents the development, implementation and evaluation of the Bachelor of Education (Tertiary) program. This program has its theoretical basis in cognitive development theory, research on approaches to learning and the literature concerning adult and teacher development. An exploration of the Melanesian context is also an important consideration in the development of an intervention curriculum. In terms of the inquiry approach, the curriculum that developed is the independent variable. The dependent variable is the level of cognitive development as measured by deep approaches to learning. In other words the intervention curriculum has two major expectations.

(i) to improve the level of cognitive development;
(ii) to improve the quality of potential teacher educators (McLaughlin, 1988a; 1990c).

Consequently, the following became two major research questions.

* Does the experience of the special curriculum promote greater cognitive development than increased general education at the University?
What is the perceived impact of the Bachelor of Education (Tertiary) students in the teachers' colleges?

In order to develop and plan a curriculum intervention the following question needed to be investigated.

What factors influence the learning of Papua New Guinea teachers undertaking higher education?

In exploring the perceived impact of students in the teachers' colleges, it became apparent that an understanding of the context in which the BEd.T students teach was necessary, hence a further research question developed.

What are the contextual factors that influence college lecturers' teaching and students' learning?

OVERVIEW OF THE RESEARCH QUESTIONS

Some of these questions evolved after an initial review of the literature relevant to Papua New Guinea, and after preliminary field work at the university and in the teachers' colleges. For example, contrary to Beeby's hypothesis (Beeby, 1966; Fuller, 1987), two Papua New Guinea researches (Roberts, 1981; Guthrie, 1983) found no significant effects of increased general education and professional training on teacher performance. Such data are alarming since the BEd.T aims to promote quality educationists through increased general education and professional training. Consequently, it is reasonable to hypothesise that it is the type of education and training that is crucial in the promotion of quality education. This especially involves scrutiny of the planned curriculum which has been experienced for the teacher educator candidates. The BEd T. curriculum has been designed on principles of adult learning within Papua New Guinea context and incorporates cognitive development theory in the context of tertiary teacher education. The obvious question to explore is: Does the experience of such a curriculum promote greater cognitive growth than increased general higher education (Research Question 1).

The students involved in the BEd T. program are primary teachers with limited personal education and who use English as a third or fourth language. Moreover, the demands of higher western education are often at odds with cultural beliefs and traditional learning experiences of Papua New Guineans (McLaughlin, 1988 b). Hence it is important to identify, explore and take into account the various contextual and cultural
factors which influence the learning processes of Papua New Guinea teachers undertaking higher education (Research Question 3).

The second year program of the BEd T. is a year long internship in one of the eight teachers' colleges. An enquiry orientated curriculum has been designed for the students on the internship. Again, the question to pose is: What is the impact of the BEd T. students in the teachers' college? This is all the more relevant, because before the BEd T. program was inaugurated in 1987, the World Bank had sponsored in Papua New Guinea a teacher training sub project costing over two million kina (1.3 million pounds sterling) (Yeoman, 1986:18). Its short term aim was to improve the retention and development of national staff for all primary pre service teachers' colleges. Almost all staff undertook tertiary study either overseas or at the University of Papua New Guinea. In terms of the number of personnel with primary degrees, the colleges have had a dramatic increase of graduate and post graduate qualifications among teaching staff. With so many lecturers having had significant educational upgrading, it may be anticipated that the quality of actual teaching and education occurring in the teachers' colleges would be enhanced. There is little hard data available (cf AIDAB, 1989:vii), but preliminary field work suggested that the lecturers themselves believed that this had not been the case (McLaughlin, 1988 c). The reasons for this are complex and will be pursued later in this thesis. More importantly, the implications of such data are clear: the experience of higher education and additional training is not a promise for the promotion of quality. Consequently it is important that some investigation of the impact of BEd.T students in the colleges be monitored (Research Question 2).

As already alluded to, college staff believed that their increased qualifications had not promoted a proportionally significant improvement in the education they offer. This phenomenon behoves an investigation to focus on, not only their experience of higher education, but also on the context in which they employ the benefits of higher education, namely the teachers' colleges. This is important, since latent ability and newly acquired skills may remain dormant because of the contextual constraints of college life, be they syllabus demands or student ability or bureaucratic structures (Research Question 4).

Perhaps, the most demanding reason for a study of the BEd T. program, is that such a program has unique possibilities, greater in potential influence than most other university
courses, since the relative trickle of graduates from this program may significantly enhance the quality of education received by thousands of student teachers, who in turn, educate for better or worse tens of thousands of young Papua New Guinea children.

THE BACHELOR OF EDUCATION TERTIARY PROGRAM

In February of 1987, the BEd T. program at the University of Papua New Guinea (UPNG) became operational. The structures of this three year program include a year of full time study at the university, a year of internship in a teachers' college, a further year of study at an Australian University with a final three week "Lahara" vacation study program at the University of Papua New Guinea.

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The second year internship year of the BEd T. is an integral component of the program and seeks to give a practical context to process the students' previous and future education. The final year in an Australian University is sponsored by the Australian International Development Assistance Bureau (AIDAB) as part of the Australian Government's overseas aid program (McLaughlin, 1989b). The last three week segment aims to provide an appreciation of contextual issues in using skills to develop curriculum and course design. The researcher is this program's first co-ordinator.

The Students

Like most students enrolled in the inservice Bachelor of Education degree at UPNG, the students are qualified teachers. This means that they have successfully completed six years of primary education followed by four years of secondary schooling, and then were accepted into a two year teacher "training" program in a community (primary) school teachers' college. (Secondary teachers undergo a three year program after graduating from high school).

All BEd T. candidates have at least five years teaching experience at the primary school level and the majority have won through inspectorial processes, promotional positions (senior teacher, deputy head, head master). In addition, students accepted into the
program must gain Staff Development Unit (SDU), Ministry of Education, sponsorship. This means that applicants who are interested in the program, initially apply to SDU. This unit scrutinises applicants' files including inspection reports. Applicants are encouraged also to obtain recommendations from relevant senior education officers. Selected applicants then undergo a university entrance examination, which assesses the students' knowledge and use of English. It is only then, from this pool of applicants, that the SDU makes a final selection of candidates for the BEd T. program. The annual optimum number is 10. But most applicants do not pass the entrance examination, so that it was in only 1989 that the program had 10 participants.

Aims of the Program.
In the documentation made available to the researcher very little was recorded, which might seem to articulate a general direction or philosophy for this new program. In attempting to obtain some official clarification the researcher wrote to the superintendent of the Division of Teacher Education concerning the Ministry's perspective on the BEd T. The reply indicated the behavioural characteristics desired for future teacher educators: "We are concerned to employ officers with subject speciality knowledge, a variety of tertiary level methods and a good industrious attitude" (Quartermaine, 1987).

Information from the Project Document – College Lecturer Training, suggested that the implicit aims from the Department of Education were:

* to accelerate localisation in teachers' colleges
* to improve the quality of college teaching
* to improve the standard of teaching in community schools (Ross, 1987:4).

In a word then, the BEd T. is considered to be a means, among others of stimulating quality education in Papua New Guinea (Kenehe, 1981:13; Yeoman, 1986:15), though its potential influence, at least theoretically, may be more far reaching than other initiatives, (AIDAB, 1989:vii) as a former vice chancellor of the University of the South Pacific alluded.

Beeby and others have asserted with reason, that quality in education depends largely on the quality of teachers...but quality teachers emerge from institutions where high quality teacher educators are to be found (Maraj, 1974:147).
STATEMENT OF THE PROBLEMS

As a means of achieving improved quality, there seems to be acceptance by UPNG and the Ministry, of the common belief that a "teacher should have carried his own education at least one further stage than the stage at which he will teach" (Elvin, 1974), a proposition that seems eminently sensible particularly in a developing country (Beeby, 1966:84-85; Guthrie, 1980a:423). An implicit corollary is the belief that longer formal education will produce a better quality teacher (Beeby, 1980a:441; Parry, 1987:13), though this has been challenged for teachers in developing countries by researchers contracted by the World Bank.

Teacher certification and academic qualification are not important at primary and lower secondary levels...Teacher experience tends to have a positive influence on academic achievement in primary and secondary grades... (Simmons and Alexander, 1980:9091).

This research has been criticised on methodological grounds of unrepresentativeness (Guthrie, 1982:299), while more rigorous research involving only developing countries and using increased sets of variables has yielded more encouraging data.

Teacher ability and achievement are important teacher qualities for student achievement, especially for the most disadvantaged students. The most thorough studies of this variable, indicate that intelligent and knowledgeable teachers produce high student performance. (Husen, Saha and Noonan, 1978:39).

Indeed, more recent research involving data from 589 widely differing studies found in Africa, Latin America and Asia were synthesised, and concluded among other things that teacher education and certification had some effect on pupil cognitive changes and that training was influential in producing changes in behaviour (Avalos and Haddad, 1981:32-35).

Moreover, in a thorough review of the research about school factors which raise achievement in third world countries, Fuller (1987:281) concluded that there is a direct positive correlation between student achievement and the "teachers' length of postsecondary schooling or the number of teacher training courses completed".

One could well ask: "What is the problem? Get on with the job and teach." The problem has been partially articulated by Beeby when he describes the quality and appropriateness of the learning experiences of students in teachers' colleges.
...the average practitioner has all his education, training and experience, from the age of six, in the very system he is expected to change. A narrow, formal style of teaching in primary schools passes on to the secondary schools...and to the teacher training schools, and is reflected back onto the primary schools in every generation of trainees. In nearly all countries rich or poor, the staff of training institutions tend to lose touch with the average classroom teacher and his daily problems. Teacher trainers in developing countries who do try to break with the old pattern, usually get their ideas from travel in rich countries, or from books written there, and often hand them on, in the form of indigestible theory, to teachers who need practical guidance to take even simple steps forward. The reformers' most puzzling question frequently is, 'who is to retrain the teacher trainers?' His success depends on divining where best to break into the circle (Beeby, 1980b:465-66).

Implicit in this statement of the problem of intervention for quality in education in developing countries, is that the type of education that teacher educators have received may not have equipped them to be satisfactory change agents. In other words, the experience of longer education itself by teacher educators has not proved to be a panacea. "Experience alone does not promote growth" (Feiman and Flodan, 1980:135). This very point has been emphasised more recently in Papua New Guinea by two researchers (Roberts, 1981; Guthrie, 1983) which found no significant effects of increased general education and professional training on teacher performance. The problem then is: What types of education experiences should teacher educators have so that they might have the ability and inclination to intervene critically and thoughtfully?

This is a real and urgent problem that the literature challenges researchers to investigate, as Husen et al. (1978:47), [their emphasis; researcher parenthesis] has summarised.

Ultimately, future research should not be preoccupied with the question of whether trained teacher (educators) make a difference, since that question has already been answered by cumulative research evidence. The question which remains unanswered is how, and because of what qualities and in what contexts do teacher (educators) make a difference. Answers to these questions will make significant contributions to our understanding of the teacher-learner process generally, and in LDCs...will help improve schooling outcomes in a manner most congruent with LDC needs (LDC = Lesser Developed Countries).

IS THIS PROBLEM APPLICABLE TO PAPUA NEW GUINEA?

(1) Professional Education

Prior to the inauguration of the BEd T. program, the World Bank sponsored a Teacher Training sub-project of the First Primary Education Project (Education II Project) in
1980 costing over two million Kina (1.4 million Pounds). Its aim was to improve the development and retention of national staff for all community school teachers' colleges. The training strategy initiated was to recruit new staff, while simultaneously implementing staff development and up-grading programs for existing college personnel. The project adopted a “three-prong” approach (Ross, 1987:5).

**Prong 1** fellowships were aimed at increasing numbers of lecturers by providing in-country education to mainly, former high school teachers.

**Prong 2** was designed for staff within colleges to provide enrichment through short 6–12 week attachments mainly to Australian Advanced Colleges of Education.

**Prong 3** fellowships were long term study programs aimed at the academic advancement of existing staff through post graduate study, either in PNG or overseas. Almost all college staff were involved. Localisation of colleges grew from 37.9% in 1982 to 53.7% in 1987. Eighty nine personnel were involved (Ross, 1987).

The graph (Table 1.1) summarises information and qualifications for fellows in each prong.

Table 1.1
Qualification Profile of Fellows.

![Graph showing the qualification profile of fellows in each prong]

<table>
<thead>
<tr>
<th>Fellows</th>
<th>Degree</th>
<th>Diploma</th>
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<td>Prong 3</td>
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The result of the initiative was that colleges now have a much more varied and qualified staff than ever before. The question to ask then is: What has been the impact of this better educated personnel on the quality of the education experienced in teachers' colleges? Has Beeby's cycle begun to be broken? There is little hard data available (Ross 1987:39), though a need for such has been articulated (Farrel, 1985). As part of this thesis the researcher interviewed fifty three personnel from the eight teachers' colleges and headquarters on a number of issues relating to the quality of community school teacher education in Papua New Guinea (McLaughlin, 1988c). With regard to curriculum implementation in teachers' colleges, there was a deal of evidence of the uncritical acceptance of western theories, strategies and materials in college course outlines, though the literature warns strongly against this (Crossley, 1984). Indeed, in a recent evaluation of the Professional Studies Department at Goroka Teachers' College, educational anthropologist, Professor Deidre Jordan has argued: "...at this stage of development, it is inappropriate to present 'western' theory and then apply it to the situation in Papua New Guinea" (Jordan, 1987:6). Yet a number of lecturers acknowledged teaching developmental psychology based on Kohlberg and Erikson, whose theories are derived from western data and a individualistic psychological perspective. In contrast, the great majority of Papua New Guineans have an identity completely enmeshed in the psychology of the clan (Mantovani, 1986; Vulliamy, 1983:85). Edwards (1982) has pursued this issue with regard to Kohlberg, while Ciaccio (1976) critiqued the application of Erikson's theory in non-western cultural milieus. In commenting specifically upon Erikson, Jordan concluded:

Indeed, I would venture to say that his theory is not applicable to cultures that are highly structured...crises will occur but they will not necessarily be the same crises as those occurring in western cultures (Jordan, 1987:7).

The limited research conducted in this area suggests not surprisingly, that teacher education, which is congruent with traditional values, may be more effective (Larking, 1974; Hawes, 1979; Matane, 1986; Ross, 1989). Yet many colleges have adopted the complete package of the Sydney Micro Skills Program (Turney, 1973), which while containing relevant components, has a number of skills inappropriate for PNG community school pupils at this time e.g. discovery learning, creative learning, independent learning approaches (Lancy, 1983:174–176; Souviney, 1981:3; Vulliamy, 1984:85–86; Field, 1980; Guthrie, 1986b). The reasons for this assertion will be
discussed later in this chapter when the causes of aborted and failed curriculum innovations are scrutinised.

When any program or approach is to be introduced into a college there are some questions that should be posed by lecturers but do not seem to be. Are such approaches better in themselves than more didactic perspectives? (Guthrie, 1986b). Are student teachers capable of implementing them in the field, and are they appropriate for the majority of PNG children at this time? (cf Guthrie, 1981). The data gathered in this thesis tend to lend support to Beeby's observation that the education experience itself, which teacher educators receive may not be sufficient for the intelligent intervention in teacher education programs.

There is evidence in college course outlines (curriculum) that some content owes its place in the college program, more because of the lecturer's experience of western learning than a critical appraisal of the Papua New Guinea educational context or the student teacher's needs (Guthrie, 1986; Jordan, 1987).

Mismatch can occur because the lecturer is unable to appreciate the inappropriateness of content to the present PNG situation or its relevancy to the students' ability. Certainly, lecturers do exhibit evidence of increased education but "the programs of study have not, in general produced lecturers who have influenced significantly the Community Teacher's College workforce" (AIDAB, 1989:vii). Such a situation is understandable, since much of what is taught at UPNG and in Australia is steeped in the western cultural milieu (McLaughlin, 1989b). Indeed, a number of the lecturers are expatriates and naturally enough transmit their educational "cargo" to Melanesians through their own cultural experiences, and use evaluative criteria similar to white middle class Australians (Thaman, 1977:26). Jordan (1987), maintains that it is extremely difficult for expatriate lecturers in PNG to teach courses that really address the Papua New Guinea situation.

In the case of lecturers, our identity has been formed in different cultural contexts, where certain forms of knowledge are given status in a hierarchy, where certain theories are held in deference. Our personal identity is often strongly tied to our field of expertise, and within that to certain models... It may be difficult for us to restructure our identity to meet the needs of a different culture...lecturers may
be asked to suffer a species of crises of identity in order to rethink their courses so that they grow out of a Papua New Guinea reality (Jordan, 1987:5).

Be that as it may, it is only when lecturers understand what they teach in its contemporary Papua New Guinea context that qualitative changes in education will occur (cf Beeby, 1979:291).

**Style of Teaching**

With so many lecturers having had significant educational up-grading, it may be anticipated that the quality of actual teaching and education received by student teachers might be enhanced. Yet observation and interview data from lecturers themselves suggest that this is not so, (AIDAB, 1989:vii; McLaughlin, 1988c). Indeed, it was a particular issue that generated much interest, concern and genuine self criticism among staff, itself a promising omen.

A very common description by lecturers in all colleges was that staff in general "spoon fed" students. Lecturers acknowledged the inappropriateness of such a process but commented that the poor education level of students, their lack of initiative, the quantity of content and their own limited time were factors which forced this process on them. It was also commented, that while students were exhorted to be more vital, use variability skills, and become more child centred, they experienced a very different model in operation by the college staff (McLaughlin, 1988c).

It should not be interpreted that good teaching is absent in the colleges and that good teachers are rare; on the contrary, only perceptive educators are conscious of the dissonance between their educational beliefs and prevalent practices in the colleges.

Some staff have attempted to change their instructional style but with little success, since students, it was argued, were incapable of operating in a more independent mode. So the teacher educator "passes the buck". "Good teaching" it is argued, can only be utilised when better quality students enter the college; but who is to educate the better quality teachers? Who will stimulate the development of better quality students? No, the "buck" is with the teacher educators.
As will be discussed in greater detail later in this Thesis, contextual factors need to be scrutinised, as they influence curriculum development, teaching and learning. This is the rationale for the case study research reported in chapter six which focuses upon the eight pre-service teachers' colleges in Papua New Guinea.

But well may Beeby ask "who is to retrain the teacher trainers"? The scape – goating of students by tertiary staff is not unique to Papua New Guinea (cf Entwistle and Percy, 1974). What is indeed alarming is that so many PNG staff do believe that students need this "spoon feeding" in order to graduate.

Psychologist, John Jones in his study, Classification Systems, Vernacular and Education in Papua New Guinea disagrees. His research maintains that students are capable of operating independently, can show initiative and be involved in complex activities. "Students are perfectly capable of generating their own hypotheses, setting up their own classification systems, producing their own ideas, taking decision for themselves, if only they are given the opportunity" (Jones, 1976). The biggest inhibiting factor, he maintains is rote style teaching with its concomitant expectation of rote style learning. Such an observation has support from Wong and Swan (1984) in their attempts to educate more creative thinking engineers at the PNG University of Technology. Apparently, this phenomenon is not unique to developing countries for Entwistle, (1984) laments similar kinds of situations, though different in degree, in Britain. He summarises well the major area of concern in his study:

As educators, we should be much more concerned than we are with the quality of learning. Much of our current teaching and assessment seems to induce a passive, reproductive form of learning, which is contrary to the aims of the teachers themselves (Entwistle, 1984:2).

STAGES FOR EDUCATIONAL DEVELOPMENT.

One way to address the issue, indeed an all too common way is to identify the weaknesses, remedy them and hence the issue no longer exists. There are a number of problems with such a perspective, two of which need to be immediately addressed. Firstly, such a process identifies symptoms and neglects to investigate possible causes; secondly it assumes that similar problems in different educational contexts will have identical remedies. Issues such as those have been identified by Glassberg and Sprinthall
(1980) who have lamented the neglect of the generating of theory of teacher development, which is needed if this "band-aid" and "trial and error" approach is to be avoided.

The long and somewhat dreary history of student teaching research has been too often content to identify "the problem". We think framework...helps us go beyond revisiting negative results. Logically, the relationship between theory and instruction or between concepts and practice provides direction for educational efforts in student teaching (Glassberg and Sprinthall 1980).

Fortunately, C.E. Beeby has developed a comprehensive theory of educational development in developing countries which has been elaborated in his book *The Quality of Education in Developing Countries* (1966). Beeby has an impressive history of educational involvement. He was for twenty years, Director of Education for New Zealand with responsibility also for education in that country's Pacific Island dependencies. He served as Assistant Director General of UNESCO, a research associate in the Centre for Studies in Education and Development of the Graduate School of Education at Harvard. In the seventies and eighties he was employed as an education consultant to Malaysia, Papua New Guinea and to the Indonesian Department of Education and Culture, He also co-ordinated a massive reorganisation of that country's education system (Beeby, 1979).

Beeby (1966:50–62; 69–75 especially) had four basic theoretical propositions for the growth of quality education in developing countries that may be summarised as follows:

1. There are four stages of primary schooling labelled as:
   * Dame School
   * Formalism
   * Transition
   * Meaning

2. Movement through the stages is evolutionary;

3. The key to a school's movement through the stages is the ability of its teachers to promote change;

4. The ability of teachers to promote change is limited by the levels of general education and professional training of teachers (Beeby 1980a:441).

The four stages are described in terms of teaching/learning processes and characteristics (Beeby 1966:72), and are summarised below. Stage four has been reformulated by Beeby and it is this reformulated description that is included here (Beeby, 1980b:457).
Stage 1. Dame School: Teachers ill educated, untrained.

Teaching Characteristics
Unorganised, relatively meaningless symbols, very narrow subject content – 3R's very low standards; memorising all-important.

Stage II. Formalism: Ill-educated, trained

Teaching Characteristics
Highly organised; symbols with limited meaning; rigid syllabus; emphasis on 3R's; rigid methods – "one best way"; one text-book; external examinations; inspections stressed; discipline tight and external; memorising heavily stressed; emotional life largely ignored.

Stage III. Transition: Better-educated, trained

Teaching Characteristics
Roughly same goals as stage II, but more efficiently achieved; more emphasis on meaning, but it is still rather "thin" and formal; syllabus and text books less restrictive, but teachers hesitate to use greater freedom; final leaving examination often restricts experimentation; little in classroom to cater for emotional and creative life of child.

Stage IV. Meaning: Well-educated, well trained

Teaching Characteristics
Meaning and understanding stressed; variety of content and method to cater for individual differences; problem solving plays an increasing part; pupils' own active thinking and judgement encouraged, and the control of language appropriate to this developed.

The advantage of this developmental map is that it does "form a starting point, a launching pad for... individual researches into the process of change and growth that underlies the difficulties developing countries have met in improving their schools" (Beeby, 1980b:469).

It should be acknowledged that Beeby clearly stated that his theory was the "result of administrative experience rather than scholarly research" (Beeby, 1966), and as such had not been validated. However, scores of scholars have accepted this theoretical framework for education development and "commended the apparent validity of the stages" (Guthrie, 1980a:416).

Guthrie (1980a;1980b) in a well argued essay, challenged Beeby's theory, though the main issue of contention is the proposition of stages. In the light of Beeby's responses (Beeby 1980a; 1980b) to his criticisms, Guthrie was able to concede:
The evidence is thus generally supportive of the reformulated version of Beeby's hypothesis particularly in relation to the effect of teachers' professional training on their performance (Guthrie, 1982:304).

Guthrie's main criticism of Beeby's stage proposition centres on the assumption of desirable ends. On theoretical grounds he evokes Myrdal, who argues that stage theories can have no validity, since they must be teleological by nature. "By a teleological approach is meant, one in which a purpose which is not explicitly intended by anyone, is fulfilled while the process of fulfilment is presented as an inevitable sequence of events" (Myrdal, 1968). Beeby acknowledges that there could be some truth in this assertion, but argues that education theory in general and planning in particular, by definition must be concerned with objectives, and that the value judgements embedded in these objectives should be scrutinised and carefully articulated (Beeby, 1980a:442-43), a position Guthrie would endorse (Guthrie, 1980b:446). However, Guthrie's central criticism is that Beeby's criteria of stages, and particularly for the stage of meaning, are essentially those of Western countries, which is an accurate observation.

The area where the stage analysis is vulnerable is the unexamined cultural assumption of the stage of meaning and its emphasis on individual learning (Guthrie, 1980a:427).

It is true that western models of thinking and learning are alien to the cultural experiences of most Papua New Guineans (Harvey, 1972; Shea, 1976:185; Shea and Still, 1976; McLaughlin, 1988b). (This is further elaborated upon in Chapter Three).

The important factor in all this (traditional village education) from the stand–point of Western education, is that at no point is the young learner expected or encouraged to innovate. Indeed innovation might well be frowned on as rebellion against the superior knowledge and power of the elders. He/she is called upon to observe, learn and reduplicate received knowledge and tribal mores (Wong and Swan 1984:7).

True as Guthrie's observation may be, it was not experts like Beeby, or other western educational consultants who imposed western models on "naive" former colonial, newly independent nations. The governments of such nations demand an education that could graduate national students, who could localise effectively key positions as well as implement government policies, as Beeby aptly elaborates: "Their five year plans call for education in problem solving, 'entrepreneurial skills,' 'imagination,' 'creativity and responsibility'—very much the qualities of my stage of meaning" (Beeby, 1980a:443). Certainly, this is the case in Papua New Guinea, but like other third world nations this
desire for modernisation and its concomitant education system has been interpreted in
terms of traditional values, for ". . . a low key but determined nationalism pervades the
education system" (Weeks and Guthrie, 1984:62). Aspects of traditional life are
integrated into an education system, which attempts to be relevant to contemporary
Papua New Guinea (Guthrie, 1985:227). To the extent Papua New Guinea needs
Western technology, to that extent does it need the cognitive processes that promote it.
those are embedded in a Western style education (Philip and Kelly, 1974:275; Lancy,
1979). A former PNG prime minister expressed this issue with the phrase: "There is no
'Melanesian Way' to pilot a plane." So in Papua New Guinea, despite some misgivings
concerning its relevancy (Naur, 1984; Sukwiiýomb, 1986) and its efficiency (Kenehe,
1981) a western style education, that has PNG adaptation and interpretation is the

Consequently, the main thrust of Guthrie's criticism seems to lack its intended impact.
what indeed might invite justifiable criticism are examples of the application of Beeby's
stage theory. The data suggest that with some exceptions (Lornie, 1979:367) Papua New
Guinea teachers in general, operate in the stage of formalism (Anon, 1973; Beevers,
1968; Coyne, 1973; Dunkin, 1977; Donohoe, 1974; Larkin, 1974; Markwell, 1975;
educators have done, was to decide that their students should be inducted towards the
stage of meaning and that the processes that would promote such a movement are those
teaching styles which Beeby initially described as characteristic of the stage of meaning.
Papua New Guinea has witnessed a number of innovations, which were implicitly or
explicitly based on this rationale.

Under the inspiration of Zoltan Dienes, a pioneer mathematics educator of the 1960's,
Education Department officers inaugurated TEMLAB (Territory Mathematics
Laboratory), a program that introduced the new maths through pupil centred, individual
discovery methods, similar to that in operation in South Australian schools. The
program "was considered a failure in Papua New Guinea...because it assumed far too
high a level of general knowledge and competency on the part of teachers" (Lancy,
1983:174). Moreover, it was erroneously based on a premise that PNG children
progressed at roughly the same cognitive rate from concrete to symbolic thinking as
Western children (Kelly and Uriari, 1970).
Ironically, later curriculum officers designed a new mathematics curriculum – MACS (Mathematics for Community Schools) that compared to primary syllabuses in most Australian schools was relatively sophisticated and ambitious and as a result "...it would hardly be surprising if even experienced teachers found difficulty in implementing it" (Clements and Lean, 1981:61). Indeed, the designers deliberately ignored the capabilities of the national teachers who were intended to implement it.

The MACs Course was designed, it was felt, so that it might be possible, provided that the teacher slavishly followed the instructions in the guide, for the children to acquire an understanding of mathematics possibly beyond that of the teacher...This was dubious to say the least (Roberts, 1978:213).

The Secondary Schools Social Science developed in the late 60s on a concept based, spiral development syllabus (Taba, 1966) covering a wide range of multi-disciplinary Papua New Guinea and world topics, and incorporating student centred, independent learning strategies, emphasised the teacher's role as a facilitator of learning in contrast to the traditional didactic role. Such a "revolutionary" emphasis, it was claimed made "the curriculum branch of the Department of Education an international front runner" (Cleverley, 1975:21).

Ironically, and inevitably, the program was only a partial success, and this success was because of major curriculum rewriting which articulated more specific objectives, while "down playing the concept basis and spiral approach" (Weeks and Guthrie, 1984:50). In addition, increased PNG content was added as well as a more expository teaching mode (Guthrie, 1980; Lornie, 1981).

The "very well-designed and trialed" (Jones, 1974:47) primary science program was unsuccessful, because there was a lack of equivalence with student conceptualisations and the "concepts which the program had been aiming at..."(ibid).

Another innovation initiated in the mid seventies was the Generalist Teaching program, which attempted to provide an integrated multi-subject approach to grades seven and eight. It failed not only because of its rapid and authoritarian introduction but because it demanded from teachers in a stage of formalism, stage of meaning teaching, and as a consequence "time consuming preparations were not undertaken" (Guthrie, 1980a:426).
In a word the program was doomed at its inception because it was conceptually inappropriate (Field, 1980:28–31). More recently, the same reason has been offered for explaining the difficulty which many teachers experienced with the school based curriculum development component of the Secondary Schools Community Extension Project (SSCEP) (Crossley, 1983).

Musgrave (1974) attempted to clarify a type of curriculum in teacher education that he thought was implied from the stages theory. He asserted that the model of teacher implied for each stage did permit a number of inferences to be deduced about the nature of a teaching skills program.

Building on Beeby's argument, one may predict that at the formal stage teachers in training will be taught 'the one best way', to teach a centrally prescribed syllabus to a fixed timetable, using a restricted number of authorised textbooks, and leading to external examinations, which together with a rigid system of inspection ensure that standards are met. Contrast with this situation the requirements for the teacher who is to be trained for the stage of Meaning. Here the teacher must be ready to meet the needs for each individual child as fully as possible, thereby matching material and method from a wide, available range to the present circumstance without any obvious reliance upon the one right method that can be easily inspected. The move is from the training of teachers based on rule of thumb to a training rooted firmly in what modern philosophies of education would call a practical theory of education (Musgrave, 1974:42).

In an attempt to enhance the quality of student teachers, Musgrave presupposed that the best way forward, was to aim toward the stage of meaning, by initiating students into teaching methodologies described as appropriate for the stage of meaning. The rationale for such a move was commendable, as Musgrave reasoned that new graduates must by some criteria, be "ahead" of their present school system, if a quality education was to be stimulated though not too far ahead, as to alienate staff or for students to be unable to survive in schools with the barest essentials or less.

Larking (1974) following such reasoning, deducted that if increased general and professional education resulted in teachers moving through the stages, then with increased training, teachers should show greater nurturance and less authoritarianism, as teaching at meaning stage would require. His sample of 230 student teachers from a community teachers' college showed that no significant change had occurred in two years since they were generally strong in authoritarianism and weak in nurturance. Guthrie
concluded (1980a:341)"...significant changes in those predicted from the Beeby model have not occurred".

Given these objections, is then the Beeby model useful? Firstly, a number of these studies are based on assumptions that the researchers believed were implied in the theory, which in fact were not, as Beeby explained.

I have outlined roughly the teaching methods I consider appropriate for each stage, but I have never commented on the kind of pre-service training that is calculated to produce that type of teaching. This is a problem for experts in teacher training (Beeby, 1980a:442).

However, even some of the experts have considered that the way towards the stage of meaning is to attempt to adopt its strategies. "Identify effective teachers, learn what distinguishes these from the less effective and use effective teachers as models for novices" (Joyce and Clift, 1984:7). This is the approach advocated as a research project for the promotion of better teacher educators in Papua New Guinea, Identification of the Characteristics of an Effective National Lecturer (Farrell, 1985). Indeed Marton and Saljo (1984) used the same rational in the hope of producing deeper and more complex thinking strategies among university students.

...it is very common to assume that if one makes other students perform the same kind of activities, this would mean that they too would be using a deep approach. However, it is obvious from the two studies reported here...that this kind of logical reasoning does not always lead to the expected results when applied to human behaviour (Marton and Saljo, 1984:50).

Moreover, Beeby was more than aware of the material, administrative and psychological constraints on changes in teaching style (Beeby, 1979:47–135), as well as the political and social tensions that can complicate interventions for changing education practice (Beeby, 1979:259–281), to suggest that improvement in general education and training of student teachers could be relied on by itself to effect transition from one stage to the next. He comments "...you are mistaken in saying that my model 'predicted' an improvement in the general education of teacher-trainees and two years of training would result in a change in their attitudes from authoritarianism to nurturance." (Beeby 1980a:442). Indeed, he advocated further research into the problems that this Thesis has focused upon.

The gaps between teacher training and subsequent teacher performance, especially in developing countries, are so wide that they will need to do much more research and field experimenting before they can come up with anything on which firm
predictions can be based. The only prediction I feel competent to make is that nothing much will be achieved by merely lecturing, in an authoritarian setting, about the virtues of nurturance (ibid).

**THE USEFULNESS OF BEEBY'S MODEL.**

As mentioned previously, Beeby's model is useful because it does provide a conceptual understanding of growth of a school system in developing countries, as well as a "launching pad" for research into enhancing quality of the education system. It also offers a conceptual, as well as a concrete understanding of the term "quality". Beeby did not involve himself in attempting to produce a definition. He believed the task to be impossible, since such a process is based on varied and differing sets of value judgements. "I think there is such a thing as Quality, but that as soon as you try to define it, something goes haywire. You can't do it" (Pursing, 1976:200). Beeby preferred the concept of "qualitative change", since he argued, that he had "no compunction about judging some directions of change preferable to others in practical situations" (Beeby, 1980b:455). This is where the hypothesis of stages is helpful, since it does provide a "rough and ready framework" (Beeby, 1980a:440) to understand qualitative change in terms of "what is taught and how it is taught" (Beeby, 1979:17), as well as providing innovators with a criteria to test the authenticity of educational interventions in the pursuit of quality.

Qualitative changes in classroom practice will occur only when the teachers understand them, feel secure with them, and accept them as their own (Beeby, 1979:291).

It is this very important implementing principle, which exposes that some researchers made assumptions alien to Beeby's understanding of his application of stage theory. Beeby was highlighting the importance of the teachers' understanding of the education process. He was not promoting certain styles of teaching as being superior in themselves, irrespective of context.

Some of the education programs in PNG, already cited, have as an implicit aim to increase the rate of education change. Yet Beeby himself in correspondence to Guthrie (1980c:156) notes: "I was surprised to learn...of my stages of growth as an argument for speeding up change in education in developing countries when, in fact, I myself saw my thesis...as a reason for slowing down so many of the reforms...". Indeed it was this
implementing principle, that witnessed Beeby advocating opposite policies for different contexts.

I gave my first public talk on 'stages of growth' (or 'development') in 1953, to explain to a group of New Zealand teachers in Western Samoa why I had, since 1945, been advocating in Samoa, teaching methods I had for years being trying to get rid of in New Zealand (Beeby, 1980a:439).

To focus more specifically on the problem, it is highly probably that all the teachers enrolled in the BEd T. program are operating at Beeby's stage of formalism. To be more specific, since these students were selected by the Staff Development Unit and since they passed the university entrance examination, it is more than likely, that most of them are quite good formal teachers. The aim of the BEd T. program is to initiate teacher educators toward the stage of meaning, an education move that Guthrie (1980,c:164) would encourage, not because they will necessarily do likewise to their students, but they will possess the reflective processes embedded in the "meaning and understanding" context (Beeby, 1980b:457), and be more likely not to transfer uncritical western "cargo" to the uninitiated Papua New Guinea student teacher (cf Hawes, 1979). Why the stage of meaning is the goal is because new lecturers may be more likely to assess student, curriculum and context and so provide a more relevant educational intervention.

This can not be achieved by providing extra background knowledge and tertiary teaching techniques alone. By definition, a teacher operating at the stage of meaning is an effective teacher, but this needs to be defined more in operational terms, so that a criteria can be articulated for potential evidence of their eventual attainment. There is a substantial body of research data (Atkins and Brown, 1988:4–5; Glassberg, 1979; Harvey, Hunt and Schroder, 1961; Hunt, 1976a; Hunt and Joyce 1967) that describes effective teachers as those who were more adaptable in their teaching styles, more flexible, tolerant and versatile.

Also these teachers were more responsive to individual differences and employed a variety of teaching models, such as lectures, small group discussion, inquiry, role playing. They were less directive and authoritative. These teachers were also more empathic; they could more accurately "read" and respond to the emotions of their students (Bents and Howey, 1981:15).

Effective teaching in the context of Beeby's stage of meaning can not be acquired through a program of activities focussing on desirable outcomes as the evidence already cited convincingly demonstrates.
The direction toward an answer is in the further exploration of the complex area of adult learning processes in teacher development (Clark and Lampert, 1986), a move recommended by Cox (1985, 24–26) in his report for better learning and teaching at the University of Papua New Guinea. It is this area that will be explored in the next chapter.
CHAPTER TWO

THE TEACHER AS AN ADULT LEARNER
A REVIEW OF THE LITERATURE

This chapter reviews the current state of the literature concerning how teachers develop as adult learners, particularly in formal educational settings, as would be the case in sustained inservice teacher education at the University of Papua New Guinea.

Such a review is important as it provides theoretical data upon which to generate an intervention program to more appropriately meet the developmental and learning needs of Papua New Guinea inservice teachers.

This review will focus on the research in six areas influential in effecting learners in their experience of higher education. These areas are:

- Cognitive Development Model of Teacher Education
- Experiential Learning
- Stage of Intellectual and Ethical Development
- Adult Learning
- Learning from the Students' Perspective
- Inquiry Orientated Teacher Education
THE COGNITIVE DEVELOPMENT MODEL OF TEACHER EDUCATION

THE NEED FOR THEORY

Though there seems to be an extensive body of research literature on the teaching and learning act itself, a number of educationalists (Bents & Howey 1981:11ff; Ryan 1979, Shutes, 1984; Sprinthall & Thies-Sprinthall, 1980; 1983a; 1983b; Witherall & Erikson 1978; Haberman, 1982) have convincingly argued that there seems to be a major lacuna concerning the processes of teacher education, while theory is especially sparse (McQualter, 1985). Actual practice seems very often to be based on political and pragmatic criteria than on educational theory (Ryan, 1979:1; Turney, 1982a:195). "At present no full blown theory of teacher development exists" (Feiman-Nemser and Floden, 1986:521).

The amount of dependable information available compared to the amount needed to formulate more effective policies and practices of teacher education is minuscule (Turner, 1975:107).

Support for this assertion is provided by Feiman-Nemser and Floden (1980; 1986), who were able to identify and critique only three theoretical models upon which teacher education programs might have their conceptual basis. They are:

- Stages of Concern
- Cognitive Development
- Development Style

Similarly, Zeichner (1983;1986) identified four models that could be explicitly or implicitly operating in teacher education programs. They are:

- Behaviouristic Teacher Education
- Personalistic Teacher Education
- Traditional Craft Teacher Education
- Inquiry Orientated Teacher Education
Though different labels are used by the authors, there is considerable conceptual overlapping. Zeichner argues that in the United States at least, the most common pattern seems to be an eclectic one, which incorporates elements from two or more general orientations into a single program (Zeichner, 1983:7). A number of models seem to be more appropriate for pre-service teacher education, since considerable emphasis is placed on the centrality of the practicum, as a catalyst for practice enlightening theory and vice versa. Later in this chapter it will be argued that, in the second year component of the BEd T. program the internship year, the most appropriate model to induce quality change appears to be the inquiry orientated model.

In this first year program, the cognitive development model offers more insight for program development, since its conceptual basis postulates that teachers are essentially adult learners. Secondly, it provides a conceptual link between Beeby’s stages of development in third world countries and the adult development of teachers. Thirdly, its conceptual basis (though not its empirical basis) is not culture bound, in that its perspective focuses on developmental human growth as the basis for further teacher development.

...we have come to see the underlying issue of teacher education as one of adult development. The teacher’s own development as an interpreter and constructor of classroom events has been overlooked in both educational practice and research (Witherall and Erikson, 1978:229).

**WHAT IS COGNITIVE DEVELOPMENT?**

Development from a cognitive perspective is the process of the individual growing in a way that allows him/her to become increasingly complex (Sanford, 1966). It views "humans as taking an active role in information processing – attending to and interpreting events and developing roles in an effort to give meaning and order to the world" (Barrow, 1986:20). For teachers, development may occur when they become conscious of many of their subjective beliefs about teaching and education, through a confronting experience (Mezirow, 1981:7). A subjectively held belief becomes objectively held if it is consonant with the data. Dissonance may promote a change which is consistent with the new evidence (Fenstermarcher, 1980). Such experiences often occur when adults pursue personally relevant studies (Brookfield, 1986:59).
Though the outcome of such a cognitive dissonance may have generated a more satisfactory level of insight, very often it is accompanied by pain and feelings of insecurity (Brookfield, 1986:125). As a consequence a delicate balance of challenge and support must be achieved if development is to occur (Barrow, 1986:77). In addition, there is the very important issue of individual differences, since an individual's rate of growth and development is unique to his/her personality and prior personal experience (Kolb, 1984:237).

According to Hunt, Joyce, Greenwood, Noy, Reid and Weil (1974), development takes place within various areas of concern or conceptual systems such as family, religion or career (teaching) (cf Brookfield, 1987:26). The existence of these systems suggests that it is possible, indeed necessary, to investigate an individual's approach to knowledge according to a specific context, in this case, teacher as an adult learner (Sprinthall and Thies–Sprinthall, 1983a; 1983b; Thies–Sprinthall, 1984).

DEVELOPMENTAL GOALS FOR EDUCATORS
The key conceptual premise from this perspective is that teacher development is a form of adult development (Thies–Sprinthall, 1986:15) and that effective teaching is a function of higher stages of development (Hunt, 1975). As a result, it is argued, that "cognitive developmental stage theories have strong implications for adult development within teacher education programs" (Oja, 1978).

There seems to be considerable research evidence to support this contention. Hunt and Joyce (1967) found significant positive correlation between reflective teaching indices (use of the learner's frame of reference to plan, initiate and evaluate performance) and conceptual level or teacher's learning style (Hunt, 1974:214). Murphy and Brown (1970) postulated that the amount of material teachers presented by encouraging students thought divergence, theorisation and self expression increased with the teacher's conceptual level, while presentation of rote questions decreased. Walters and Strivers (1977) conducted a large sample study of pre-service teachers and found that the level of psychological development as measured on the Erikson system of identity formation was by far the most powerful predictor of multiple measures of effective classroom teaching, when compared to a variety of other indices. In a study involving a small sample of inservice teachers, McKibben and Joyce (1981) found that the level of
developmental maturity to be an accurate predictor of actual classroom innovations. The teachers at high levels of maturity implemented innovations, while others resisted change in teaching procedures.

Heath (1977) asserted that stages and level of psychological maturity are also powerful predictors of adult performance. He recommended that inservice teacher education should focus its energies on the developmental growth of teachers, if change was to be permanent.

Certainly teacher "development" is not designed to provide just another technique. Instead it facilitates the development of a more liberally educated and mature person; the model we hope our students will become (Heath, 1986:14).

The data reviewed indeed confirm the assertion that developmental theory and practice have powerful implications for teacher education (Glassberg and Sprinthall, 1980:35).

The cognitive developmental perspective may also provide a psychological insight into Beeby's hypothesis of stages for developing countries (1966). There is a correlation between a teacher's cognitive development and his ability to promote qualitative change. Teachers with lower conceptual levels appear to be capable of operating only at the stage of formalism or below, whereas the description following incorporates the reflective insight of Beeby's stage of meaning.

In the complex task of helping another human being grow and develop, the helper (i.e. teacher) who can process experience at higher order stages of development, performs more adequately. ... At high developmental stages, teachers employ a wide variety of teaching methods, are effected by student "pull", recall more accurately what transpired in the class, "read and flex" and can view teaching as a third party perspective (Thies – Sprinthall, 1986:15).

Moreover, insights from the cognitive development paradigm provide a psychological explanation for why a number of previously cited innovations in Papua New Guinea were not a success. In terms of Beeby's stages of growth, it is suggested that it is an inappropriate match, to plan a curriculum incorporating stage of meaning strategies for teachers operating at the stage of formalism. Joyce and Weil (1980) have identified a similar situation in inservice teacher education. While many teachers can learn the skill acquisition of a teaching strategy promptly, the actual transfer of the strategy into the teacher's pedagogical repertoire has not been noted. The problem appears to be that teachers are unable to utilise the most appropriate strategy when a particular teaching
episode would demand it (Joyce and Showers, 1982). This is particularly so in pre-service and in-service teacher education programs in developing countries, though structures have been articulated to address this very issue (Avalos, 1985). Consequently, it seems more than evident, that the teacher's ability to adapt and adopt innovations as well as to "read" and "flex" with students in a teaching situation bears a direct relationship to the teacher's own stage of psychological maturity (McKibbon and Joyce, 1981; Prosser, 1987). Dewey noted the same phenomenon a half a century before, when he warned: "modes of effective technique, can be intelligently, non mechanically used, only when intelligence has played a part in their acquisition" (Dewey, 1933:63).

COGNITIVE DEVELOPMENTAL FRAMEWORK

It was Dewey who claimed that true education is development and that development should become the aim of education.

In the first place, it (education) is a process of development of growth and it is the process, and not merely the result that is important...an educated person is the person who has the power to get more education (Archambault, 1964:4).

Dewey's philosophical stance has gained considerable empirical support from the research of Piaget (cognitive development), Kohlberg (moral development), Loevinger (ego development), Hunt (conceptual development) and Perry (epistemological/ethical development). Below (figure 2.1) is a comparative chart illustrating developmental stage theories. Also added is Beeby's Educational Stages, though its position is based on educated speculation, rather than on empirical data. (Stage 1, Dame School is not an essential component – Beeby, 1966:60).

What is common to all these theorists is that they view adult's developing "in a definite progression from concrete, undifferentiated, simple structured individuals to more abstract, differentiating, complex, and autonomous yet interdependent individuals" (Bents and Howey, 1981:14).

Cognitive development theories hold that all individual development occurs in stages which have the following characteristics:

1. the stages represent qualitative and structural differences in the individual's mode of thought;
2. at each stage, there exists underlying and holistic organisation of thought and awareness;

3. the stages are hierarchically integrated, that is each stage is succeeded and subsumed (rather than replaced) by a differentiated, complex and integrated stage;


Miller (1981) has provided evidence from hundreds of research studies which support these assertions. It should be noted that the development of an individual should not be regarded as a permanent classification, but rather as a current preferred mode of operating (Hunt, 1974; Kolb, 1981). Indeed, developmental growth should be viewed as dynamic and continuous rather than static and discreet. Given this, there are substantial data, indicating that most adults do not complete the transition between concrete and formal operational thought (Elkind, 1961; Munroe and Munroe, 1975) a situation, which is said to be very much the norm in Papua New Guinea (Mulford and Young, 1973:1). This of course makes the problem all the more complex, and its address precludes simplistic and mechanistic strategies.

STRATEGIES FOR PROMOTING TEACHER DEVELOPMENT

It has been argued so far, that if teachers in general, or more specifically teachers in Papua New Guinea "can grow toward greater complexity as thinkers in a developmental sense (then), they are more likely to be able to perform the complex tasks of instruction, for example, to read and flex and to adapt innovations" Thies- Sprinthall, 1986). The question to be posed then is: If this is the case, can an education program be designed to foster development (cf Boud, 1981:14)? Can teachers' growth be stimulated to higher developmental stages? Weatherby, (1981:73) has observed that there are very few current formal education programs designed to stimulate students to reorganise their beliefs and conceptions on the basis of new experiences and promote personally generated insights, even though these processes reflect higher stages of development (Freire, 1970:27; Boyd & Fales, 1983:109).
### Figure 2.1
Domains of Developmental Stages

<table>
<thead>
<tr>
<th>Theorist</th>
<th>Domains</th>
<th>Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piaget (1963)</td>
<td>Cognitive</td>
<td>Pre-operational</td>
</tr>
<tr>
<td>Kohlberg (1969)</td>
<td>Epigenetic</td>
<td>Concrete</td>
</tr>
<tr>
<td>Loevinger (1969)</td>
<td>Conceptual</td>
<td>Conformist</td>
</tr>
<tr>
<td>Hart (1974)</td>
<td>Conventional</td>
<td>Conscientious</td>
</tr>
<tr>
<td>Beeby (1969)</td>
<td>Value/ Moral</td>
<td>Autonomous</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching Styles</th>
<th>Piaget</th>
<th>Kohlberg</th>
<th>Loevinger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal School</td>
<td>Danes</td>
<td>Formal</td>
<td>Formal</td>
</tr>
<tr>
<td>Transition School</td>
<td>Transition</td>
<td>Relativistic</td>
<td>Committed</td>
</tr>
<tr>
<td>Meaning School</td>
<td>Meaning</td>
<td>Contractual</td>
<td>Legalistic</td>
</tr>
<tr>
<td>Dualistic</td>
<td>Dualistic</td>
<td>Directed</td>
<td>Abstract</td>
</tr>
<tr>
<td>Relativistic</td>
<td>Relativistic</td>
<td>Self</td>
<td>Autonomous</td>
</tr>
<tr>
<td>Conscientious</td>
<td>Conscientious</td>
<td>Direct</td>
<td>Abstract</td>
</tr>
<tr>
<td>Autonomous</td>
<td>Autonomous</td>
<td>Self</td>
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<td>Contractual</td>
<td>Contractual</td>
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<td>Legalistic</td>
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Though there is no blueprint curriculum model specifically articulated to promote cognitive development, the research literature (Bents, 1978; Glassberg and Sprinthall, 1980; Sprinthall and Thies-Sprinthall, 1983a; 1983b; Thies-Sprinthall, 1986) suggests the following general and tentative guidelines:

1. Significant Role Taking Experience.

Kelly (1955) postulated that humans are active in creating their models of the world and that their psychological processes are guided by the way in which they construe events. One way to promote change was to construe events in new roles as evidenced in fixed role therapy. The assumption for teachers is that as they experience and reflect on new learning situations, a cognitive dissonance may be precipitated and the traditional teacher's role may be reinterpreted as Sprinthall asserts: "Growth toward more complex levels of cognitive developmental functioning appears to be most influenced by placing persons in significant role taking experience" (Sprinthall, 1980: 287). Role taking is not role playing, since the teacher is expected to perform new and more complex interpersonal tasks than the preferred mode. For teachers, role taking might involve teaching adults, employing counselling or supervision skills, as well as exploring unfamiliar teaching models or contexts.

This is the very concept that Fielding, Cavanagh and Widderson (1978) have asserted as pivotal in their portrayal of the developmental aspects of pre-service teacher education as a process of role integration. They postulate that students integrate several new roles into their personalities in negotiating the experiences of becoming a teacher. Their point was that the rate of progress towards professional proficiency was related to the degree of satisfactory role transformations and integrations.

Moreover, in a later development of this original hypothesis, Fielding (1983) suggested that role integration is linked to psychodynamic processes, through which individuals seek their own, largely idiosyncratic means of 'presenting themselves' to others (p.2). Fielding suggests that there are six stages with their accompanying roles which an individual assumes in the processes of becoming a competent teacher. They are:

| Stage 1. | From Secondary to Tertiary Student. |
| Stage 2. | From Tertiary student to Novice Teacher. |
| Stage 3. | From Novice Teacher to Novice Professional. |
| Stage 4. | From Novice Professional to Client Centred Professional. |
Stage 5. From Client Centred Professional to Curriculum Centred Professional.
Stage 6. From Curriculum Centred Professional to Educational Theorist.

Fielding maintains that such a series of roles may form a suitable conceptual basis upon which could be constructed a detailed model of teacher development. Role progression then could be the basis of the selection and organising context of an approach to curriculum design in pre-service and in-service teacher education.

...based on the assumption that in the process of becoming a teacher a variety of developments may occur (each of which can be associated with psychosocial phenomena of role integration), a curriculum design could be envisaged which has the aim of facilitating development and role integration through the provision of experiences having their focus in a variety of associated development tasks (Fielding, 1983:15).

Consequently, activities which provide direct experience of a more complex situation may be a necessary additional structure to course content, if growth is to be stimulated (Widick and Simpson 1978:33–34). As an example, Sprinthall (1973) found that high school students at developmental stages corresponding to Perry's (1970) dualism required experiential role taking tasks for growth to occur, which in itself promoted confidence to risk further new role taking experiences (cf Knefelkamp and Sleipitz, 1978:138). More recently Thies-Sprinthall and Sprinthall (1987), in a program utilising veteran teachers to be mentors for student and beginning teachers, asserted that:

Learning to perform the new and complex educational role promoted their own psychological development ...the mentors developed more self confidence as learners, more perspective taking ability, and a greater ability to abstract meaning from experience (p.8).

A question that needs further explanation is why significant role taking can promote cognitive growth? Jarvis (1987:54) notes that a person's self concept, which is pivotal in the ability of an individual to negotiate the environment, emerges through social interaction. Depending on culture and social interaction (and this could include a formal learning situation) people perform a variety of roles. Successful assimilation of roles, particularly those of a complex nature (a common one is parenting) may promote a more complex self concept, which has the potential to comprehend and negotiate with greater satisfaction, perceived reality. This is precisely the notion underpinning Fielding's hypothesis of role integration in teacher education. Kidd (1973:127–31) attempts to explain the complexity of the factors that role taking impinges upon.
Gradually within the individual, there is a development of the self, and this development is essential to all learning; all new experiences for the learner are symbolised and organised into some relationship to the self, or are ignored because there is no perceived relationship, or are denied organisation or are given a distorted meaning because the experience seems inconsistent with the structure of the self, perhaps the most important task in learning is the development of a self that can deal with reality.

Jack Mezirow has formulated a theory of reflectivity which argues that perspectives are constitutive of experience, and that they directly influence perceptions, thoughts, feelings, and behaviour. An individual who possesses the ability to take a variety of perspectives may stimulate processes of critical reflectivity. When individuals are placed in new roles a "perspective transformation" may be triggered that stimulates other emancipatory processes which encourages strategies of becoming:

...Critical of how and why the structure of psycho/cultural assumptions has come to constrain the way we see ourselves and our relationships, reconstituting this structure to permit a more inclusive and discriminatory integration of experience and acting upon these new understandings (Mezirow, 1981:6).

Significant role taking processes then can stimulate more complex perspective taking, which is an important experience for intellectual growth. Bruner (1956) sees cognitive development as a movement from action-knowing by knowing how to do, to symbolic representation. Role taking is the "action" stimulus leading to symbolic representations of not only the present but also the possible.

Mezirow maintains that this process toward more complex thinking requires the development of self consciousness which allows the individual to distinguish between experienced psychological reactions and external events. This is in fact what significant role taking hopes to initiate.

This self awareness is a precondition for developing the capacity to categorise the same stimuli according to several different criteria or points of view. ....Perspective taking then becomes the indispensable heuristic for higher level cognitive and personality development (Mezirow, 1981:15).

2. Careful and Continuous Guided Reflection.

The notion that reflective thinking promotes learning processes which mirror high stages of development (Boud, Keogh and Walker, 1986) is not new (cf Kemmis, 1985). Dewey (1933) had been most influential in promoting the concept of "reflective activity" in learning. "Learning comes through a combination of action and reflection. Experience
alone does not promote growth" (Feiman and Flodan, 1980:135). This involves the perceptions of relationships and the connections between the parts of an experience. "Dewey believed that it was this kind of activity that enabled effective problem solving to take place and that it improved the effectiveness of learning" (Boud, Keogh and Walker, 1986:12). The development of reflective learning generally occurs from exposure to "critical teaching". Shor (1980) asserts that critical teaching assists adults to become aware of their "taken for granted" ideas about the world (Diamond, 1986:10-11).

If such a process is to occur, then the inductor adopts a variety of roles (propagandist, antagonists, resource person, advocate of missing perspectives, group member) and employs a variety of strategies, so that the act of education is seen in a broader perspective than a lesson or lecture (Hounsell, 1984). Reflection demands that contextual appreciation be developed "so that cognitive skills are acquired in the exploration of genuine student experiences" (Brookfield, 1987:80).

Such a process can liberate the learner, since alternative perspectives become apparent, and creative energies may be released on new self identified learning goals (Mezirow, 1977:157). Mezirow asserts that a learning cycle (see figure 2.2) is established as the result of reflections on the dissonance between former beliefs and these new situations (cf Argyris, 1982:38). This results in a perspective transformation - a new vision, that may stimulate an emancipatory process of learning. This has been articulated as a goal for education in Papua New Guinea (Matane, 1986:11-12).

Mezirow (1981:11-16) asserts that perspectives are one of the constitutive elements of human experience and that individuals reflect upon their thoughts, feelings, behaviour, albeit at various levels. He specifies seven of these, though the last three refer to the critical reflection which is more likely to occur in an adult.

1. reflectivity: awareness of specific perception, meaning, behaviour
2. affective reflectivity: awareness of how the individual feels about being perceived, thought or acted upon;
3. discriminant reflectivity: the assessment of the efficiency of perception, thought, action or habit;
4. judgement reflectivity: making and becoming aware of value judgments about perception, thought, action or habit;

5. conceptual reflectivity: self reflection which might lead to questioning of whether good, bad or adequate concepts were employed for understanding or judgements;

6. psychic reflectivity: recognition of the habit of making percipient judgements as the basis of limited information;

7. theoretical reflectivity: awareness that the habit for percipient judgment or for conceptual inadequacy lies in a set of taken for granted cultural or psychological assumptions which explain personal experience less satisfactory than other perspectives with more functional criteria for seeing, thinking or acting.

Mezirow claims that the last of the seven levels of reflectivity is essential in the process of promoting intellectual independence (Gamson, 1984).

Yet it is a fact, that not all adults wish this freedom and may deliberately resist (Brookfield, 1986:67). Freire (1986) asserts that tertiary personnel who opt for this type of process need not only competence but courage (Brookfield, 1987:81).

In an extensive review of the literature, Simpson (1980), postulated among other things, that a distinguishing characteristic of adult learning was the use of personal experience as a learning resource.

Past experience is an essential component in adult learning, both as a base for new learning and as an unavoidable potential obstacle (Brundage and Mackeracher, 1980:32).

3. Balance between real experience and discussion, reflection, teaching.

They like their learning to be problem centred, with relevance to their life situation (Brookfield, 1986:31). Indeed, it is conditions such as these which promote an intrinsic motivation which may stimulate a deeper and more reflective learning outcome (Marton and Saljo, 1984:51). However, too many experiences, and excessive workloads especially if they are related to assessment requirements (Entwistle, 1987:22) produces intellectual constipation and surface learning (Ramsden 1984:150). Time is essential for guided reflection to process the experience and "convert action that is merely appetitive, blind and impulsive into intelligent action" (Dewey, 1933:214).
Kolb, Rubin and McIntyre (1974) have researched extensively into the learning process and have formulated an experiential learning model to emphasise the important part experience plays in the learning process. A detailed elaboration and critique of this model will be undertaken later in section two of this chapter.

A strategy employed in the curriculum design of years one and two of the BEd T. program in order to promote reflection (cf Walker, 1985:63), while judiciously permitting the observer a personal shared insight into the developmental processes of the learner (Warner, 1971:289) is the students' writing of "reflective" journals. The research literature (Bowden and McKinnon, 1980; Flower and Hayes, 1986; Nolan, 1979; Rainer, 1980; Yinger and Clark, 1981) supports the notion that "In reflective writing ...we
externalise our thoughts on paper... and *think about our thoughts*, and then possibly redraft them. In this way, we often discover what our thoughts really are" (Biggs and Telfer, 1987:144; cf Becker, 1986:18).

For teachers and educators "introspective writing" can be a helpful strategy toward independence and self responsibility for professional development. Writing can be a cognitive catalyst for clarification of assumptions, exploration of "taken for granted" teaching strategies and routines and a refocussing on the contexts which promote student learning, all of which may be challenging and, or stressful (Flower and Hayes, 1981). Indeed a "disequilibrium so valuable in challenging (learners') present values and thought structures and helping them develop new modes of thinking" (Meyers, 1986:93), is often a necessary pre-requisite for permanent cognitive development.

We allow ourselves to be vulnerable when we question ourselves. Our humanness shows. We sometimes feel threatened by change and the discomfort that accompanies the cognitive dissonance arising from the difference between our image of ourselves and our behaviour. To write introspectively means to march, if slowly at times, through barriers to discover the motives and circumstances that influence our behaviour. To write reflectively means to write thoughtfully, deliberately, and considerately (Holly, 1984:12).

Moreover, for research attempting to explore the world of the learner "from within", journal entries may be a rich, albeit, private, even semi sacred, source of data (Potts, 1981:100).

4. **Programs need to be Continuous**

Exposure to single courses of a term or less, is unlikely to provide the necessary quality experience sufficient, to promote significant conceptual realignment. Research by Harvey, Yarger and Joyce (1978) document the relative ineffectiveness of brief, episodic short course learning. Thies - Sprinthall (1984:54) suggests that the "time for significant change probably should extend over at least a six month to one year period with meetings at regular intervals, usually weekly".

Griffin (1987:212) in assessing the various processes that significantly promote adult learning noted that "each (significant learning) process was experienced over a period of time".
5. Instruction needs to provide for both personal support and challenge. Researchers have observed that conflict is an important process in development (Chaiklin, 1987:85). The concept of cognitive dissonance was development by Festinger (1957) and explains well Piaget's concept of equilibration in the process of integrating new learning and experiences which act as a stimulus to higher stages of development. Festinger maintains that when two beliefs conflict, or a held belief is inconsistent with new evidence, a state of cognitive dissonance occurs. New information is not able to be assimilated into the present cognitive structure. Now, in a supportive context, and if the challenge is not too great, then an accommodation process will be initiated; a greater cognitive complexity occurs in order to incorporate the new data (Barrow, 1986:61). Kuhn (1979:353) aptly summarised Piaget's (1977) most recent discussion of the process.

What is initially a disturbance from the outside gives rise to simple regulations and then to more complex compensating reactions. These compensations eventually reach a form having complete symmetry, and what were initially disturbances becomes systematic transforming agents within the system. In other words, they lead to an enriched, more highly differentiated structure.

The question to pose is: How is such a process deliberately promoted within an educational environment (Gunstone, Champagne, Klopfer, 1981)? Hunt (1975) suggests a delicate modulation of psychological states through his principle of "optimal mismatch", a theory implicit in Piaget's discussions of imitation (Piaget, 1951). Development is promoted, accordingly, when one is exposed to an environment at a structural level "optimally mismatched" to one's own existing structural level, that is: training environments should be orientated just above the level at which someone functions most comfortably. If the optimal mismatch is achieved, the teacher can function adequately but is "pulled" toward greater development (McKibbon and Joyce, 1981:254).

The implication here, is that it behoves the teacher to provide a variety of learning tasks and employ a variety of teaching strategies (Ramsden 1984:163).

The underlying premise of such a rationale is that teaching competence is clearly acknowledged by the teacher to be correlated to the students' experience of learning (Bowden, 1986:16–17; Brown and Atkins, 1988:161ff), a phenomenon that surprisingly is not usually the norm in higher education (Hounsell, 1984:189).
While it is accepted that in the process of introducing cognitive dissonance into a student's framework, some discomfort is experienced, it is also acknowledged that judicious support is perceived as very desirable, at least for some students (Marton and Ramsden, 1987:159).

McKibbon and Joyce (1981:284) view the concept of support in deeper terms than an accepting milieu which would promote risk taking (Brookfield, 1987:74–75). They contend that a "social ecology" must be generated among teachers, so that the individual would be enriched and encouraged to dare because of the "pull" from competent supportive and critical professionals. They term this a "self actualising" social climate and contrast it with a social climate dominated by a "survival" orientation, whereby a teacher's professional and, or personal life is not comfortably under control. This in turn precludes any inclination, or indeed capability to deviate from a controllable status quo. This may be a partial explanation of the conservatism in the teachers' colleges that is discussed in Chapter Six. The implication here is that teaching is only part of any teacher's life and that personality and environmental factors have a considerable impact in the cognitive development of any individual. This being the case, ironically, these issues seem not to be addressed directly in the cognitive development literature. The issue of environmental factors will be pursued in this chapter in section five and in Chapter Three.

LIMITATIONS OF THIS MODEL.

Hunt (1978), whose studies are readily cited in support of the cognitive development model has voiced clearly the need to acknowledge and incorporate the personality and environmental relationship interplay in the dynamics of studying and learning, and repudiates his previously held position that practice should be derived from developed and empirically verified research.

...developmental theory does not and can not directly lead to the derivation of specific programs. The traditional theory to practice is an illusion both because of its assumption that psychological ideas can be expressed in abstract and impersonal principles without regard to persons, times and places, and because of the corollary that such abstract knowledge can be directly applied to the impure world of practice (Hunt, 1978:250).

Possibly Hunt is overstating his case in that some of the strategies already referred to, incorporate a practice, theory, practice cycle, but he directs the attention of researchers
to the importance of the dynamic of "person" in a particular environment, at a certain time. All too often the researcher, in an attempt to control these variables, seems to accept the denial of the "messiness" of people, by the use of terms such as "sample", "subject", "experimental group", "control group". When research on learning focused on students in classrooms rather than on rats in laboratories, or the remembering of nonsense syllables (Entwistle, 1984:5-6), experimental design procedures become more complicated. Hunt recognised this and noted that in educational research, which monitors a curriculum or teaching strategy intervention, there is criticism of results, since Hawthorn or the Rosenthal effects, it is argued might have contaminated the data. He replies that such interventions by nature are intent on helping the learner to build meaning. Real teachers are not "paint-by-numbers" computer programmed automatons (Hunt, 1976b:213).

As long as Hawthorn effects and expectancy effects are lumped into "threats to validity", not only will research not apply to practice, but the questions of why teachers teach will remain unanswered... If the conditions were completely objective and neutral, it is doubtful if any implementation would ever occur (Hunt, 1976b:213).

These issues are discussed in some detail in Chapter Five, Design of the Research. This problem becomes all the more manifest when one attempts to evaluate intervention. Fortunately or unfortunately, an easily used instrument for cognitive development has not yet been fully developed (Barrow, 1986:337).

This situation becomes all the more concrete, when the dynamics of an actual cognitive development intervention program are considered. Because educators are concerned with learning, they will "read and flex" with the students' "pull". Indeed, they will actively intervene, so that it is not clear if the program, and, or other combinations of variables (e.g. teacher's personality) contributed to the data outcome. To do otherwise would (at least in the eyes of an educator) be a miseducation, though possibly it might be considered to be more scientific since the educator here "is gauged by how well he functions as an organism and how much he avoids being a person" (Hunt, 1978:256).

A number of psychometric instruments have been employed to measure perceived growth in aspects of cognitive development e.g. sentence completion test for ego development stage (Loevinger and Wessler, 1970); paragraph completion methods for
conceptual level (Hunt and Butler, Noy and Rosser, 1978); and the Defining Issues Test for moral development (Rest, 1974). The most frequently employed practice is to administer a test and then to monitor differences before and after the intervention. Results, are then expressed in terms of units of stage increase, for example $+\frac{1}{3}$ stage (cf Perry, 1981:102), whatever that may mean. In other words, not much information about anything is obtained. Parlett and Hamilton (1977:22) in their criticism of this type of evaluation which they labelled as the agricultural–botany paradigm, noted that such an evaluation "is like a critic who reviews a production on the basis of the script and applause meter readings, having missed the performance". According to them, the way forward was for a more illuminative evaluation model. Indeed, Glassberg and Sprinthall (1980), pioneers of the cognitive development model have suggested the same thing, when discussing the limited and guarded interpretation of results that psychometric instruments offer.

Other indices, such as an analysis of student journals and recognition measurements of higher order teaching skills and reflective listening (empathy) skills, indicate that the developmental changes measured, related consistently to other behavioral assessments. In fact, reading the journals provides the clearest, yet most subjective evidence of the personal growth, conflict, disequilibrium, and gradual positive resolution of issue central to student teaching (Glassberg and Sprinthall, 1980:37).

Such a process, it would seem, would not only produce evidence of possible growth, but would offer a variety of data concerning how particular individuals grapple with a learning environment at a certain point in time. This, may be far more profitable to teachers and teacher educators, since they should be concerned about the promotion of learning.

It should not be concluded that all empirical methods are to be eschewed. They certainly can and do provide useful types of information for a data profile. "Interest lies not so much in relating different test scores but in accounting for them using the study's findings as a whole" (Parlett and Hamilton, 1976: 95).

CONCLUSION AND IMPLICATIONS.
The cognitive development model for teacher education does offer a particular insight of adult development of teachers in Papua New Guinea. Firstly, it provides a conceptual link between Beeby's stages of development and teacher development. It offers some
practical curriculum components that might ignite processes of cognitive dissonance. It highlights the importance of careful planning in course design. It demands that a variety of learning experiences and teaching strategies be incorporated into any course development. And finally, and because the model neglects the issue, it focuses the educator's attention on the dynamics of the teaching personality interacting in an environment at a given point in time, and that the monitoring of this, though difficult and time consuming will offer more insightful data about how the adult Papua New Guinea teacher learns.

Chapter Four will outline the courses offered in the BEd T. program and will illustrate how cognitive development theory influenced their design.

This model is not a panacea. The rationale it articulates is inviting, though the structures that would provide curriculum strategies are still evolving. The developmental approaches to the study of teacher growth avoid merely describing teacher change or describing teacher change without offering an encompassing theory (Feiman-Nemser and Floden, 1986:521). Implementing strategies that have been suggested appear rational and an attempt has been made to claim why they might excite cognitive development. Some are speculative or have been articulated in a context different from the cognitive development model. The point being made is that theory in this area is sparse and that what is available should be examined and utilised judiciously, if it is considered appropriate for this Papua New Guinea context.
KOLB'S LEARNING CYCLE
Dewey (1938:25) postulated that... "all genuine education comes about through experience (although this) does not mean that all experiences are genuinely or equally educative." David Kolb (Kolb, 1971:28) has explored an approach to learning that asserts this as first premise, in the attempt "to integrate cognitive and socio-emotional factors into an experiential learning theory" (Kolb, 1981:235). The conceptual basis is deceptively simple, as exemplified in figure 2.3 which illustrates how experience is translated into concepts, which in turn are used as guides in the choice of new experiences.

Figure 2.3
Concrete–Abstract Nexis in Experiential Learning.
Kolb suggests that learning consists of a four stage cycle. The immediate, concrete experience is the basis and catalyst for observation and reflection from many perspectives, which in turn is the data for hypothesising and the generating of logically sound "theory" from which decisions may evolve, problems be solved and implications deduced. These potentially new experiences may be actualised and if so, they need to be reflected upon, so that "this learning cycle is continuously recurring in living human beings" (Kolb, Rubin and McInytre, 1971:28). Consequently, there are four elements in the learning cycle:

- concrete experience (CE) – feeling
- reflective observation (RO) – watching
- abstract conceptualisation (AC) – thinking
- active experimentation (AE) – doing (Stice, 1987:105)

Kolb places these elements in sequence in his model, though it is possible to begin the learning process anywhere in the cycle. Moreover, on closer examination, the model suggests that learning requires abilities that are polar opposites, within two primary dimensions. The first dimension represents the concrete experience at one end and abstract conceptualisation at the other. The other dimension has active experimentation at one pole, while reflective observation is at the other (Figure 2.4). Consequently, in the dynamics of learning, the learner moves in varying degrees from participant to observer, while simultaneously moving from specific involvement to general analytic detachment.

Figure 2.4
Kolb's Learning Cycle.
Kolb maintains that his perspective is consistent with Piaget's theories of learning.

The two dimensions represent the major directions of cognitive development identified by Piaget. In his view, the course of individual cognitive development from birth to adolescence moves from a phenomenalistic (concrete) view of the world to a constructivist (abstract) view and from an egocentric (active) view to a reflective internalised mode of knowing. Piaget also maintains that these have also been major directions of development in scientific knowledge (Piaget, 1970). Much other research has focused on one or the other of these two basic dimensions (Kolb, 1981:236).

See figure 2.5 for diagrammatic representation of Piaget's model of learning and cognitive development.

**Figure 2.5**

Piaget's Model of Learning and Cognitive Development.
Education from the perspective of formal schooling, can be described in terms of development in cognitive growth along the concrete abstract dimension (Piaget, 1961; Beeby, 1966; Loevinger, 1976; Kohlberg, 1969; Perry, 1970; Hunt, 1974). Moreover, Goldstein and Scheerer (1941:4) have asserted that increased abstraction promotes the development of the following cognitive characteristics which would assist teacher educators in better understanding the complexities of educating young PNG student teachers.

1. To detach our age from the outer world or from inner experience;
2. To assume a mental set;
3. To account for acts to oneself: to verbalise the account;
4. To shift reflecting from one aspect of the situation to another;
5. To hold in mind simultaneously various aspects;
6. To grasp the essential of a given whole: to break up a given into parts, to isolate and to synthesise them;
7. To abstract common properties reflectively; to form hierarchic concepts;
8. To plan ahead ideationally, to assume an attitude toward the more possible, and to think and perform symbolically.

By contrast, at the concrete stage, thought is limited to the "direct organisation of immediately given data" and cannot be "immediately generalised..." (Inhelder and Piaget, 1958:249–50). Concrete thinking remains essentially attached to the existential physical reality. As a consequence, educational conservativism and an excessive emphasis on "technical rationality" (Schon, 1983) (e.g. the best teaching method or the production of programs of work) become dominant. The maintenance of the status quo inevitably results. There is strong evidence to suggest that in general, most beginning university students at UPNG are operating at concrete operational thinking or at a transitional level (Jones, 1973; Jones and Rasmussen, 1975; Murphy 1981; Wilson and Wilson, 1981), while Lewis and Ramsley (1977:194) maintain that PNG student teachers would certainly be at a similar stage.

It should not be assumed that concrete thinking is to be considered somehow "bad", while abstract processes are "exclusively good" (cf Kolb, 1974:136). Both processes are important, while those who have the ability to think abstractly, may well have the potential to be more intellectually independent, in that such a thinker can choose from a variety of alternative ways, a direction towards a solution. He may have the ability to perceive problems, where a more concrete thinker does not perceive that there is a problem. It should be noted also that the term "abstract" be not defined exclusively from
a Piagetian perspective, as Riegel (1973) has argued, and which has been elaborated upon by the Nottingham Andragogy Group (1983). This notion will be discussed in some detail in section four of this chapter. The point being made is that students, and more particularly teachers should be able to utilise both concrete and abstract thinking. The difficulty in PNG is that there appears to be an over reliance on concrete operations (McLaughlin, 1989d). It would seem that it is appropriate for teachers in higher education to plan learning experiences that might promote in students an ability to use a combination of both which would be a real asset in the pursuit of understanding, and the acquisition of problem solving skills. "The combination of all four of the elementary learning forms produces the highest level of learning" (Kolb 1984:68).

...when we consider the highest form of learning through creative insights - we note a requirement that one be able to experience anew, freed somewhat from the constraints of previous abstract concepts ... Bruner (1966), in his essay on the conditions for creativity, emphasises the dialectical tension between abstract and concrete involvement. For him, the creative act is a product of detachment and commitment, of passion and decorum, and of freedom to be dominated by the object of ones inquiry (Kolb, 1981:236–37).

The other continuum of the cycle is the active-reflection dimension of cognitive growth and learning. Active experimentation and reflection stand at opposite ends of the continuum, since thoughtful reflection for most tends to inhibit action and vice versa (Kogan, 1971). Indeed, it has been demonstrated that active orientations towards learning situations inhibit reflection which is the trigger for the development of analytic concepts (Kagan, Rosman, Day, Albert and Phillips, 1964). There is a problem in relating active experimentation/reflection continuum to the PNG context. On initial observation of PNG classrooms, there appears to be plenty of activity though at least some of it lacks understanding on the part of the teacher (Avalos, 1989; McLaughlin, 1989d; Otto, 1989; Pearse 1990). One noticeable feature of a PNG classroom is the apparent industry of teachers and students without either communicating (Smith, 1975:6). This activity is not active experimentation. Indeed given the processes of traditional learning (McLaughlin, 1988b) and teacher training (McLaughlin, 1990a) and the current inspection system (Avalos, 1989; McLaughlin, 1988c; Ross, 1989) teachers are not encouraged to actively experiment.

It is this researcher's belief that reflection does occur but this is in the context of improving the concrete dimension (e.g. the acquisition of a teaching skill or method).
Reflection does not seem to lead to generalisation. Part of the research for this thesis focussed on the possibility of a PNG preferred learning style. Chapter Six discusses in detail the apparent peculiarity of PNG teachers' processes of learning.

To summarise, it is anticipated that teachers involved in in-service programs would be inclined to learn primarily through the concrete dimension. The teaching implication from such information is that much learning should start with concrete experiences but provide strategies to incorporate all dimensions of the cycle. Secondly, the areas that need more gradual attention, since they seem to be neglected are reflective observation, abstract conceptualisation and active experimentation. Cox urged UPNG staff to change from a transmission mode of teaching primarily through "serious reflections upon different ways of looking at problems in teaching and learning " (Cox, 1985:24). One example of a practical follow through of Cox's exhortation is in an investigative study that student lecturers conduct during their internship year. They identify with a particular student class, participate in all lectures with that group, go to meals as well as join in sporting activities with those students. The focus of the investigation is to experience from the "inside" what it is like to be a student in a teachers' college, and more particularly what is the quality of the learning experience that is planned by the lecturing staff. Nightly the student lecturers write a reflective journal entry which will form the basis of a report. Such a project demands that lecturers step back from the "grind" of their daily activity and reflectively analyse its purpose and impact (Stice, 1987:106). Kolb's insight has contributed much to the development of curriculum in the BEd T. program as Chapter Four details.

Kolb's work is made all the more practical with his development of the Learning Style Inventory (LSI) and the Adaptive Style Inventory (ASI). These instruments permit the identification of preferred learning styles as well as stimulating discussion on neglected learning processes (Kolb, 1984:68). The latter instrument has the ability to assess the integration of the four learning modes in an individual (Kolb, 1984:213–217).

CRITICISM OF KOLB
Kolb acknowledges that his perspective on learning is in the cognitive tradition (Kolb, 1981:235), and it is this stand that invites criticism from Jarvis (1987:17–20). He maintains that such a perspective must limit the breadth of the learning experience, by
neglecting the perceptual, the affective and the practical (cf Miller, 1987:51). Jarvis asserts that individuals respond to a learning situation from a variety of perspectives not just a cognitive one (Jarvis, 1987:17). Kolb would not disagree. Because he insists that his theory acknowledges the important role that experience plays in the learning process, then this makes it so different from other cognitive theories. His experiential learning theory sought to integrate the cognitive and socioemotional factors of the individual (Kolb, 1981:235), by focusing upon real experience. This of course is not isolated to cognition. Jarvis more successfully argues that the stages of Kolb's cycle are not necessarily sequential, since the reading of books and journals associated with a PhD thesis for example, itself involving abstract conceptualisation, would most likely prompt reflection, rather than active experimentation. Schon (1983:49–69) with regard to reflection-in-action, maintains that active experimentation is followed directly by reflection or that they occur almost simultaneously. Nevertheless, in the context of educating Papua New Guinea teachers, it seems a very appropriate model to utilise in the development of more complex cognitive skills, since most teachers appear to naturally operate at the concrete experience level, while very few seem inclined to progress toward the other dimensions of the cycle.

Jarvis argues that there are learning styles other than the ones that Kolb discusses (cf Knox, 1977:477–8; Jensen, 1987). Indeed, Kolb writes at some length comparing experiential learning theory to Jung's theory of psychological types (Jung, 1921) and the Myers–Briggs Type Indicator (MBTI) (Kolb, 1984:81–85). In his discussion, he implies that he is not claiming that his model of learning style is the only one, but a perspective taken from the stance of this theory. In his comparison of his learning styles with MBTI, Kolb is more interested to ascertain correlations about overall validity of the perspective, than to prove superiority of one over the other. The point pursued by Jarvis is true, but it is a non issue.

Another criticism that seems to lack substance is that "when using Kolb's learning style inventory, it has been observed that individuals who have been replicating their assessment of their own learning style have not achieved consistent results" (Jarvis, 1987:19). Such an observation seems to indicate a lack of appreciation of the theoretical basis of the experiential learning model, which calls for an integration of less preferred or neglected learning modes. "Fulfilment, or individuation as Jung calls it, is
accomplished by higher-level integration and expression of non dominant modes of dealing with the world" (Kolb and Fry, 1975:50). Although one may always have a preferred learning style, growth, development, experience and reflection may incline one for some periods to operate from another mode. Kolb's theoretical basis clearly asserts that "basic life orientations are a function of dialectical tensions between basic modes of relating to the world" (Kolb, 1981:248). This implies the expectancy of change. Kolb is far more explicit when he postulates that adult development is a function of adaptive flexibility and integrative development (Kolb, 1984:13) and as a consequence has developed the Adaptive Style Inventory (ASI) as a means of assessing levels of adaptive flexibility quantitatively. If one is really learning from reflective experience, consistent results should not be expected. That does not preclude that one is truly aware of a basic preferred mode of learning, though at times the inventory may not indicate this. This situation is common enough with the MBTI for the same reasons. In the light of this, McCaulley (1985) proposed:

that a better term than 'true type' which indicates more certainty than is possible would be 'currently best-fit type', to allow for growth and development (Lynch, 1987:15).

It should not be concluded that Jarvis is a Kolb iconoclast. He clearly acknowledges that it was Kolb's theory that was one of the stimuli that led to his own model, which has much to offer, and meets his criticisms of the Kolb learning cycle (Jarvis, 1987:20). As can be seen (Figure 2.6), a Kolbian influence in Jarvis's model is very noticeable. This model is insightful but Kolb's model, with its rationale and assorted instruments is more directly helpful to those associated with adult learning among teachers in Papua New Guinea.

CONCLUSION

What Kolb has offered to educators is an approach to learning that asserts in the words of Dewey (1938:25) that "all genuine education comes through experience...". For that experience to be an educative one, it has to be examined and reflected upon from a variety of perspectives. This process is the source for the generation of new data for hypothesising and for the evolution of theory from which decisions are made, problems are identified and solved and implications are deduced.
Kolb gives the PNG educator a structure to combat rote teaching through serious reflection upon the problems of learning and teaching in PNG (cf Cox, 1985:24). Moreover, Kolb "offers" not a "cargo" in terms of another curriculum innovation or teaching methods, (generated from the West?) but a conceptual understanding and strategy from "within" (cf Luke, 17:21) which has the potential to permit teachers to be more independent since it provides an insight for personal problem solving (Gamson, 1984; Freire, 1986; Matane, 1986:11).

Kolb's experiential learning cycle offers to teachers in higher education in Papua New Guinea, a model for promoting more complex conceptual processes, while incorporating concrete experiences that have almost completely dominated the thinking of inservice teachers.

Figure 2.6
Jàvis's Model of the Learning Process
SECTION THREE

STAGES OF INTELLECTUAL AND ETHICAL DEVELOPMENT

In a study that attempts to monitor the ways in which teachers' concepts of learning and knowledge develop as they pursue further higher education, it is appropriate to review Perry's (1970; 1981) developmental continuum, since it is claimed to be the "most comprehensive theory to result from this area of concern" (Nottingham Andragogy Group, 1983:10).

Based on interview research conducted with Harvard undergraduates from 1954 to 1968, Perry and his associates identified and followed variations in students' perceptions of knowledge and values as they experienced higher education over time. As a result, Perry has postulated a developmental scheme to describe, as well as provide a rationale for the observed patterns of changes (Candy, 1988:68–67).

Perry's scheme is in the same cognitive development tradition as Kolberg and Loevinger, sharing similar assumptions and constructs, in that it monitored changes in students' internal cognitive structures. Perhaps this needs further elaboration. A cognitive structure is a set of perceptions and beliefs about reality which acts as an interpreter on how an individual construes the environment, which in itself becomes the basis for future behaviour (Baxter – Magolda and Porterfield, 1985:344). Perry suggested a scheme of intellectual development proceeding through a generally irreversible sequence of developmental stages, moving from a simplistic or absolute perspective or cognitive structure on the fundamental nature of knowledge to a complex, pluralistic structure (Richardson, 1987:6). In all, Perry identified nine positions along the dimensions of intellectual and ethical development. Independent qualified raters have verified these categories as "characteristic of the development of students' thinking throughout a variety of educational settings" (Perry, 1981:78). Below is an explanation of Perry's positions:
Position 1
The student sees the world in polar terms of we–right–good vs. other–wrong–bad. Right answers for everything exist in the Absolute, known to Authority whose role is to mediate (teach) them. Knowledge and goodness are perceived as quantitative accretions of discrete rightness to be collected by hard work and obedience (paradigm: a spelling test).

Position 2
The student perceives diversity of opinion, and uncertainty, and accounts for them as unwarranted confusion in poorly qualified Authorities or as mere exercises set by Authority "so we can learn to find The Answer for ourselves."

Position 3
The student accepts diversity and uncertainty as legitimate but still temporary in areas where Authority "hasn't found the Answer yet." He supposes Authority grades him in these areas on "good expression" but remains puzzled as to standards.

Position 4
(a) The student perceives legitimate uncertainty (and therefore diversity of opinion) to be extensive and raises it to the status of an unstructured epistemological realm of its own in which "anyone has a right to his own opinion", a realm which he sets over against Authority's realm where right–wrong still prevails, or
(b) the student discovers qualitative contextual relativistic reasoning as a special case of "what they want" within Authority's realm.

Position 5
The student perceives all knowledge and values (including authority's) as contextual and relativistic and subordinates dualistic right–wrong functions to the status of a special case, in context.

Position 6
The student apprehends the necessity of orienting himself in a relativistic world through some form of personal commitment (as distinct from unquestioned or unconsidered commitment to simple belief certainty).

Position 7
The student makes an initial commitment in some area.

Position 8
The student experiences the implications of commitment, and explores the subjective and stylistic issues of responsibility.

Position 9
The student experiences the affirmation of identity among multiple responsibilities and realises Commitment as an ongoing, unfolding activity through which he expresses his life style (Perry, 1970:9–10).
Perry has summarised his model into three main divisions:

1. **DUALISM (positions 1,2 and 3)**
   Students at this stage have a dualistic view of knowledge, and see themselves essentially as receptacles ever ready to be filled with "truth" and more information. Dualistic learners assume that knowledge potentially can be classified as either right or wrong and that uncertainty is a temporary phenomenon which will be eventually resolved when an authority finds the answer. The focus of learning then is to find, know and reproduce right answers. Position three students successively change their beliefs because of their perceptions of uncertainty. They gradually accept that the feeling of uncertainty has some sort of legitimacy. Dualism describes conceptions of learning experienced as the norm by most teachers and students in formal education in Papua New Guinea (Wong and Swan, 1984; Lindstrom, 1990).

2. **RELATIVISM (positions 4,5,6)**
   The student at the stage of relativism is gradually recognising that knowledge is no longer an absolute but very much relative. "Truth" is now perceived as a rather insignificant quality in the context of the broad realm of knowledge which is to be recognised as uncertain. Such a situation often promotes a sense of directionlessness, "of being lost and alone in a chaotic world" (Widick, Knefelkamp and Parker, 1975:289). Resolution comes with the acceptance that a multiplicity of answers to problems are legitimate. Moreover, students tend to become better able "to identify assumptions, analyse events, evaluate points of view and consequently make choices, with the assumption that each situation may have its own unique solution" (Barrow, 1986:60). It is in fact these types of skills, that have been identified as needed by students at tertiary institutions in Papua New Guinea, but as yet their adoption is not overly evident (Cox, 1985:12).

3. **COMMITMENT TO RELATIVISM (position 7,8,9)**
   At this stage, the student develops a set of personal values and adopts moral stances while willingly permitting others to hold differing views. "They feel strong commitments to their beliefs, yet they recognise that other truths might exist and are consequently tolerant of others" (Barrow, 1986:60). Movement through this stage is essentially related to the student's formation, recognition and affirmation of an identity,
which is immersed in their commitments to value systems, career directions and relationship decisions, which are not always fully resolved, but open to degrees of scrutiny and reassessment (Widick and Simpson, 1978:30; Perry, 1981:94–96). This is not an indication of indecisiveness, but a manifestation of dialectical thought, which explains why an individual may embrace viewpoints in contradiction to previously held ones, and so avoid compartmentalising life (Perry, 1981:97).

When a student reaches the third stage of relativism he realises that knowing and valuing are both relative in time and circumstances. The individual is faced with the responsibility and commitment: a student who accepts this third level generally shows a strong sense of his own identity and work. He is in command of his own learning (Main, 1980:12).

Since such a position is complex and involves a variety of other variables, it is highly unlikely that students move towards this position in the space of a semester or two (Perry, 1981:89).

THE PROGRESSION THROUGH THE STAGES
Perry proposed that it was the norm for undergraduates to operate in a dualistic stage and progress toward relativism throughout their three or four years of university. It should be noted though, that students do not evenly progress from one position to the next. Most students' development occurred in spurts and jerks and there was evidence of "lags in growth, which possibly was a necessary pause either for integration of new learning or the result of excessive environmental pressures" (Perry, 1981:89). The point being made here and central to the theme of this investigation is that development is an interactive process and the learning environment can either stimulate or hinder students in their growth.

Figure 2.7 is the Perry scheme illustrated in terms of a series of qualitative changes that contribute to a developmental sequence. This articulation of stages of change gives insight for the development of curriculum strategies that would better match students' in terms of the Perry scale. This will be explored later.

IS PERRY'S SCALE USEFUL IN PAPUA NEW GUINEA?
Perry's model was developed at Harvard university and it could be asserted that its application might be restricted to the white, male, anglo-saxon, middle-class population.
However, the model is described as essentially "a way of describing growth in cognition, care and selfhood" as students progress through a liberal education which demands more complex thinking from them (Perry, 1982).

The type of education experienced at UPNG is essentially based on a western liberal education model as its present vice chancellor asserted "... education at UPNG is basically a Western Education... . Simply because we are educating in English, we are communicating English – orientated ideas" (Lynch, 1980:6). Moreover, those involved in tertiary education continually lament that students manifest beliefs and behaviour typical of dualistic thinking, while few exhibit behaviour which would indicate relative thinking (Dutton, 1977; Markwell, 1975; Smith, 1975; Wong and Swan, 1984).

Certainly traditional Melanesian education practices deliberately promoted dualistic thinking, for the very good reason that an agreed upon set of beliefs and practices fostered most effectively those structures that secured safety for the village (McLaughlin, 1988b). Dissension and a plurality of viewpoint weakened the necessary solidarity for clan survival in an often hostile environment. Chapter Three explores this concept in detail. Where Perry's scheme might be helpful is to stimulate the lecturer to ascertain how his message is being received by the listener, a move recommended to academics in Papua New Guinea (Jones 1974:2). When a lecturer offers his meaning, students make their meaning out of it (cf Bulmer, 1971; Lynch, 1980). How similar these are, depends more than just on the clarity of the explanation (cf Brown and Atkins, 1988:8–10; Jordan, 1987; McLaughlin, 1989a ). Students thinking dualistically cannot comprehend when addressed relativistically, and so panic. On the other hand, students thinking relativistically comprehend thoroughly when dualistically taught, but become easily bored. An example of this is in the setting of assignments. Students at the dualistic stage want a topic that is generally clear and prefer assistance in how to structure the essay. Many questions are asked about the number of words that should be in each section. The need for structure is justifiably important, though many view quality work in terms of the number of pages done and the quantity of information.
Figure 2.7
The Perry Scheme Illustrated in Terms of a Series of Qualitative Changes.

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<tr>
<th>STAGES</th>
<th>COMMITMENT WITHIN</th>
<th>RELATIVISM</th>
<th>MULTIPLICITY</th>
<th>DUALISM</th>
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<td>Ability to Be Inactive</td>
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(uncritically?) transmitted. Such students may receive back from a relativistically thinking lecturer, an assignment decorated extensively with red coloured comments, cross outs and arrows. These invariably convey connotations to students of their lack of success at the task. They then experience a sense of panic. Indeed they have conscientiously followed directions, and devoted considerable time and effort to an unfamiliar task. They believed they had carried out instructions correctly. Shame and a sense of failure often follows. Students then want to "give up" because of their perceived inability to do assigned tasks and the natural desire to avoid similar shaming in the future. (For a more complete appreciation of the experience of shame for Papua New Guineans see Epstein, 1984). Moreover, it is to be culturally insensitive to Melanesians to convey "personal inadequacies" through the medium of impersonal comments on assignments. Invariably the academic feedback by the lecturer is submerged in the student's feelings of shame and anger with the lecturer, as well as in frustration with university work.

One way to avoid this blunder, while encouraging students to develop more relativistic cognitive processes is to have students present a series of drafts for assignments, with follow up private personal interviews at which assignments are returned. Written comments are conveyed in a personal context and their interpretation is the one that is meant by the lecturer, since verbal explanations are fuller and the student can ask further questions. As few or no marks are allocated to the process, the student is given constructive information as well as the motivation to attempt a better next draft. Relativistic thinking cannot be educated quickly but structure, problematic and interesting tasks as well as clear and relevant feedback in a supportive climate are means for generating its promotion.

THE APPLICATION OF PERRY'S MODEL TO COURSE DESIGN.
Differences in reasoning about the nature of knowledge should consequently be reflected in the different ways students learn, or in the learning environments provided by teachers. It would seem reasonable to expect that students who operate from a concrete dualistic position would respond to a curriculum in ways qualitatively different from students who are more relativistic in their approach. Consequently, a curriculum would be more effective if it specifically attempted to meet students' academic needs closer to their preferred learning position.
As already alluded to, cognitive developmental models assume a certain psychological model of change. Barrow describes the process:

Development of greater complexity occurs as cognitive dissonance is produced by events that cannot be assimilated into their cognitive structures. If sufficient support is available and the challenge is not too great, accommodation will occur; thinking will be made more complex in order to incorporate the new information. If insufficient support is available or the challenge is too great, further development might not occur. Perry describes the phenomenon of 'retreat' in which an individual regresses to dualistic thinking at a time of intense stress... students' progress through the stages is more modest than originally envisioned (Barrow, 1986:60–61).

Data from thousands of interviews with students have suggested that students operating in a dualistic mode exhibit the following characteristics (Widick and Simpson, 1978:31).

1. Encounters with uncertainty or diversity are often very stressful.

2. Interpretive tasks (assignments) pose great difficulties; it is quite hard to "compare and contrast" an issue when one does not recognise that a variety of legitimate viewpoints exist.

3. Learning occurs at the direction of the instructor, the authority who has the "right" answers; independent approaches to a course are a decided exception.

4. Evaluation may take on an overwhelming importance; students may be confused about the criteria for giving grades and may pay excessive attention to procedural details (e.g. number of pages).

In contrast, students operating from relativistic positions respond to the learning situation as follows:–

1. In early stages of relativism, they turn the ideas of pluralism into academic license, emphasising the value of intuition;

2. They appear to manage their studies more efficiently and effectively; in particular, they are capable of performing complex, analytic tasks with some skill;

3. For them, learning has become more internalised, and they seem more able to use "freedom to learn";

4. In general, they express less concern about pleasing the teacher and evaluation procedures.
A teacher involved with students operating from a dualistic system, would need to develop teaching-learning strategies which would provide challenge, while simultaneously providing the necessary adequate support, which students would need. Teachers who desire to introduce alternative perceptions of reality to their students have to instigate "the disequilibrium so valuable in challenging (learners') present values and thought structures and helping them develop new modes of thinking" (Meyers, 1986:93). Elsewhere Meyers asserts: "One of the keys to teaching critical thinking successfully is to simultaneously challenge students' old modes of thinking and provide structures and support for the development of new ones" (Meyers, 1986:15). Figure 2.8 is an adaptation from Cox (1985) illustrating the areas of integrating support and challenge in the promotion of autonomous learning among Papua New Guinea students in the BEd T. program.

Research (Stephenson and Hunt, 1977; Touchton, Wertheimer, Cornfield and Harrison, 1978; Widick and Simpson, 1978) has suggested that this balance can be achieved through:

* structure
* personalism
* experience
* diversity

Figure 2.9 indicates the appropriate balance for dualistic students.

As this is a cognitive developmental model, the teaching-learning strategies are similar to those recommended by Sprinthall and Thies-Sprinthall (1983a; 1983b) in their model for teacher education. Moreover, the relevancy and applicability of Kolb is evident as is the research to be reviewed on adult learning in section four.

The Perry perspective on developmental growth provides a theory for the guided curriculum intervention so that student learning and critical reflectivity may be more purposefully promoted (Brookfield, 1986:144). In an environment which provides cognitive challenges and a variety of supports, it seems that students do progress through the developmental growth pattern that Perry hypothesised; they incorporate more complex ways of thinking about knowledge and values into their own cognitive structures, which appears to be the basis for a more competent teacher. Qualitative change in education would seem to occur only when teachers have an understanding of
Figure 2.8
Contextual Factors Illustrating Challenge and Support Factors for the BEdT Curriculum.
Figure 2.9
Sources of Challenge and Support for Students at the Level of Dualism.
the processes involved in learning (cf Beeby, 1979:291), to which Widick and Simpson allude in their discussion of a Perry basis curriculum intervention.

While this is not the only important type of development (cognitive), it does seem to be a crucial foundation for the kinds of learning and self analysis that comprise an examined life (Widick and Simpson, 1978:57).

CONCLUSION

A number of practical conclusions can be drawn that may influence the BEd T. curriculum. It is to be expected that students on entering higher education would be operating from a dualistic point of view. This is more so the case in Papua New Guinea, where traditional educational practices deliberately promoted dualistic thinking. This certainly behoves the thoughtful educator to teach accordingly and plan experiences and provide academic and emotional support appropriate for students operating from a dualistic mode, while simultaneously providing challenge for more relativistic learning. Accordingly, practical teaching principles have been articulated that while matching learning task with a student's cognitive stage, permits the judicious challenge and dissonance for further cognitive development.
SECTION FOUR

ADULT EDUCATION

ANDRAGOGY

Adult education has of late adopted a new title that supposedly bestows on it a more precise definition of its identity. It is being called by its proponents, "andragogy". The educator most closely associated with the term is David Knowles. He describes it as "simply another model of assumptions about learners, to be used along side the pedagogical model of assumptions" (Knowles, 1980:3) or "the art and science of helping adults learn" (Knowles, 1984:6). Andragogy is based on the principle that adults are at a similar general developmental stage, and that they have distinctive teaching and learning needs, which differ from children (Brundage and Mackracher, 1980:11).

Knowles does not assert that andragogy is an empirically based theory of learning derived from extensive research. It is in fact, a set of assumptions. A number of educators (Gibb, 1960; Miller, 1964; Kidd, 1973; Knox, 1977; Brundage and Mackracher 1980; Smith, 1983; Darenwald and Merrian, 1982) have postulated assumptions about how adults are perceived to learn. Their findings can be summarised as follows:

1. Adults learn throughout their lives, with the negotiations of the transitional stages in the life span being the immediate causes and motives for much of their learning;

2. They exhibit diverse learning styles – strategies for coding information, cognitive procedures, mental sets – and learn in different ways, at different times, for different purposes;

3. Generally, adults prefer learning activities that are problem centred and to be meaningful to their life situation and they desire immediate application for learning outcomes;

4. The past experience of adults affect their current learning, sometimes as a support, other times it is detrimental;

5. Effective learning is linked to the adult's perceptions of self as a learner;

6. Adults demonstrate a tendency toward self-directedness in their learning.
It has been argued that these premises could just as well be subscribed to by the educators of children and adolescents (Day and Baskett, 1982:149). Be that as it may, what might significantly be peculiar to adults is their application.

Though most adult educators, or "andragogues" as some prefer to describe themselves (Brookfield 1986:90), would concur with these principles, their application is rooted in a variety of perspectives. Knowles (1980:46) argues that a characteristic of developing "mature" adults is that they have arrived at a self concept of being responsible for their lives, of being self-directing in their roles of workers, parents, citizens, and leisure time users. However, he asserts that this is not the case in the formal education structures for adults, where they expect to be treated like children. "This conditioned expectation conflicts with their much deeper psychological need to be self directing and their energy is diverted away from the learning to dealing with this internal conflict" (Knowles, 1984:9). The task then for a "facilitator of learning" (not teacher, or lecturer) is to negotiate an education program and climate in which adult learners can develop potential self-directed, learning abilities. Knowles (1975) defines self directed learning as a process in which individuals take the initiative in designing learning experiences, diagnosing needs, locating resources, and evaluating learning. By implication, Knowles would assert that adults, who do not manifest these self directing behaviours are not "mature". Again by implication, the basic aim of adult education "would be the enhancement of the prescriptively desired conditions of adulthood" (Brookfield, 1986:93), which are waiting latently to be energised.

ADULT EDUCATION IN DEVELOPING COUNTRIES

Some of these assumptions need to be tested. Self directedness as defined by Knowles is clearly absent from much of the traditional Papua New Guinea life. Tyler (1871:1) postulates that the primary aim of education in preliterate societies was to faithfully transmit an accepted and shared way of life, a body of knowledge from one generation to the next (Smith, 1975:1). The practical as well as esoteric knowledge was given to the tribe by the gods (Lawrence, 1972:1010), and consequently unlike Western knowledge which theoretically is meant to be challenged, Melanesian knowledge was finite and not tested. Its divine source guaranteed its veracity.
...by western standards – especially western technological standards – the whole ethos is one of preservation and perpetuation, rather than deliberate innovation. The young Papua New Guinean villager is undoubtedly required to think, but he is not encouraged to think innovatively. Anyone who innovates or succeeds in becoming 'big', puts himself at risk (Wong and Swan, 1984:8).

This situation is common enough in most developing countries, where alternatives to the status quo are rarely presented or contemplated, – indeed there is a veritable "culture of silence" (Shaul, 1970:10).

Freire (1970:81) postulated that this lack of self directedness, was a diminution of an individual's autonomy which could only be promoted through a 'dialogue' embedded in critical thinking. Nor should it be thought that the absence of self directedness is unique to the third world, for the daily constraints of most in western societies, precludes adults having an autonomous control over all aspects of work life, personal relationships and educational pursuits (Brookfield, 1987:37).

The implication from this discussion is that while it is accepted that the enhancement of self directedness as well as the promotion of personal and social liberation (Freire, 1970:52) should be the proper purpose of an education enterprise, it is far too presumptuous to assert that self directedness is an empirically proven innate characteristic of mature adulthood.

This is not to confuse the concept of self directedness with the need to learn. Though research (Smith, 1983:31; Tough, 1979:1) suggest that western adults typically spent from 500 to 700 hours per year engaged in purposeful learning, most of which was self directed, such observations are not readily generalised, since original and later samples have been drawn from educationally advantaged populations (Brookfield, 1986:51). Tough argues that there are a variety of influential factors correlated with degrees of education which stimulate adults to begin and invest time in a learning project (Tough, 1979:174–176). This is relevant to the Papua New Guinean context, since exposure to formal education is limited in the general population. Yet in Papua New Guinea from every level of society, people are expressing a desire to learn (Olsson, Apelis and Wasilewski, 1985), which confirms the legitimacy of distinguishing between the concepts of self directedness and the need to learn. In Chapter Three of this Thesis, evidence will be presented to suggest that formal learning was a valued and a practical life long
process in the traditional Melanesian society (McLaughlin, 1988b). Tough believes that because many people are undertaking projects, it implies that the need to learn may be fundamental to being human. Maslow (1968:60ff) considered the need to learn as a component of his *Hierarchy of Needs* but argued that knowledge has a certain ambiguity about it, claiming that it is a human characteristic to both desire and fear knowledge. He concedes though, that fear of knowledge may result from the social environment rather than a hereditary blueprint. Jarvis (1983:15) concludes that "the need to know may be a fundamental need, even if the consequences of that knowledge may be dangerous". Consequently, Jarvis argues that the need to learn should be incorporated into Maslow's hierarchy. See figure 2.10, in which he insists is actually a taxonomy (Jarvis, 1983:18).

Elsewhere, he holds that the mind only develops through learning processes that are initiated through interaction and that the self - a single continuous identity across time develops out of the need to interact with the immediate society and environment (Jarvis, 1987:40–62). It is for this reason maintains Jarvis, that the need to learn should be inserted prior to the reference to the self. The need to learn is a condition for the development of the self.

The point of this discussion is that the evidence suggests that the need to learn seems to be a human trait, while self direction in learning seems to be an acquired one. Some questions to ask now are: How does one acquire it? How do educators promote it?

**FIELD DEPENDENCE–INDEPENDENCE**

From a cognitive perspective the concept of field independence and dependence offers some insight to the above questions (Witkin, 1950). Field independent learners are analytical, socially independent, inner directed, individualistic, and possess a strong sense of identity. Open democratic societies which emphasise self control and autonomy foster such learners (cf Brookfield, 1986:1). In contrast, field dependent learners are extrinsically orientated, responsive to external reinforcement, dependent upon context, view things holistically and perceive the effects that their learning has on others. Such learners are generally found in cultures that stress clear role definitions, social control, strict child rearing practices and respect for authority, all of which are typical of developing countries (Holtzman, 1982). Holtzman also claims that field independent styles of learning are generally characteristic of mature adults compared to field
dependent ones. The conclusion to be drawn is that only field independent learners can be self directed and that field independent learning is innately superior. It would seem that in a country like Papua New Guinea, it would be a facile pursuit to encourage critical and reflective thinking that might promote self directedness. In contrast to this line of reasoning, Brookfield (1986) strongly argues that critical reflection:

Is marked by an awareness of the contextuality and contingency of knowledge and by an appreciation of the culturally constructed nature of value frameworks, social codes and belief systems. But these capacities are precisely those said to be possessed by field dependent learners (Brookfield, 1986:42).

Figure 2.10
Taxonomy of Human Needs following Maslow.

Hence, the supposed superiority of field independence is vigorously repudiated. Moreover, empirical research by Thiel (1984) noted that field dependent learners were just as successful as independent learners. Though they relied heavily on others for information, rather than on personal analytic skills, Thiel maintained that they learnt successfully without necessarily employing analytical abstract conceptualisation.
strategies. These findings have been confirmed by Brookfield (1986). Such learners find the social context and other people as important learning resources.

Successful self directed learners appear to be highly aware of context in the sense of placing their learning within a social setting, in which advice, information, and the skill modelling provided by other learners are crucial conditions for self directed learning (Brookfield, 1986:44).

Some research (Witkin, Moore, Goodenough and Cox, 1977) has been conducted on teachers who were either field dependent or field independent, to assess if their preferred learning style influenced their teaching style. Not surprisingly, the field dependent teachers' social orientation prompted them to favour discussion and to encourage from their students a greater role in structuring the learning situation; they tended to give less negative evaluation to students, a finding consistent with increased reliance on others for self definition and their need to maintain good relationships. In contrast, field independent learners, emphasised structure in their teaching, even in "discovery" learning; they referred to standards, and criticised students. They were seen to teach principles in contrast to field dependents who taught facts, "but both groups of teachers are viewed as equally competent" (Wilson, 1981:141).

It is interesting to note that the various lists of teaching characteristics of effective adult educators developed by Knowles (1984:83–85) and Tough (1979:195–197) favour field dependent characteristics (personal warmth, caring, supportive behaviour, responsiveness). What is being challenged is the traditional interpretation that field independent learners are the only ones capable of self directedness. Even's (1982) definition of field independent learners is more characteristic of a personality type (e.g. introverts) than a description of the characteristics of a self directed learner (cf Keirsey and Bates, 1978:180–182).

Field independent are analytical, have a highly developed sense of their own self identity and are more socially independent. They often appear distant to others and are very individualistic and inner directed (Even, 1982:15).

Consequently, the notion of adult learning as articulated by Knowles is not congruent with the data about how adults actually learn. The Nottingham Andragogy Group (1983:13) disagrees with Knowle's conceptualisation of Andragogy as the opposite pole of pedagogy. They redefine it as an attempt to assist adults "to become aware that they
should be the originators of their own thinking and feelings" (Nottingham Andagogy Group, 1983:2). This perspective acknowledges that adults are contextually located, that is products of their history and culture. All adults then should be encouraged to think critically, rather than to accept others' thinking, since critical awareness and reflection becomes the structural foundation for adult cognitive development, a notion reminiscent of Freire: "Liberating education consists in acts of cognition not transfers of information" (Freire, 1970:67). The point being that the concept of field dependence - independence can be misleading, if field independence is considered the characteristic of self directed learners. Self directedness is not to be confused with one's preferred cognitive style, which essentially is concerned with the ways knowledge is structured (Even, 1982:27). Whereas "self-directed learning is equated with the exhibition of critical reflection on the part of adults" (Brookfield, 1986:42).

THE NATURE OF ADULT THOUGHT FROM A PNG PERSPECTIVE

Most of the theory which describes adult cognitive processes reflect attempts to either qualify or adapt Piaget's theory and his model of mature thought, which asserts that formal operations marks the highest level in a universal sequence of stages. This has been criticised by Riegel (1973:22) on the grounds that it is biased toward western intellectual values. Riegel's theory is firmly based within the contextualist paradigm, and this is made evident when he argues that formal operations is not by necessity the only indicator of mature adult thinking.

Piaget's statements on the transition from adolescence to a adulthood provide concessions to individuals and social groups who "fail" to progress all the way through to the elaborated structures of formal thought. But his statements neither indicated the cultural historical implications of such "failures", nor do they elaborate in positive terms the types of intellectual operations which "failing" individuals will have to choose or with which they are bound to end up. Piaget describes growth and its development as it ought to be and, therefore, his interpretations have been criticised as a cognitive theory of "law and order" (Wilden, 1972).

By implication for Piaget thinking processes and thought structures of a cognitively mature person must conform to a model of formal logic, which involves the ability to abstract a variety of variables in a problem and then to test all possible combinations of these variables, in order to deduce a solution. However, formal logic is but one of a number of systems of logic (Riegel, 1972:23). Riegel argues that humans use other
systems of logic more frequently than formal logic. One such system is a dialectic one. He believes that this is a more adequate model to describe adult cognitive potential.

The skills and competence in one area of concern, for instance in sciences, might be of the type of formal dialectic operations; those in a second area, for instance in everyday business transactions might be of the type of concrete dialectic operations; those in a third area, for instance in artistic activities, might be of the type of preoperational intelligence; finally those of intimate personal interactions might be of the sensorimotor and therefore of the original dialectic type (Riegel, 1972:25).

Dialectic operations are also a manifestation of mature thought to which an individual might progress from any one of Piaget's four stages. It is not necessary to follow each stage sequentially and that an individual might perform in one area of concern or interest at one level of thinking and in another area at another level. It is indeed possible for a theologian to be an atheist. Individuals may operate simultaneously or in short successions at different cognitive levels. Research (Donaldson, 1978, 51–59) has shown that even young children are capable of logical thinking and that pupils are likely to use formal operations on some occasions and concrete on others (p58). Figure 2.11 represents an extension of the Piagetian model to incorporate Riegel's dialectic dimension (Riegel, 1973:365).

Figure 2.11
Schematic Representation of Five Development Periods for Piaget's Extended Theory of Cognitive Development.
An apt illustration of dialectical thinking in Papua New Guinea was recorded by Biggs, Maddoch and Tefler (1983) in their evaluation of the Australian component of the now defunct Diploma of Education (Tertiary) program.

It is not foreign to the PNG national to consider multiple causation. What is the work of a virus one day might be the influence of the masalai (evil spirit) the next. This sincerely reflects the point that because of the extraordinarily rapid progress of PNG, there are several conceptual systems co-existing. One of the writers spoke to a Catholic teacher recently graduated from college, and asked her about a "ples masalai" (evil place) we had just passed and she showed that she was afraid. "But if you make the sign of the cross, would you be afraid then?" "Yes". "But doesn't the church have more powerful magic than the masalai" "Not the same". "You believe in the masalai as much as the church then?". "Yes I, believe" (Biggs, Maddock and Tefler, 1983:61).

Another appropriate illustration of dialectic operations in Papua New Guinea is in Figure 2.12.

Figure 2.12
Dialectical Illustration in PNG.

Eleven go berserk in Rigo

The people from Lebogolo village in the Rigo District of Central Province had been behaving and living like "animals" during the past two weeks, it was revealed yesterday.

The men went berserk immediately after winning a soccer match and started running and shouting all over the village and in the bush, eating grass and leaves including human and animal wastes.

And the Lebogolo villagers suspect that sorcery was involved.

Chief Superintendent Philip Taku who witnessed the scene told Miokii News last night that the men were eating grass, and human and animal wastes.

Mr Taku said police believe the men had been like this for about two weeks.

He said village people told police that they suspected two men from the village of casting an evil spell on the 11 men.

"These mad men were so powerful and it took about a least four strong men to tackle a mad man to the ground but kept throwing everyone around and continue to run wild just about everywhere and into the bush." Mr Taku said.

"Consequently we apprehended two men suspected of sorcery after they surrendered themselves to police for fear of their own lives because the village people were talking of doing something drastic to them." Mr Taku said.

He said he also told the two men to talk to the people affected which they did with a portrait of Jesus Christ. "Immediatley after that we could see some signs of recovery among the wild men." Mr Taku added.

These examples reveal the logicality of dialectical thought. Papua New Guineans' belief in particular forms of magic is not unconditional. Their belief is dependent upon the apparent power of the "magic". Hence so long as "magic" appears to work it is accepted. When it does not, it is not (Bulmer, 1971). Consequently, educated Papua New Guineans have little difficulty in accepting the validity of scientific or theological
explanations as well as the powers of sorcery, much in the same way as the Christian scientist who can be a rigorous devotee of the scientific method can also have unshakeable faith in the power of prayer, or even accept creationism.

The theory of dialectic operations emphasisesthat much quality thinking results in the posing of questions and problems rather than in the articulation of solutions. Indeed, in the process of exploring ideas and concepts which are contextually embedded in a concrete reality, contradictions evolve, which in turn are the catalyst for dialectical thought. Some contradictions are acceptable and may even promote further cognitive processes.

Riegel contends that the most effective adult thinking and the type of thinking which furthers development, whether in scientific pursuits or in personal and social relationships, is not that which provides immediate answers but that which discovers the important questions and/or poses important problems (Nottingham Andragogy Group (1983:6).

In contrast, formal operational thought pursues the solving of problems and the answering of questions. Contradictions are not tolerated, whereas, dialectical operational thinking "looks for, recognises, and welcomes contradictions as a stimulus to development" (Deshler, 1985:6). A dramatic example of this was when the nineteenth century German chemist Kekule was researching into the molecular structure of Benzene. At one stage his research was stagnating, when he dreamed of a snake with its tail in its mouth. He interpreted the dream to mean that structure was a closed carbon ring (Jung, 1964:38). One possibly might expect a scientist to dismiss such an irrational revelation, but instead the "unscientific" data became the basis for much new scientific discovery. The point is, that adults, who may not have attained formal operations as characterised by Piaget, are open to develop a type of thinking as complex as formal operational thought, though, it is more contextually centred. In other words, cognitive change is a feature of adult life.

Perry (1970) would assert that individuals become more capable of resolving apparent contradictions when they are able to place perceived irreconcilable positions into a more complex framework as suggested in position nine, commitment to relativism of his scheme of development.
The more complex thinking evident at this stage can encompass the multiplicity of inclinations within the individual. Students are able to accept and establish a balance of polarities within them ... (Barrow, 1986: 60).

Sinnot (1975) assessed adult cognitive abilities with tasks devised around the type of problems adults would encounter in their everyday life. His results indicated that the adults were all capable of formal operational thought. Studies by Wason and Johnson – Laird (1972) confirm the conclusion that formal operations and other forms of mature thought are stimulated when adults are confronted with types of problems that are peculiar to their normal experience.

This implies that reflective thinking is a necessary process to higher, more complex forms of thinking. Reflective thinking has been defined as "the process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self, and which results in changed conceptual perspectives" (Boyd and Fayles, 1983:100), as well as a corresponding change in one's behaviour and relationship (Schlossberg, 1981:5).

Implicit in this discussion on adult education is that all adults, both teachers and learners may be developing new ways of thinking from the learning situation. It is possible for the learner to ignite in the teacher more complex ways of thinking about his own subject speciality.

The teacher is no longer merely the one who teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teaches. They become jointly responsible for a process in which all grow (Freire, 1973:67).

If this is to occur, there has to be a degree of joint decision making about the content, structure and organisation of the learning process. In a formal education setting this is difficult, as other contextual demands (e.g. university rules; board of studies requirements) preclude a complete utilisation of the model of andragogy recommended by the Nottingham Group, as they themselves acknowledge (p.40). In the process of negotiating, Brookfield warns that courses should achieve more than meeting the perceived and articulated needs of the students. He argues that courses should be based on a mixture of felt and prescribed needs, since if felt needs were the single basis for curriculum design, the educator becomes a robot, or a technician who responds to student desires, but is not obliged to suggest alternatives.
... it is my contention that a total subscription to a felt needs approach to program development condemns education to an adaptive, reactive mode and turns educators into mere providers of consumer goods (Brookfield, 1986:222).

CONCLUSION
A number of practical conclusions can be drawn that may influence course construction for the BEd T. curriculum. The research into the nature of adult learning broadens the perspective of cognitive development previously described in Piagetian terms. Beeby's stage of meaning should not be limited in its description to the acquisition of formal operations as defined by Piaget. Other types of logic are available to the learner, that are manifestations of mature thought and that these are promoted by a curriculum that acknowledges context and provide structures which provoke critical thinking. This may be characterised by students recognising and articulating assumptions underlying their beliefs and behaviours, through justification for ideas and actions; through an exploration of the status quo in order if necessary, to articulate a variety of alternatives; and through the recognition of problems and the posing of questions, when previously "no problems" existed. Such processes seem to be better promoted in a social context in contrast to individual study. Indeed skills modelling appears to be a major source for the acquisition of necessary problem solving skills (Brookfield, 1986:44).

The exploration of the concept of field dependent and field independent learning styles, offers some insight into the teaching and learning processes in the University of Papua New Guinea. Many university lecturers, if not all, have adopted a field independent learning style (Cross, 1981), characterised by analytical, individualistic and abstract thinking. Field dependent learners, and this would presumably mean most first year education students at UPNG prefer personal interaction, and real life issues for successful learning in higher education (Cox, 1985). Often this is a "thinking with their mouths open". Strong emotional and personal support may be needed when learners are daring to risk to articulate their beliefs on novel issues. Their success in doing this, promotes further positive self definition. The corollary is just as true. The potential conflict is that there could be a mismatch in communication when the teacher is field independent and the learner is field dependent (cf Even, 1982). Awareness, communication, feedback and reflection should be key processes to monitor these incipient problems.
THE AIM OF LEARNING IN HIGHER EDUCATION

As has been consistently alluded to throughout the literature, independent learning and/or critical thinking are both an implicit and explicit aim of courses in higher education. Indeed, most university lecturers would state that their aim is to develop in their students an ability and an inclination to think critically (Entwistle, 1984: 2–5). "A questioning critical attitude is one of the hallmarks of higher education" (Furedy and Furedy, 1985: 51), or to put it another way:

The student moves from the uncritical acceptance of orthodoxy to creative dissent... (In higher education) there must be opportunities for the intellect to be stretched to its capacity, the critical faculty to be sharpened to the point at which it can change ideas (Ashby, 1973: 147–9).

Yet often practice does not reflect rhetoric. The programs, teaching styles, learning experiences and assessment procedures of lecturers betray the belief that the acquisition and reproduction of knowledge were the prime objectives of many courses, resulting inevitably in "conformity", rather than critical thinking (Entwistle and Percy, 1974). Such factors stimulate the production of students who seek out "cues" as to what is required of them to pass exams (Miller and Parlett, 1974), while adjusting their efforts and learning perspectives accordingly (Ramsden, Beswick and Bowden, 1987: 171–174). Students are adept at recognising and responding to the "real" hidden curriculum embedded in courses (Snyder, 1971).

Central then to the task of developing a critical stance to learning is the approach adopted by the learner. This is all the more important in Papua New Guinea, where analytical thinking is not the norm (McLaughlin, 1988a). "Acts of learning in a culture which is illiterate by necessity have to be orientated towards reproducing..." (Saljo, 1987: 104).
AN ALTERNATIVE RESEARCH PARADIGM ON STUDENT LEARNING

A fruitful approach in the exploration of students' experience of academic learning is through the phenomenography of Marton and other studies originating from the universities of Lancaster and Gothenburg (Entwistle and Ramsden, 1983). Traditional research attempted to provide explanations of student learning from the outside, with the researcher's role being that of an objective observer. In contrast, the phenomenological approach used direct investigative methods to explore the world of the learner, particularly in terms of changes in the learner's conception of aspects of reality (Marton, 1981).

The alternative approach seeks an empathetic understanding of what is involved in student learning derived from students' descriptions of what learning means to them. It involves a shift not just in methodology, but of perspective (Entwistle, 1984:13).

This paradigm is rooted in the research tradition capably articulated by Parlett and Hamilton (1976). This incorporates a semi anthropological, experiential "illuminative" approach to research, which focuses on wider contextual issues in educational enterprises. It emphasises description and interpretation rather than only measurement and prediction - a research paradigm embedded in the hypothetico-deductive tradition, which is used extensively in physical science research. Parlett and Hamilton labelled this approach as the agricultural botanical experimental paradigm in educational research, and argued that it was an inappropriate vehicle for educational investigation, as its implicit "modus operandi" accepted that students' reaction to a variety of educational stimuli paralleled plant reaction to fertilisers (Parlett and Hamilton, 1976:85).

OUTCOMES OF LEARNING

Outcomes of learning are concerned with differences in performances among individual learners. Contrary to the expressed aims of many adult educators, much current teaching and assessment procedures promote a passive, reproductive, quantitative form of learning from students. It is essentially concerned with "how much" is learnt, and can be reduced to a number of logically independent and personally neutral pieces of knowledge (Richardson, 1983:311).
The qualitative approach to investigating learning is concerned with elucidating information from the question: "What is learnt?" Pioneers in this paradigm are Ference Marton and colleagues, who have explored qualitative learning by contriving experimental situations in which content and instruction are very similar to what students normally experience in higher education. This approach is appropriately labelled a 'naturalistic setting'. These researchers asked university students to read realistic academic content within a set time span and when completed they were asked to explain what the reading content was about. It was found that recalled utterances could be classified into four categories of learning outcome, reflecting qualitatively distinct levels of comprehension of reading. Moreover, it appeared that these levels of outcome were hierarchically related, so that each outcome logically subsumed levels below it. Hence, a simple ordering of depth of outcome can be identified and are as follows:

A. Conclusion-Orientated, Detailed
The student summarises the author's main argument, shows how evidence is used to support the argument, and explains the thoughts and reflections used to reach personal understanding of that argument.

B. Conclusion-Orientated, Mentioning
Again there is an adequate summary of the main argument, but the use of evidence or personal experience to support that argument is not made clear.

C. Description, Detailed
The student gives an adequate list of the main points presented in the article, but fails to show how these are developed into an argument.

D. Description, Mentioning
A few isolated points are made, some relevant others irrelevant. At the bottom end of this category an impression of confusion and misunderstanding is given by the student's comments (Entwistle and Ramsden, 1983:16).

Categories A and B represent organised wholes with a facts conclusion, though category A is more complex and represents the author's meaning. Groups C and D are merely ordering and grouping parts. There is no holistic organisation.

Other research (Svensson, 1977) has indicated that students' levels of understanding are generally stable over time. Those who understood the gist of the text could recall it, whereas those who were told a correct version could only recall their first impression. This tends to suggest that more reliable "learning depends on understanding material which does have an internal structure that can be grasped" (Dahlgreen, 1984:34). This
is particularly relevant for PNG University students, who appear to have an inadequate ability to interpret and retain what is read (Wilson, 1987).

Although PNG University students have acquired the necessary knowledge of differential item importance, this knowledge is not used in processing the stimulus material (Moore and Driscoll, 1983:461).

The question next to be considered is whether such differences in understanding are related to the ways in which the students approach learning tasks.

**APPROACHES TO LEARNING**

A. **Levels of Processing.**

Implicit in the hierarchy of learning outcomes is that students who achieve some depth of understanding must by necessity, operate differently given that other variables, such as prior knowledge and linguistic skills have been accounted for.

The most obvious explanation of the differences in outcome should derive from a description of the differences in the process that led to the different outcomes (Marton and Saljo, 1984:37).

This pursuit of a description was undertaken by Svensson (1977), through a series of semi structured interviews, which attempted to prompt students to remember how they went about the learning task and to compare these accounts with the characteristics of the levels of outcome. Essentially, student recollections of the process of learning complimented the analysis of performance data. Svensson concluded that students in reading a text did mainly one of two things. They focused on the text as a whole or its constituent parts. He also asserted that this same focus of attention was to be found at a similar intensity in the students' organisation of their "outcome" answers, establishing "that there was a very close relationship between process and outcome" (Marton and Saljo, 1984:42). Svensson described these variations in cognitive approach to be holistic or atomistic.

The *atomistic* approach was indicated when students described their activities as involving: focusing on specific comparisons, focusing on the parts of the text in sequence (rather than on the more important parts), memorising details and direct information indicating a lack of orientation toward the message as a whole. In contrast the *holistic* approach was characterised by student attempts to understand the overall meaning of the passage, to search for the author's intention, to relate the message to a wider context and/or to identify the main parts of the author's argument and supporting facts (Svensson, 1977:238).
An atomistic approach consequently stimulates skills that can only produce limited outcomes of learning, in this case the learning of parts. This is limited, since understanding is promoted by some sort of conceptualisation of the whole and is dependent on holistic organisation. The important point to note is that a shift from atomistic to a holistic organisational mode is the key to any improvement in understanding and learning. "To learn to organise the content into a whole is the main problem of learning to learn" (Svensson, 1984:66).

The holistic approach attempts to integrate new knowledge into the learner's understanding by building internal connections in new material, while an atomistic approach engages the student with content by focussing on its details in isolation and in sequence using basically associate linkages (Svensson, 1984). The emphasis here is on the organisational mechanisms and structures employed by the learner. These concepts explain partially the "how" of learning. Entwistle and Marton (1984:216) articulated a clear description of how the organisational processes operate.

Knowledge is organised by the individual in ways which reflect the organisational principles used in developing personal understanding. These organisational principles also direct the lower-level study skills, and thus have greater power in influencing subsequent learning than the more mundane procedural aspects of studying such as speed reading or note taking. Students develop expertise in learning through building up a wider array of framework within their developing organisational and interpretative frameworks. In this way a learning outcome can be seen as reflecting a neurological embodiment of the interaction of previous knowledge with each new learning task, and in this sense intention, process and outcome are not just functionally related, they are components of an integrated whole.

B. Surface and Deep Approaches
Marton and Saljo (1984) also used the term "approach" to investigate similar conceptual issues as Svensson's holistic and atomistic aspects of students' learning experiences. In contrast to Svensson's research to answer the question "how", they pursued issues related to the question of "what" do students learn? These data suggested that there were two apparently dichotomous approaches to learning, which emphasised referential aspects of students' experiences – their search for meaning. They labelled these approaches deep and surface level processing.

In the case of surface level processing, the student directs his attention towards learning the text itself (the sign) i.e. he has a reproductive conception of learning
which means that he is more or less forced to keep to a rote strategy. In the case of deep level processing, on the other hand, the student is directed toward the intentional content of the learning material (what is signified) i.e., he is directed towards comprehending what the author wants to say about, for instance, a certain scientific problem or principle (Marton and Saljo, 1976a:7–8).

Marton's original notions have been extended by researchers from the University of Lancaster (Entwistle, 1987a) so that they now can be applied to students' work on a range of academic subjects in their natural context. In addition to broadening Marton's two main categories, the Lancaster researchers introduced a third category—a strategic approach which involves the intention to maximise grades, partly by a systematic management of time, effort, and study conditions, but also by manipulation of the assessment system to the students' own advantage (Miller and Parlett, 1974). Below is a summary of defining features of approaches to learning.

**DEEP APPROACH**
- Intention to understand
- Vigorous interaction with content
- Relate new ideas to previous knowledge
- Relate concepts to everyday experience
- Relate evidence to conclusions
- Examine the logic of argument

**SURFACE APPROACH**
- Intention to complete task requirements
- Memorise information needed for assessment
- Failure to distinguish principles from examples
- Treat task as an external imposition
- Focus on discrete elements without integration
- Unreflectiveness about purpose of strategies

**STRATEGIC APPROACH**
- Intention to obtain highest possible grades
- Organise time and distribute effort to greatest effect
- Ensure conditions and materials for studying appropriately
- Use previous exam papers to predict questions
- Be alert to cues about marking schemes (Entwistle, 1987a:16)

Though originally, the researchers asserted that the apparent dichotomy could only describe a relation between the students' perception of a particular task and their approach to it (Laurillard, 1984:135), further interview data have shown that "across a range of everyday academic tasks and across departments, most students shared enough
consistency to justify describing approaches characteristic of individuals" (Entwistle, 1987a:17).

Students who by inclination adopt a surface approach, generally emphasised rote memorisation, and as a consequence reading takes excessive time, and learning is experienced as a tedious and unrewarding activity. Inevitably, students who consistently pursue such an approach are likely to do less work and fail to achieve (Svensson, 1977). From another perspective students capable of, and inclined toward a deep approach resort to surface approaches or have negative attitudes because the experience of the learning task has been through excessive work loads or inappropriate forms of assessment, that stimulated reproductive learning (Ramsden, 1984:150).

The idea of approaches to learning is insightful in understanding why students react differently to what seems to be the same situation. It is closely related to the concepts of critical thinking and autonomous learning. Deep approaches seem to incorporate a more active, reflective, cognitive process and are the ones in which students take increased responsibility for their learning. In contrast, surface approaches dictate student dependence upon lecturer, text or assessment. "Deep approaches are not necessarily highly autonomous ones, but surface approaches are clearly not" (Boud, 1987a:34). Hence, educators should be focussing on creating a learning environment that promotes and sustains deep level approaches to learning. "Developing a depth approach may be a condition of academic survival" (Wilson, 1981:116).

LEVELS OF PROCESSING - FIXED OR VARIABLE

The question to be addressed is: How is a deep approach to learning induced? This implies that there is some flexibility of choice, possibly depending on the perceived demands of learning tasks. In a study by Marton and Saljo (1976a), an intervention process was initiated, which aimed at inducing a deep level approach by asking the appropriate level questions. The results showed that most of the participants attempted to adapt their learning to the demands implicit in the questions. Some technified their learning, concentrating on perceived demands. They invented a mode of answering the questions without engaging in a deep level learning. They could summarise, but were unable to demonstrate understanding. The result was a rather extreme form of surface learning. Papua New Guineans who have survived the education system are masters of
this technified learning. They have learnt survival strategies not learning skills so that they can give required answers without a personal understanding (Johnson, 1972). The point is, that attempting to induce deep level processes involves more than techniques. This would explain possibly, with other factors, why some of the curriculum initiatives in Papua New Guinea have failed (cf, Field, 1980:28–31; Lancy, 1983:174; Lornie, 1981). Ausubel, Novak and Hanesian (1978:41) explain this situation from a cognitive perspective.

...no matter how meaningful the learner's set may be, neither the process nor the outcome of the learning can possibly be meaningful, if the learning task is not potentially meaningful...relatable to his cognitive structure... .

In addition, the same studies demonstrated that it was generally easy to induce a surface approach. This phenomenon, has also been noted in attempts to induce change in strategies of learning (Pask, 1976). Possibly, a partial explanation for the reluctance to change is that these concepts might be developmental stage related, rather than merely preferential modes (Wilson, 1981:161–165), because

even when students have been encouraged through various means to adopt a deep approach, they redefine the situation in a way which will make it expedient to use a surface approach, (it) should tell us something about the strong mechanisms operating within educational contexts in support of this reproductive mode of learning (Marton & Saljo, 1984:50).

The whole problem of the issues involved in inducing a deep level approach will be explored later in this section when the context of learning is considered.

STRATEGIES OF LEARNING
The distinction between the concepts of strategy and style are somewhat blurred. Entwistle (1978) defined a strategy as "a description of the way a student chooses to tackle a specific task in the light of its perceived demands". Style is defined as "a student's preferred way of tackling learning tasks generally". Messick (1976) describes style as "habitual modes of information processing", dependent upon basic personality and cognitive structures (Even, 1982:14; Kolb, 1984:78–85) and therefore more difficult to alter. In contrast, the strategies a learner may adopt are dependent upon what is to be done, as well as the degree of difficulty and a variety of external influences.
Pask (1976) attempted to explore these issues concerned with the internal processing of learning by "externalising" student learning strategies (see Entwistle, 1981:90 for an account of the Clobbits and Gandlemullers experiment). In contrast to Marton, who deliberately permitted his students to choose surface or deep level learning for the perceived task, Pask's students were required to reach a deep level of understanding in order to investigate the strategies employed for the tasks. Consequently such data are concerned with deep approaches to learning. The methodology employed is quite different from that of Svensson and Marton, since the focus of their investigations was students' perceptions of the structure of the material. In contrast, Pask accepts the structure of the material as a given, and investigates what is done with the information when students attempt to process it.

The results of these investigations indicated that there were two distinct and contrasting strategies. Some students adopted a strategy of building a complete framework by commencing with general descriptions, and then adding the details at a later stage, whereas other students constructed a step by step framework from the details to the more general principles. The former he call **holists**, the latter **serialists**. It seemed that both strategies were of equal utility, since both sets of students achieved equivalent outcomes. There appears to be two very distinct strategies reflecting different cognitive processes among students.

A holist style represents a preference for a broad perspective, drawing on a wide variety of analogies and illustrations in building up a personalised form of understanding. A serialist style involves step-by-step learning with a narrow focus on evidence, cautious interpretation and logical analysis (Entwistle, 1987b).

These concepts are reminiscent of Jung's (1921) perception functions articulated in his theory of psychological type as Miller has noted (Miller, 1987:21). The perception function is the preferred way individuals perceive experience. Some do so **intuitively**, others as **sensates** (Lynch, 1987).

In an attempt to apply more practically his insights Pask developed a theoretical framework – a **Conversation Theory**. This is a description of the way a student explores experience towards understanding by dialoguing actually or internally with another person or another part of the mind, which monitors or interacts with the learning process. Pask asserts that:
full understanding occurs only when the student can explain the topic by reconstructing it and can also demonstrate that understanding by applying the principles learnt to an entirely new situation (Entwistle, 1981:92).

A practical technique to implement this rationale was devised by Pask, and appropriately called a *teachback*. This process forces the student to recall what has been read and through reteaching, demonstrate a grasp of meaning by asking questions, utilising examples, in other words to display understanding.

It is necessary then, for a student to be able to use both strategies. Difficulties in learning would be when a student over relies on the preferred strategy. One is experienced as more trustworthy, it is true, but some tasks require significant use of the least preferred strategy; hence the ability to use a combination of both is seen as essential for increased understanding (Richardson, 1983:321). This is a factor explaining why not all students, who adopt the deep approach are successful. Pask has described these learning difficulties as *learning pathologies*. When a versatile ability has not been fully developed, there is a tendency among holists to be over ready to generalise and to jump to conclusions without sufficient evidence. This is called *globetrotting*. Serialists fail to build up an overall perceptual map, thereby failing to see relationships between ideas. They become fact-bound. Pask calls this *improvidence*.

**STYLES OF LEARNING**

Pask (1976) suggested that these strategies – holism and serialism were extreme manifestations of more fundamental processes underlying the differences in the way people think and tackle problems. These strategies and Conversation Theory, he argued indicate that there are two distinctive styles of learning:

Comprehension learning involves description building, seeking relationships between ideas and construing a cognitive map of an area of knowledge. It makes use of analogies, imagery and personal experience. Operational learning in contrast is concerned with procedures, details and the logical relationships between them (Entwistle and Marton, 1984:219).

A comprehension style of learning would tend to employ holistic strategies while operation learning would tend to utilise serialist strategies. Effective learning results from a more versatile approach which integrates comprehension and operation styles in
a balanced manner (Richardson, 1983:321). Both kinds of styles are needed for understanding, but the particular learning situation dictates the quality of variation. It is the ability to be versatile that is the key to the acquisition of deep learning. This versatility can not be utilised with equal dexterity. There is a style to which students are naturally inclined and will use more often, yet the effective learner realises that reliance on this alone is not sound if productive thinking is to be generated (Entwistle, Hanley and Hounsell, 1979). A caveat needs to be acknowledged. There is a limitation to the extent that students can be trained to exercise styles different from those to which they are naturally inclined (Wilson, 1981:134).

One of Pask's most important experiments was his investigation of the effects of matching and mismatching learning materials with students' learning strategies. The results are illuminating.

The evidence on matching teaching to learning, or teachback, and on learning to learn does suggest that students can be helped to develop more effective strategies which help them to think through their learning. The limits to that help may however, be set by the individual's learning style whose origins reach deep into the basic structures and formative experiences of the personality and which may be less susceptible to change (Wilson, 1981:134).

CONTEXT OF LEARNING

If an intervention to enhance student learning is to have any chance of success, then it is an understanding of the context of learning which determines this (Laurillard, 1978). Research (Ramsden, 1987), which has focussed on students' own descriptions of their experiences of the learning context has generated many insightful implications for improving the quality of teaching and learning in higher education. Learning context is defined as students' perceptions of teaching, assessment and course content and structure, and how all these interact with the student to influence learning (Boud, 1987a:34). The emphasis is not on the individual structures or frameworks, since objectively, their validity may be self evident, but on the students' perceptions, since their construing is the basis for a learning or mislearning activity (Fransson, 1977).

These studies are important in the development of the BEd T. program. The identification of surface and deep learning strategies in relationship to reading and understanding is vital in the production of a good program; of equal importance is the way research
highlights how students fail to learn. Pask's studies have shown how students approach learning tasks and how the teachers' matching of the learning milieu with the students' preferred learning style results in successful and satisfying learning. These ideas have a similar conceptual basis to Perry's perspective (Perry, 1981).

In discussing the context of learning, all the elements involved, interact with each other and hence a neat clear approach is not possible. Nevertheless, the context of learning will be discussed by focussing on the students' own perceptions of learning. Figure 2.13 offers a succinct and clear diagram of much of the research (Bowden, 1986).

1. Education Orientation

In journeying into the learning experience of a student, a useful concept that gives a framework for exploration and understanding is the student's education orientation.

It encapsulates the complex nature of a student's aims, attitudes, and purposes for studying. Moreover, educational orientation is not an invariable property ascribed to a student. It describes the relationship between the individual and both the course of study and the institution. It can change and develop over time (Gibbs, Morgan and Taylor, 1984:87).

The type of education orientation of students is very often dependent upon their own motivation, which offers partial explanations to variations in students' capabilities of studying. Taylor (1983) in a study of students' orientation to learning found motivation was clearly related to the type of orientation they adopted and influenced the amount of effort students devoted to studying. He identified four distinct orientations (See Figure 2.14).

No one student could identify completely with any one orientation, but most students would seem to adopt a complex mixture of two or more of these orientations. It appears that there is a direct relationship between the learners' motives and the way they go about learning (Howe, 1987:142). It is more likely that a student would be more self directed and more autonomous if intrinsically motivated, since this is directly related to a deep approach to learning, while extrinsic motivation increases the likelihood of surface learning (Higgs, 1987:50).
Figure 2.13
Diagrammatic Representation of Processes Involved in Learning from the Student's Perspective.
<table>
<thead>
<tr>
<th>Orientation</th>
<th>Interest</th>
<th>Aim</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocational</td>
<td>Intrinsic</td>
<td>Training</td>
<td>Relevance of course to future career.</td>
</tr>
<tr>
<td></td>
<td>Extrinsic</td>
<td>Qualification</td>
<td>Recognition of worth of qualification</td>
</tr>
<tr>
<td>Academic</td>
<td>Intrinsic</td>
<td>Follow intellectual interest</td>
<td>Room to choose stimulating lectures</td>
</tr>
<tr>
<td></td>
<td>Extrinsic</td>
<td>Educational progression</td>
<td>Grades, academic progress</td>
</tr>
<tr>
<td>Personal</td>
<td>Intrinsic</td>
<td>Broading or Self-improvement</td>
<td>Challenge, interesting material.</td>
</tr>
<tr>
<td></td>
<td>Extrinsic</td>
<td>Compensation or Proof of capability</td>
<td>Passing course, feedback</td>
</tr>
<tr>
<td>Social</td>
<td>Extrinsic</td>
<td>Having a good time</td>
<td>Facilities for sport and social activities.</td>
</tr>
</tbody>
</table>
Intrinsic motivation and resultant approaches to teaming are clearly associated with a student's interest and previous experience. If a learning task is perceived to be irrelevant, then student interest is low and a surface approach to learning is utilised. Moreover, a limited background knowledge of a subject, must promote surface learning since "without a fairly high level of initial conceptual organisation a deep approach has little or no effect on the outcome of education" (Entwistle, 1981:19). This is exacerbated, if educators increase workloads, so that students who initially might cope, become frustrated with the quantity and so resort to rote learning. That may not even be possible and so they withdraw from courses (Svensson, 1984:69).

Intrinsic motivation is not so much self generated as something that is discovered as Figure 2.14 would imply; but as orientation is a dynamic process, it behoves the sensitive educator to utilise students' intrinsic motivation by capitalising on student interests through linking learning experiences to them in an atmosphere free from threat and anxiety.

This creates perceived relevance and tends to minimise a surface approach, which is associated with the motive (extrinsic) of fulfilling another's requirements. Such a situation generates anxiety and fear of failure and promotes surface learning. If on the other hand,

we want to promote a deep approach, we should above all keep in mind the students' own interests at the same time we should try to eliminate the failures that lead to a surface approach (irrelevance, threat and anxiety) (Marton and Saljo, 1984:52).

Even if the above conditions prevail, other factors contribute to a student's approach to learning. Not surprisingly, if students perceive learning tasks as mostly drudgery, then surface approaches will be employed.

2. Student Conceptions of Learning

Indeed all students approach learning situations from the perspective of their past experiences and have preconceived constructs of what constitutes learning (Marton and Saljo, 1984). Saljo (1979) has identified five qualitatively different conceptions of adult learning. Learning was described as:
1. a quantitative increase in knowledge;
2. memorising;
3. The acquisition of facts, etc., which can be retained and used when necessary;
4. The abstraction of meaning;
5. An interpretative process aimed at understanding reality.

Deep approaches are associated with conceptions 4 and 5, while conceptions 1 to 3 are linked to surface approaches (Van Rossum and Schenk, 1984).

The depressing observation is that only a third or a quarter of learners in Carl Rogers estimation are intrinsically motivated, while the rest "do what they are supposed to do" (Rogers, 1969, cited by Candy, 1987:163).

Lecturers need to be aware of these variety of orientations and accept them as part of the human situation. They need to realise that most students would not share their strong academic orientation. Few students "aspire to...the principles of academic achievement towards which lecturers seem to believe they should be striving (Gibbs, Morgan and Taylor, 1984:187–8).

3. Assessment and Learning

There appears to be a relationship between students' educational orientation and their view of assessment. A study by Miller and Parlett (1974) into student perceptions of assessment differentiated students into three categories of "cue consciousness". Students attempted to "read" their lecturers, in order to fulfil assessment requirement from their varied educational orientations.

(Cue seekers) "button-holed staff about the exam questions; sought them out over coffee; made a point of discovering who their oral examiner was, what his interests were and, most of all, deliberately tried to make a good impression on staff (Miller and Parlett, 1974:52).

Cue-conscious students were aware that there were cues, but refrained from actively fraternising with staff, while cue deaf believed the assessment process was objective and not affected by their impressions made on the staff.
This research highlights the great influence perceived assessment requirements have on students' approaches to learning. Elsewhere, research (Ramsden, 1981) confirms that students' interests and attitudes to studying and approaches to academic tasks are strongly related to their experiences of teaching and assessment. Students are adept at reading hidden curriculum messages. They learn the requirements of social situations and recognise what is rewarded. Becker (1968) noted that students "read" that the academic context demanded attendance and written work, but did not reward students for displaying intellectual involvement, despite official rhetoric. Ramsden (1979:426) comments:

Students come to perceive a conflict between learning and grades and speak of using strategies to get good marks at the expense of understanding the material, they are expected to learn. In this way the process of assessment comes to have the unintended consequence of inhibiting, rather than facilitating learning, and it is easy to see how one might extend this effect to teaching methods as well.

Students will neglect the development of independence in judgement, problem solving and analytical skills if the requirements of assessment promote rote learning (Ramsden, 1984:146) if that is required to pass. Such processes have been documented in PNG where the examination in the Basic Skills program in teachers' college has so completely dominated the teaching programs of the colleges (McLaughlin, 1989c).

Characteristics of assessment that are inclined to promote surface learning would include:

- Excessive workloads (Dahlgren, 1984);
- Excessive reading load (ibid);
- Questions framed to encourage surface learning (Marton and Saljo, 1984);
- Threatening atmosphere (Dahlgren, 1984);
- Marking systems that reward quantity or presentation (Laurillard, 1987:204).

4. Feedback of Learning

An aspect of assessment that has an effect on the approach a student takes to learning is the quality of verbal and written feedback. This appears to be recognised by few academic staff (Hounsell, 1984). Nor does there appear to be an inclination to do so, if Entwistle is correct in his assertion, that the quality of feedback "may well in turn, be a function of a lecturer's interest in teaching and empathy with students" (Entwistle, 1987a:22). If teaching is perceived by academic staff not to be acknowledged in career
promotion (Ryan, 1987), and if the majority of students are perceived to be interested in obtaining a pass only with the least amount of work, as Grynberg (1987:8) asserts is the norm among undergraduate students at the UPNG, then the time spent on writing feedback is perceived as non productive. The view held by this researcher concerning students enrolled in the BEd I. courses is that the majority are very strongly motivated and only put minimum effort into subjects when they are overloaded or do not understand or like that subject. Research indicates that the quality of feedback does influence a student's approach to learning. Lack of information about performance makes continued learning more difficult.

The basic premise for any feedback communication is that it must be generated from, and in turn generate a genuine dialogue about the nature of "academic discourse". The initiation of this process is the responsibility of the educator (Raaheim, 1981). As a consequence, feedback that is perceived to be essentially quantities of information rather than "an attempt to articulate and explore premises – on the student's as well as the tutor's terms, is unlikely to connect" (Hounsell, 1987:118). As a result, essay writing or other tasks are seen as insignificant or invalid, and perfunctory attention is given to a perceived unrewarding activity. Hence surface learning is promoted. Not surprisingly is that "repeatedly low marks and...feedback that is critical in tone and opaque in its significance" (Hounsell, 1987:117) does not promote genuine learning, since dialogue has not been established.

5. The Quality of Teaching

The need for a quality dialogue prompts an examination of the process of teaching in the context of learning. The major task of a lecturer is to initiate the dynamics that stimulate students to learn the fundamentals of academic dialogue (cf Hounsell, 1984). This aim presupposes a number of conditions that only the tertiary educator can establish. Boud (1987a:35) suggests that it behoves the lecturer to take more active measures in assisting the student how to learn and this can only be successful, if the lecturer is perceived to be interested in the student and helpful with study difficulties. Such characteristics are considered of primary importance in the influencing of student's attitudes and approaches to learning (Ramsden, 1984:152).

A supportive atmosphere of learning is an elusive quality; but one of the things the students seem to be saying is that such an atmosphere is more likely to exist if lecturers show humility rather than arrogance towards their students. Students
emphasised the critical importance of the teaching and assessment environment... Enthusiasm on the part of a lecturer encouraged them to put more effort into a subject and enjoy it more... Threatening teaching environments creates anxiety and students learn nothing (Ramsden, 1979:421).

A deep learning approach, presupposes among other things, the capacity of the teacher to integrate new knowledge into existing and changing conceptual frameworks – thus promoting a personal understanding for the student.

What students perceive as "good teaching" will, of course, depend on their own conceptions of learning. Students who are intent on seeking understanding will appreciate lecturers who emphasise personal meaning (Entwistle, 1987a:21).

Ramsden (1984:163) in his summation of the research on educational contextual factors which influence students' approaches to learning, asserted that "intense effort" needs to be put into course planning so that experiences of learning and assessment are not perceived to induce surface approaches. Deep approaches would seem to be better fostered if students are exposed to "good teaching" and a degree of freedom to choose content and ways of learning (Boud, 1987a:35).

Good teaching is difficult to define. A lecturer who utilises strategies from implications drawn from the research may be more likely to display good teaching characteristics. However, Hodgson (1984) maintains that a lecturer who has the ability to utilise vicarious experiences of relevance, is a positive and active intervention in changing the extrinsically motivated student into a self initiated learner. A lecturer, whose style of presentation incorporates this strategy stimulates the student to identify with, or see with his eyes something recognisable and interesting. Thus, a lecturer may assist students to "go beyond the outward demands of the learning situation and make connections between the content of the lecture and their understanding of the world around them" (Hodgson, 1984:102).

The catalyst for the promotion of quality educational experiences from PNG students at least initially must be the teacher. It behoves such teachers to appreciate the PNG learning perspective of students(cf Jordan, 1987) as well as to create an educational atmosphere that will promote quality learning (Boud, 1987a:37; McLaughlin, 1990d). It demands from lecturers a commitment to professionalism and to students. As Hounsell (1988:19) unashamedly asserts:
But most importantly, we cannot escape the obligation both to demonstrate and to exemplify the highest of professional standards – whether in course design, use of audio visual technology, course documentation, or in our commitment to self-evaluation or our responsiveness to individual and organisational needs. Not practising what we preach simply won't do.

A study of good teaching must not be isolated to technique (Sheffield, 1974:215), as has been hopefully demonstrated. The hallmark for good teaching is relative to quality student learning (Brown and Atkins, 1988:5; Ramsden, 1987:275) and its promotion entails a mixture of contextual influences.

... some areas where I believe adult education teachers need to develop their skills, I would include: developing the ability to enter into genuine dialogue with others from different background and culture, group facilitation skills including appreciation of group processes and the ability to share power, and the capacity to cope with feelings and emotions in learning both in themselves and for others. As we learn more the agenda changes (Boud, 1987b:14).

If quality teachers and teacher educators are to graduate from inservice programs, then it is seen to be vital to identify and explore the various interrelated issues that promotes quality in learning. A practical acknowledgment of these contextual factors in their relational perspectives, will constitute the basis for a more effective and more lasting intervention (Ramsden, 1987).

CONCLUSION
Investigations of learning from the students' perspective have highlighted the importance of the student's and lecturer's intention concerning the learning task. The surface approach is based on extrinsic motivation, whereby the student learns only for some specific goal (e.g. to pass the course or to get a degree). As a consequence, the prime intention is to merely fulfil task requirements, which in turn promotes memorisation of content that will be attempted to be reproduced for assessment.

Certainly this phenomenon has been identified as a strategy for general and educational survival in Papua New Guinea (Johnson, 1972; McLaughlin, 1988c; Yeoman, 1988) as well as the current intention of the majority of younger undergraduates at UPNG (Grynberg, 1987). Such a situation is not surprising in third world countries where "competence in the 'teaching' language is low and cultural factors discourage metalearning or learning how to learn" (Biggs, 1987b:105). Moreover, Biggs asserts that a combination of surface and strategic approaches to teaching and the curriculum might
be sensibly pragmatic in basic professional preparation (cf Biggs, Maddox and Telfer, 1983). Certainly this is often the state of affairs in the teachers' colleges, (McLaughlin, 1988a;c; 1990 Ross, 1989; Yeoman, 1988) as will be discussed in Chapter Six of this thesis.

The research reviewed here has contributed considerably to planning of the BEd T. curriculum, much of which will be more fully elaborated upon in Chapter Four. Strategies that deliberately promote deep learning are very much the focus. This is best done in the context of the students' future profession, so that they might more likely experience learning as "an interpretative process aimed at understanding reality" and not merely a "quantitative increase in knowledge" (Saljo, 1979).
SECTION SIX

INQUIRY ORIENTATED TEACHER EDUCATION

The second year of the BEd T. program is the internship year. During this year the students spend a year in teachers' colleges. The type and quality of experiences planned for students is an important consideration, if they are to have a positive impact on teachers' colleges.

Within Papua New Guinea, need for increased quality in teacher education has been voiced both on philosophical grounds (Matane, 1986) and planned manpower (Parry, 1987:11). Implicit in all this discussion, is that the status quo is not satisfactory and that change is necessary to stimulate quality education (McNamara, 1989:103–104).

National inquiries into standards of education in Papua New Guinea (Roakeina, 1977; Kenche, 1981) have lamented the present situation and have identified that the present low competency of teachers to be a contributing factor. It follows then that quality teachers need to be graduating from teachers' colleges where quality teacher educators are (Maraj, 1974:147).

If quality depends upon a change of the status quo, then quality teacher educators need to be capable of those processes, that can initiate and sustain change. Any program of tertiary teacher education should have this as an aim, along with those necessary structures for its accomplishment (McNamara, 1989:42). Such a rationale has support from Cox (1985).

Like universities throughout the world, they (lecturers of UPNG) must be teaching for change itself, encouraging students to be able to cope with situations and to be adaptable and flexible in the face of new technologies and new social constraints and opportunities. At the cognitive level, students need to be able to develop creatively a wide variety of problem solving skills for acquiring new information and new ways of dealing with problems which are as yet unseen (Cox,1985:13).
It has been argued that teacher education programs have embedded into their practices a mixture of perspectives, one of which is significantly emphasised to the neglect of all others (Zeichner, 1983). As a result of that emphasis, a clear philosophical direction can be identified. They either deliberately promote the novice teacher educator into the logic of the present social and educational climate or they can promote a process whereby educators can deal critically with that reality in order to improve it (Crittendon, 1973). Quality education would demand a program that opts for the latter direction. Ironically, both in this country (McLaughlin, 1989a) and elsewhere, many teacher education programs are based on a status quo or apprenticeship model (Stones and Morris, 1972).

THE APPRENTICESHIP MODEL

The evidence suggests, that the experience itself of participating as an associate lecturer in an internship year in a teachers' college cannot be a guarantee to stimulate dispositions, which foster more effective teaching or of becoming better at teaching over time (Howey and Gardner, 1983). Inspite of the overwhelming data, most practicum programs to a greater or lesser degree implicitly reflect the belief that the experience itself has some sort of positive impact (Turney, 1982b:12ff). Oestreich (1974:335) has succinctly summarised two of the key assumptions underlying this practice.

If the student teacher (educator) is exposed to what purports to be effective teaching, the osmosis process automatically will enable him to absorb from the supervising teacher (lecturer) an approach or style that is effective. At the same time, it is assumed that the process automatically filters out any approach or style that is not effective.

These assumptions cannot be sustained. This model can offer a student only a limited number of skills, beliefs and attitudes. The selection of the repertoire of skills appear to be a reflection of the supervisor's values, experience and personality. "I was the master teacher cloning his apprentices. However, my concern was with my own former practices and few alternatives beyond them were encouraged or envisaged" (Diamond, 1986:5).

This is essentially a conservative approach characterised by an accumulation of uniformity and imitation (Mouton and Blake, 1984), a phenomenon which seems to describe teacher education policy in Papua New Guinea (Kenehe, 1981:48–49;
Wingfield, 1987; Markis, 1987; Meyer, 1989; McLaughlin, 1990b; 1990d; Yeoman, 1986:3). "There is a commonly held, although not unanimous, view within the Department, that the present independence of CS (Community School) teachers' colleges has led to lack of uniformity in the quality and style of teacher training..." (Markis, 1987:10). This has been challenged as inappropriate for contemporary tertiary education in PNG (Cox, 1985:13; McNamara, 1989; Avalos, 1989; McLaughlin, 1989b,c;1990b; Meyer, 1989.

This approach sees the apprentice more as a passive and reactive learner, and does little to stimulate reflection, understanding, and analysis of learning and teaching. The supervisor, through personal experience and education has a knowledge "cargo" which needs to be transmitted into a neophyte learner. Research strongly suggests that knowledge is comprehended, internalised and regenerated only through "action and reflection on reality, not by transmitting or extending knowledge" (Freire, 1973:264). Diamond, in reflecting on his developmental life as a teacher educator commented:

In contrast, I had yet to consider that all conceptual frameworks, especially our own, can be developed and even be replaced by better ones. As learners, our life long task is first to create our own theories, but then to critically demolish or replace them (Diamond, 1986:6).

The apprenticeship model is unable to stimulate such a process, since it fosters habits of thought and action which mute continued learning from teaching.

In becoming a teacher very little normatively correct learning can be trusted to come about without instruction, that takes the preconceptions of future teachers into account - preconceptions that are warranted by common sense and conventional practice that future teachers are already steeped in. In learning to teach, neither first hand experience nor university instruction can be left to work themselves out by themselves. Without help in examining current beliefs and assumptions, teacher [educator] candidates are likely to maintain conventional beliefs and incorporate new information or puzzling experiences into old frameworks (Feiman–Nemser and Buchmann, 1985:29).

The associate teacher educators, often see the major tasks of their field experience as getting through a lecture (lesson) in an effective and business-like way. This then becomes the criteria for "success" in teaching (Lanier and Little, 1986:551). If a technique "works", then it is classified as effective for that reason alone. Consequently, strategies, techniques and technologies become perverted to ends in themselves (Feiman–Nemser and Floden, 1986:523) rather than a means for the promotion of
student learning (Ramsden, 1987:275). The issues of the appropriateness of curriculum, and its effectiveness to educational aims are generally not overly considered. The danger with this perspective, referred to as a "pedagogy of necessity" by Tinning (1985), is that the student teacher educator is more likely to view, what is experienced during the internship as the upper and outer limit of what is possible, a condition described as "excessive realism" (Katz, 1974). This emphasis on "technical rationality" (Schon, 1983:21) is a phenomenon documented in Papua New Guinea (Lancy, 1983:189–91), and articulated as an objective for future teacher educators by a Division administrator:

We are concerned to employ officers with subject speciality knowledge, a variety of tertiary level methods and a good industrious attitude (Quartermaine, 1987).

Ross (1987) has made an extensive evaluation of the Teacher Education Training Program operating in PNG teachers' colleges. The aim of that program was to educate selected graduates as tertiary teachers and a major means of achieving this objective had been a year long internship. Conceptually this program manifested all the characteristics of the apprenticeship model. Ideally, each student had a tailored "curriculum" designed for him/her but in reality, the impetus for the program did not centre on the planned experiences of the curriculum but on the quality of the supervisor.

An analysis of the programs devised by supervisors reveals considerable variation in quality, ranging from little more than timetables of activities or loose statements such as "discover any area of need on the part of the associate" to checklists and programmes and detailed behavioral objectives and corresponding achievement levels for the recording of progress (Ross, 1987:26).

The main criticism of such a model is that it creates structures and habits of thought, that retard continued learning from teaching..."what is not learnt...is the set of intellectual tools that would allow teachers to evaluate the quality of the education they provide or to critically evaluate suggestions for improvement" (Lanier and Little, 1986:551). This is the very point that was identified as a weakness in the professional behaviour of Associates. "It was obvious from the reports sighted that fellows found self evaluation difficult" (Ross, 1987:33). Checklists, pro forma reports, questionnaires or other instruments from a behaviouristic perspective are simplistic structures which attempt, albeit unsuccessfully, to achieve this elusive goal (Paul, 1984; McLaughlin, 1990b).

One natural consequence of the "sitting with Nellie" model (Stones and Morris, 1972:3) has been a reliance on modelling "master" teachers and the lack of an explicit curriculum
for the practicum – internship experience (Turney, 1985:6ff). Within the PNG context, Ross in his evaluation of the Associate Program recommended that a specifically designed internship curriculum be a means to improve program quality (Ross, 1987:26–27). Research acknowledges that practicum curricula do evolve, but seldom is there articulated any theoretical basis for the selection and organisation of such practicum experiences (Davis, 1982). The second year of the BEd T., the internship attempts to build on the theoretical ground work of the first year program (McLaughlin, 1988a). The emphasis is placed on an inquiry orientated model. This perspective, while acknowledging the importance of competent professional development focuses more on the interplay between the individual's needs, capabilities, intentions and contextual constraints embedded in all institutions (Tom, 1985).

Teacher education programs, virtually since their inception have been dominated by psychological considerations emphasising human development, learning, and teaching methods; they have slighted sociological, anthropological, and cultural phenomena, and especially the actual functioning of the school as a social system within a longer cultural context...The future teacher is not prepared, then, with the expectation that he or she will take an active role in school–wide educational improvement processes (Goodland, 1983:44).

INQUIRY ORIENTATED TEACHER EDUCATION

The inquiry orientated model appears to articulate a compelling rationale to foster the development of quality teacher educators, since it promotes structures for teacher educators to become more aware of their subjective beliefs about teaching and its contexts, as well as to investigate such issues, so that subjectively held beliefs and assumptions become objective if verified or changed if they are inconsistent with the evidence (Diamond, 1986:10–11).

Hence, in the development of a curriculum, this proposition is an unequivocal aim and the implementing structures are particularly chosen to achieve it. Such a stand is ironically, at odds with the effects of more traditional internship experiences.

The largest unvalidated segment of professional education is the student teaching area. The only function of student teaching which has been identified by research studies is one of socialisation into the profession and into existing arrangements of the schooling (college) bureaucracy. Teacher education institutions are, at least partially, defeating their own purposes when student teaching is allowed to become simply an exercise in adapting new personnel into old patterns (Salzillo and Van Fleet, 1977:28).
The priority goal from the Inquiry Orientated perspective, is to develop, exercise and evaluate prospective teacher educators' capacities for "reflective action" (Dewey, 1933). Educators in general, and Papua New Guinea teachers in particular, (cf Lineberger, 1980; Roberts, 1986; Souviney, 1981; Meyer, 1989; Pearse, 1990; Otto, 1989) tend to perceive the status quo, the everyday reality as given, clearly defined "and in need of no further verification beyond its simple presence" (Zeichner, 1981:5). Hence, there is a definite reluctance to attempt to envisage other equally valid alternatives (Meyer, 1989). It was this adherence to the status quo that Dewey labelled as "routine action", action which is prompted by tradition, authority, official pronouncements and circumstance. Such a process clearly acknowledges "means" as problematic but generally takes for granted the ends towards which they are directed.

(i) Reflective Action
In contrast, "reflective action" incorporates "active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (Dewey, 1933:9). Consequently, the internship year should focus students' attention on the appropriateness and relevancy of curriculum and methodology, and in addition reflect upon the moral, ethical and political issues embedded in their everyday thinking and practice.

It is clearly stated that the internship program has not been generated by a concern to merely develop a focus on tertiary teaching techniques irrespective of context which might too easily lead to:

The formation of habits of work which have an empirical, rather than a scientific sanction. The student adjusts his actual methods of teaching, not to the principles which he is acquiring, but to what he sees succeed and fail in an empirical way from moment to moment: to what they see other teachers doing who are more experienced and successful in keeping order than he is; and to the injunctions and directions given him by others (Dewey, 1904:14).

(ii) Teaching Skills
However, this should in no way be interpreted as a diminution of the importance placed on the acquisition of effective adult teaching skills. This is important and courses conducted in the first year of the BEd T. program Seminar in Tertiary Teaching and Issues in Teacher Education focus on, among other things, teaching skills involved in promoting learning in adults. The internship is not aiming to produce "technicians" with
degrees (cf Adler and Goodman, 1986), but to initiate the development of adult educators, who hopefully will not only have the incipient skills to teach effectively and promote learning, but also the skills "to analyse what they are doing and the habit of mind to do so" (Zeichner and Teitelbaum, 1982:103).

Such a decision has its basis in a problem based learning perspective which has been particularly successful in medical education (Barrows and Jamblylyn, 1980; Newble and Entwistle, 1986). "Problem" is defined quite broadly as "an unsettled, puzzling unsolved issue that needs to be resolved" (Barrows and Jamblylyn, 1980:10). In semester one of the internship year, the most important piece of assessment is the keeping of a reflective journal. The journal is not a daily diary for such can easily generate into a description of events of what has happened and not promote a process of reflection. Students are asked to identify issues or problems and attempt in writing to describe and investigate them. An issue or problem is something that is evident but its presence appears to be incongruent with accepted theory or rhetoric. Some issues which students have identified have been: The basic skills examination and student learning; the objectivity of lecturer assessment in practice teaching; how to mark student assignments fairly. Such a process demands that a more reflective dynamic be in play. Moreover, a greater need for understanding is initiated even though a resolution to the problem may not eventuate.

By working with an unknown problem, the student is forced to develop problem solving, diagnostic or clinical reasoning skills. He must get information, look for answers, analyse and synthesise the data available, develop hypotheses and apply strong deductive reasoning to the problem at hand (Barrows and Jamblylyn, 1980:13).

This is the very process that has been identified as absent from among PNG engineering students who need to provide "creative solutions to problems...in the field" (Wong and Swan, 1984:3). Cox (1985) has argued that graduates from PNG's universities need to be able to cope with rapid social and technological change, which demand a provocative and challenging experience from tertiary educators.

At the cognitive level students need to be able to develop creativity and a wide variety of problem solving skills and be able to develop their skills for acquiring new information and new ways of dealing with problems which are as yet unseen (Cox, 1985:13).
(iii) Levels of Reflectivity
The inquiry - orientated paradigm most importantly attempts to stimulate a critical orientation towards learning and teaching and its contexts. Van Manem's (1977) analysis of 'levels of reflectivity' provides a helpful framework to explain the quality of enquiry that is being attempted, as the basis for the internship year. Van Manem has identified three "levels of reflection", each one describing different criteria for choosing among alternative courses of action.

Level One - "Technical Rationality"
The primary emphasis here is with the efficient and effective application of educational knowledge for the purpose of attaining given ends. The ends are taken for granted and not questioned (Schon, 1987:78). The processes involved are helpful but the emphasis here is on technical efficiency, and reflection anchored at this level maintains an efficient machine but rarely seriously enquires about purpose, a situation common in education today (Sowada and Caley, 1985:14–15).

Level Two - "Practical Reflection"
A second level is based upon practical action, since the task of inquiry involves anticipating and clarifying the assumptions that are the basis of practical research. This level is concerned with moral, ethical and value considerations concerning the educational enterprise. The educator should decide the worth of competing educational goals and experiences, and not just harness energies for their attainment, a phenomenon witnessed in the failure of some Papua New Guinea education innovations (Lancy, 1983:174–176; Souviney, 1981:3; Field, 1980).

Level Three - "Critical Reflection"
This level of reflection is essentially focussed upon the way in which goals and practices become systematically and ideologically distorted by structural forces and constraints at work in education settings.

Educational problems and issues may not only be identified as individual matters, but as social matters, requiring collective or common action if they are to be satisfactorily resolved. The outcome of critical reflection therefore, is not just the formulation of informal practical judgement, but theoretical accounts which provide a basis for systematically distorted decisions and practices and suggesting the kinds of social and educational action by which these distortions may be removed (Carr and Kemmis, 1983:34–35).
The curriculum that has evolved for the internship year is designed to stimulate reflection about education in teachers' colleges at all three levels. A "reflective teacher", the literature suggests is:

One who assesses the origins, purposes and consequences of his or her work at all three levels. However because of the historically dominant concern with technical rationality and with instrumental criteria of success in teacher education programs, a particular emphasis is placed here on encouraging reflection that employs educational and moral criteria (Zeichner and Liston, 1987).

THE PAPUA NEW GUINEA CONTEXT

The question to be considered is: Is such a curriculum appropriate for contemporary Papua New Guinea teacher educators? The literature documents the inappropriateness of applying western models uncritically to situations in developing countries (Crossley, 1984).

In a discussion on teaching styles and their application to Papua New Guinea, Guthrie (1981:164) suggested "a more liberal approach in national high schools and tertiary education.", (p.164) while maintaining for the present, formal styles in primary and secondary schools, an observation supported by two recent reports on teaching and learning in tertiary institutions in Papua New Guinea (Cox, 1985; Jordan, 1987:13). Guthrie's (1981:158–160) use of the term "liberal" is a technical one, in which it incorporates many of the teaching characteristics described by Beeby's (1966) 'stage of meaning'.

The essence of stage iv, (stage of meaning), ...is that meaning and understanding play an increasing part in the student's day. Since passive understanding is thin and narrow, the (student) is encouraged to build up, by his own mental activity, the intricate web of relations that constitute real meaning; in other words he is taught to think (Beeby, 1966:67).

This internship curriculum aims at, and hopefully provides structures that attempts to do just that. Such a direction also has support from Cox (1985:18).

I felt, that many staff within the universities feel that what he (Freire, 1972) said about adult literacy would apply to many areas. "It is not a matter of memorising and repeating given syllables and phrases rather of reflecting critically on the process of reading and writing itself and the profound significance of language". This emphasis upon critical reflectiveness is stressed by many modern writers about university education and indeed about the nature of professional life in general and is expressed very forcefully in Donald Schon's The Reflective Practitioner' (1983). It may be thought of as idealistic in terms of Papua New
Guinea education but Frere is dealing very often with illiterates and his view of the alienating effects of education in terms of transmission of knowledge to a passive object is a central theme throughout the world. It follows that I view this current analysis as something that has been put forward for critical reflection but even if much of it is accepted the really difficult part is translating it into creative educational practice.

That really difficult task has been attempted in the BEd T. program. Chapter Four of this dissertation describes those curriculum strategies for year one of the program as well as the internship program of year two.

CONCLUSION
This chapter about the BEd T. internship curriculum has attempted to give a reasoned theoretical perspective for the structures embedded in the curriculum. It is recognised that its aims are ambitious and it is difficult to monitor. Education programs expressed in behavioral terms tend to produce technicians and clearly the aims of this program are more complex, as are the processes and as a consequence harder to quantify, though they can be monitored.

The preparation of reflective teacher educators is difficult, but it is a necessary first step if the quality of education in PNG is to be enhanced (McLaughlin, 1990b). Such a prognosis echoes the ideals envisioned for future PNG teachers by the first national Director of Education at the time of Independence.

So far as teacher preparation is concerned, for the student teachers to reflect upon, and think about, what they are attempting to do and the way they are doing it, is more likely to prove helpful than following set methods (Tololo, 1976:215).
SECTION SEVEN

GENERAL SUMMARY

This chapter has reviewed the current state of the literature that influenced the evolution of the Bachelor of Education (tertiary) program. It has focussed upon six areas that are influencing learners in their experience of higher education. The areas are:

- Cognitive Development of Teacher Education
- Stages of Intellectual and Ethical Development
- Experiential Learning
- Adult Learning
- Learning from the Students Perspective
- Inquiry Orientated Teacher Education

Figure 2.15 is a diagrammatic conceptualisation of the research literature on the BEd T. curriculum. The six influential areas give insight into those processes and dictate strategies that promote better learning among adult PNG students.

As has been repeatedly emphasised throughout this thesis, curriculum or learning theory, as well as strategy are sterile if they are not firmly placed into a contextual perspective (Ramsdem, 1984). Consequently any insight gained from the literature must pass through a series of filters (the circles in the diagram) that adapt, interpret and reinterpret theoretical implications. Beeby's stages of educational growth for developing countries provides a cognitive map that highlights the dominant stages a country's education system is negotiating. Such filters alert educators to factors that should influence the pace and type of education change if it is to be adequately understood and consequently be effective (Ross, 1989:56–57). Beeby's emphasis is on the teacher's capacity to intellectually appreciate and understand curriculum and strategy as a prerequisite for successful implementation (Beeby, 1979:291). In the practical sense, his "stages" deliver a strong warning for the uncritical adoption of western education practice in teacher education curriculum (cf Hawes, 1979:62), as well as alerting educators to the possible cultural preferences to certain teaching styles (cf Guthrie, 1986), which have just as much validity as those preferred in the west (cf Mosstan, 1972).
Another filter, that has an effect on the impact of learning is that the medium of learning is English. Teachers often appear to have a tenuous grasp of the language and as a result communication is often muted and artificial. In order to make sense of this baffling and often incomprehensible situation, students are regularly forced to adopt survival and rote techniques in contrast to deep learning strategies. This situation must be clearly acknowledged and strategies planned that attempt to compensate and remedy it.

The final filter to influence the BEd T. curriculum is aspects of traditional PNG education that still influences learning. In contrast to the rhetoric about the purpose of western higher education being concerned with critical thinking and enquiry strategies, traditional education emphasised the faithful transmission of a finite body of knowledge, that aimed to maintain the status quo. The strategies employed in such a process were of a concrete nature depending on context for its employment i.e field dependent in contrast to an abstract categorisation. The notion of field dependency is an important insight in the initial generating of strategies that incorporate relevancy in the promotion of understanding. Associated with this is the strategy of collaborative learning, a mode highly preferred in both traditional and higher education. However for a variety of reasons that are elaborated in more detail in Chapter Three, much of what goes on in modern PNG classrooms does not promote communication. As a consequence there are many rituals teachers utilise because these provide a security, when in what they are participating, is not fully understood or is not under their rational control. This is further exacerbated when teachers with limited education themselves are forced to teach in a language in which they have a tenuous grasp (Johnson, 1972; Dutton, 1977). It is planned that students in every year of their three year program participate in English language communication courses.

Students often need personal and professional support to meet the challenge to dare to risk new learning experiences. Such a role is played by the co-ordinator of the BEd T. co-ordinator, who acts at times as the catalyst for a variety of teaching and learning experiences.

The teaching and learning strategies (at the bottom of the diagram) have an emphasis on reflective processes initially based in the concrete, personal relevant experiences of the
learner in the hope that they will form the basis for more abstract transferable principles that might be used in the generation and solving of problems. Much emphasis has been given to collaborative learning as well as more individualistic strategies so necessary for independent and deep thinking students who will be future teacher educators. For it is only educators who possess such qualities and skills who will be able to implement the radical recommendations for Papua New Guinea's future teachers (McNamara, 1989), who will be required "to experiment with and reflect upon different approaches and styles of interaction" as well as to display "self reliance, initiative and creativity" (Ross, 1989:69).

The next chapter, Chapter Three will examine the cultural and educational contexts of learning in Papua New Guinea in order to better understand the student, his experiences and his problems in negotiating western learning in higher education.
Figure 2.15

Diagrammatic Conceptualisation of the Research Literature's Influence on the BEd T. Curriculum.
CHAPTER THREE

THE PAPUA NEW GUINEA EDUCATION CONTEXT

For a variety of reasons (Philp and Kelly, 1974:275) Papua New Guinea has opted in practice (Tololo, 1975:5; Smith, 1975:42-55), and continues to do so, for essentially a western type education system (Matane, 1986:22-27), though its relevancy (Chatterton, 1973; Naur, 1986; Sukwianomb, 1986) and its efficiency have been questioned (Kenehe, 1981). The education direction is accepted as a fact, and it is acknowledged that this general direction seems very likely to remain, though some official misgivings have been articulated, albeit obliquely.

Traditional education was integrated with the community and taught children to see the world through the eyes of the community. Through whose eyes do our children see the world now? (Matane, 1986:8).

Students entering tertiary institutions in Papua New Guinea in the main, are inducted into a milieu consonant with the goals and structures of higher education of western countries (Lynch, 1980), a process which in many respects is very much alien to the cultural experiences of most student (Harvey, 1972; Shea, 1976:185; Shea and Still, 1976; McLaughlin, 1988b; 1989a). This clash of perspectives may precipitate sets of varied and complex problems which may at times hinder personal and professional growth among students (Cox, 1985).

THE "TEACHERS"

Lecturers (both national and expatriate) are more "at home" with the values, structures and customs of tertiary education, given the extent of their own varied educational experiences. They say they espouse intellectual standards and the pursuit of academic excellence, that western universities often proclaim in order to maintain international recognition (Piper, 1984:7). Consequently lecturers may exhibit behaviours that may lie somewhere along a continuum. One pole has been described as "banking education" by Paulo Freire, when he participated at the Eighth Waigani Seminar on Education in Melanesia. The education process is simply "to make the entries in the empty heads of the educatees" (Freire, 1975:246). Academics may recognise the varied cultural and
intellectual differences among the students of the various provinces in PNG, but be unable to reconcile this diversity, so that their teaching may fail to recognise a Melanesian perspective on education. Hawes has noted the same phenomenon in other developing countries.

So frequently in my recent journeys in Africa have I encountered committed men and women displaying great skill into inducting teachers into techniques of presenting relatively unimportant content (Hawes, 1979:63).

For some expatriate lecturers, it may be a real challenge to their personal integrity to attempt to see life in terms broader than their personal experience. To do so is something akin to academic culture shock. Jordan (1987:5), maintained that a personal and painful dissonance may accompany any attempt to share in some depth, another's perspective, which is so culturally different.

THE "TAUGHT"
The opposite pole of Freire's continuum, to which Jordan implicitly alludes, is best described as "involvement" (Jones, 1974:1), and this presupposes that knowledge is not to be viewed in only a transmission context but "has to be made and remade by (the learner's) action and reflection on reality" (Freire, 1975:246).

Such a perspective accepts that the learner has a set of cultural and learning experiences that flavour and interpret reflection on new knowledge. Lawrence (1959:52–53) acknowledged this reality, a generation ago in an address he gave to neophyte Australian teachers bound for the "Territory" of Papua New Guinea.

...in bringing a programme of Western education to any under developed country we are not educating in a vacuum. In every native society there are already in existence both an epistemological system and some means of transmitting it from one generation to the next...they are systems, which are fully integrated with the total way of life of the people. It is this that gives them their inherent logic and consistency, so that they cannot be regarded...as a mere rag-bag of uncorrected information and beliefs...The failure to recognise these facts...is especially dangerous. It has undermined education schemes in the past...I refer to the common attitude of the recruit to the mission field and the teaching profession, that the grateful native will be as clay in his hands. What he has to learn...is the clay is not as pliable as he thinks. Not only is it already shaped but fired and glazed as well.

This then is the rationale for this investigation of traditional learning and teaching among Papua New Guineans. Tertiary students have all experienced western schooling but
since most students have spent their childhood in the village (Weeks, 1977:29) they also have varied sets of experiences that reflect a traditional Melanesian epistemology.

Each village also had its own education system. The subject matter was life and how to live it. It was a perfect system of education. The teachers were expert and the pass rate was high. There were very few dropouts. Our teachers could explain to their pupils. They know the names for everything. They knew the name of every tree and plant. They could explain every natural phenomenon. They knew the myths and legends and taboos. It as a perfect system of education for a static society (Olewale, 1971:220).

It would seem then reasonable to attempt to understand that "other" education system, in which many students for a greater or lesser degree also have been "schooled".

THE PROBLEMS OF GENERALISING

The major difficulty in attempting to describe traditional educational practices in Papua New Guinea is "that there is no culture which is common to the whole of PNG – there are many similarities among different groups, it is true, but there are also a lot of differences" (Jones, 1974:4). This observation, which has consistently been confirmed by anthropological studies (Chowning, 1972:156–164) forms the basis for difficulties in generalising about traditional education practice, though they can be identified, albeit judiciously.

The principal factors which affect a child's environment are its sex upbringing; the rank and status of its parents; the domestic setting, as for example whether it lives in polygamous or monogamous household, and whether the individual family of which it is a member is large or small...the marriage may be patrilocal or matrilocal or neither, divorce or death of a parent, legitimacy, and the very common custom of adoption may also mould profoundly the conditions under which a child grows up (Wedgewood, 1938:3).

Coyne (1974:1–2) in a study of traditional educational practices in PNG warned the reader about the scarcity and unrepresentativeness of data from anthropological studies, which in general, had peripheral foci on the educational aspects of the society under observation. Much of the fullest data are from studies completed in the East Sepik, the New Guinea Islands region (Chowning, 1972:156), Madang (Lawrence, 1959) and Morobe (Read, 1958), although evidence from the highlands often reveals another perspective. Lawrence (1959:58) cautiously warns: "In the Goroka and Hagen areas (highlands) for instance, empirical knowledge, appears to be highly valued in itself and maybe conceptualised as derived largely from the human intellect", which clearly is not the case elsewhere in Papua New Guinea.
Transmission of Knowledge

The aim of education of preliterate societies was to faithfully transmit an accepted and shared way of life, in the form of knowledge from one generation to the next (Tyler, 1871:1). Knowledge in traditional Melanesia was perceived to be a finite body of information, indeed a commodity or "cargo" which can be purchased through mere participation (Tololo, 1976:220–221) "A common observation of Pacific students is that many go to school or university for knowledge as they go to trade stores for tinned fish" (Lindstrom, 1990).

Traditional knowledge may be categorised, in the contemporary western perspective, in terms of technical or general knowledge in contrast with revealed, sacred or secret knowledge (Lawrence, 1959:52–55; McLaren, 1974:361; Young, 1977:26). Papua New Guineans [and the pre-seventeenth century Europeans (Lawrence, 1975:339–345)] never did, since knowledge though complex, had a unity and interrelationship about it, because all of it had its origins with the gods and ancestors.

However, allowing for location variations, generally speaking the natives do not seem to apply our rigorous principles of categorisation. They do not bother to make a firm distinction between the two branches. They tend to confuse them and treat each as part of a single complex (Lawrence, 1964:30).

Prince (1969:94–104) in a study of science concepts among PNG students, related that Papua New Guineans acknowledged their belief that technical skills and revealed truths had a common origin. As a consequence, there appeared to be no evidence of dualistic thinking in scientific and supernatural explanations in PNG, which is not the case among other peoples in developing countries. An example of this is the high school student who acquires a model of science, which is an extension of this unified epistemological traditional model "rather than one which incorporates ideas like the 'ladder of abstraction' linking general laws to specific instances" (Young, 1977:21). Consequently, scientific reasoning may be accorded the same causal and logical models as magic and mythology.
(Donohoe, 1974) since "they believe it exists, certainly, if not only, because it was revealed to men by their deities" (Lawrence, 1959:55).

Technical Knowledge

Survival, often in a hostile environment necessitated that primitive peoples develop a rudimentary but sound body of technical knowledge, which was utilised with varying degrees of efficiency (Lomax and Arensberg, 1977). The coastal people around Madang developed a wooden slit drum (garamut) into an instrument for conveying elaborate messages accurately, for distances of over one hundred and forty kilometres, thus revealing both their technical proficiency with instrumentation, and relative cognitive sophistication in symbolic communication. On Ponam Island in the Manus Province, large sea going canoes were constructed from comparatively simple hand tools. This displayed technical dexterity. Children exhibited perceptiveness in working "various sections of the reef with different tools and techniques" (Lancy, 1983:121). In the Highlands hectares of land were cultivated using elaborate horticultural techniques (Foley,1986:16).

The people can tell you the best part of a hillside on which to plant taro and sugar-cane respectively, phrasing their answers in emphatical terms. Taro does best if planted near the top of the hill, because it will not grow in sodden ground. While sugar-cane thrives on plenty of water and should therefore, be planted lower (Lawrence, 1959:54).

Children were alerted to "what is edible, such as frogs, tadpoles, mushrooms, leaves and berries", as well as recognizing and naming different species of local fauna and flora (Cheethan, 1980:63).

Clearly, traditional villagers often displayed remarkable efficiency in their use of technical empirical knowledge, and that knowledge would seem to have been amassed over hundreds of years of trial and error learning, common experience and experiment. This technical knowledge in the eyes of a westerner, was acquired "entirely as the result of human endeavour" (Lawrence, 1959:55). This was not the case from the point of view of many traditional Papua New Guineans. This practical knowledge originated from the ancestors and the deities and it was they who revealed it to man (Young, 1977:26). Lawrence elaborates further, on this belief.
Generally speaking, these myths explain how the deities invented and created artefacts, domesticated animals and food plants to make human life more comfortable. Thus one deity is believed to have invented the slit gong; another canoes; another hand-drums; another pigs; another taro; another yams; and so on. After each act of invention and creation, the relevant deity appeared to human beings in the course of a dream or similar experience and give them all the information necessary for the manufacture, breeding or cultivation of the artefacts, animal or food plant for which he or she was responsible (Lawrence, 1959:55).

**Revealed Knowledge**

A distinction was made between revealed or "true" knowledge and the technical or everyday knowledge, with true knowledge being esoteric and secret and available only to the select initiated, which did not include women or children (Young, 1977:26). This knowledge was bestowed upon the initiate by direct revelation from the gods or by instruction by others, who were already in the know (Lawrence, 1959:58). This knowledge involved the processes and secrets, which permitted one to relate successfully with the gods and incorporated magical rites, mythological folklore, taboos, spells and the means for living in harmony with the dictates of the deities (Lawrence, 1972:1010).

This special knowledge typically involves all dealings with the dynamic forces of life, particularly fertility, that is, the productivity of the ground, the plants that grow in it and the animals and men which live by them... This knowledge is held in the form of special names of powerful deities, magical rites and spells or special rapport with spiritual beings. Such knowledge is considered the most potent of man's cultural possessions and is not allowed to fall in the hands of anyone who might not regard it seriously. It is shared therefore only with those who have gained full social maturity (McLaren, 1974:361).

Because this knowledge had it sources with the gods, a number of deductions can be made describing it. Firstly, unlike western knowledge which is meant to be challenged, Melanesian knowledge was finite and not tested. Its divine source guaranteed its veracity. Moreover, it explained adequately enough the important forces in the world, to further legitimate its orthodoxy. In addition, it dictated a set of moral imperatives, that guided behaviour and maintained the spiritual strength of the community (Young, 1977:26).
THE CHARACTERISTICS OF KNOWLEDGE

Relevant and Pragmatic

All knowledge then could be viewed as essentially pragmatic, though the application and relevancy of everyday or technical knowledge was all the more evident.

Traditional knowledge is mainly thought of in terms of behaviour. It is, above all, knowledge of how to do things, especially things of day to day living such as gardening, building houses, fishing, hunting, handcraft, getting along with kinfolk, etc. What comes through here is a recurrent theme, namely the perception of traditional knowledge as being eminently suitable for practical purposes and uses (Young and Bartos, 1977:12).

Knowledge was essentially relevant. Mythologies displayed a complete lack of interest in philosophical or scientific issues but focussed almost entirely upon success in maintaining a profitable livelihood. "Nearly all sources report a lack of concern with the origins of the universe in general or the earth as such" (Berndt, 1972:824).

Satisfying

Because of its practicality and immediate relevancy traditional knowledge provided quite a deal of positive psychological reinforcement, correlated with obvious intrinsic motivation. In a study of educated Papua New Guineans, who had experienced village education, Young and Bartos (1977:13) noted: "traditional knowledge provides satisfaction in learning, makes one confident, and is less threatening". This was not what they experienced from Western schooling.

Efficient

Because of this perceived relevancy, the mode of transmission was relatively efficient. Learning was clearly associated with immediate practicality, appropriate to the individual's needs and related to local circumstances.

Regardless of age, however, similar kinds of things are usually taught. At the earliest age, the child must know which objects, areas and people are dangerous; whom he can trust; and whose food is safe to eat. He must learn to cope with his environment and handle simple tools, weapons, and fire. He should know the properties of common plants and animals and be able to collect and prepare such foodstuffs as shellfish. He must be instructed to observe taboos. Knowledge of the spirit world is likely to be hazy; the parents are only concerned with protecting the child from supernatural dangers and with preserving the mysteries from non-initiates. Admission to full knowledge comes only with adulthood (Chowning, 1972:160)
Adult Orientated

Though technical knowledge was generally available to all at the appropriate time, (Smith, 1975:4) revealed or true knowledge may be only transmitted when one was mature and responsible enough to accept and appreciate it, namely adulthood (McLaren, 1974:362–63).

As a child, one was taught a few simple spells to, for example, keep away rain, lure octopus, or attract a girl temporarily; now [in late adolescence] he is admitted to the repertoire of gardening and hunting, magic, serious love magic, the spells to protect property and cure disease. Before he is ready to marry, the principal secrets of the men's house, if any, are revealed to him. Nevertheless, in many groups, learning still continues well into adulthood. Only long after marriage does a man become a specialist at carving or curing; only in his forties perhaps admitted to the inner rites of a secret society; only when about to become a father himself taught the spells to ensure the growth of his children and only when his father is about to die instructed in the last special knowledge. In many societies, fully grown and married men often announce 'I am but a child' in recognition of the fact that acquisition of knowledge and gradual assumption of responsibility is a gradual process and that full maturity may come only with middle age (Chowning, 1972:163–164).

Thus the transfer of knowledge was deliberately regulated throughout life and imparted when it seemed that the learner might best use it.

Village Centred

The imparting of traditional knowledge was centred upon the place of its immediate application, namely the village. For it was the village that provided a unique environment, with its variety of stimuli so important for development. Hogbin's description of a village near Lae would well apply to much elsewhere.

Busma must be one of the most delightful spots for growing up. There is a shelving beach with clear white sand, smooth seas and many streams for swimming; waterfalls under which to sit for a shower bath, a dense forest for hide and seek and sandhills for rolling and sliding (Hogbin, 1951).

In contrast to western schooling, the village was an informal context, where children and adults intermingled freely most of the time. People learnt individually and informally as things happened, by observation and imitation of parents and elders "...their learning depends much more on an innate desire to imitate adults rather than a planned inculcation by parents" (McLaren, 1974:361). The process is informal and when more direct strategies are adopted they are brief, since the doing is considered all important,
white teaching is a peripheral process. Though some commentary might accompany the activity, the emphasis centred on the activity. Verbal interaction was not encouraged (Young and Bartos, 1977:121). As the Melanesian philosopher Bernard Narokobi (1980:66) asserts, it is in the "speech of silence" that Papua New Guineans appreciate that "words gave deep meaning because they come from deep silence". Such a phenomenon may be too easily misinterpreted by contemporary educators as a "lack of response" and student disinclination for a participation in learning (Henry, 1979). Nevertheless, such uncritical acceptance of traditional knowledge and procedure is at odds with the values which western education espouses, where children supposedly are encouraged to think independently, not to accept unquestioningly the beliefs of others, and to be open to, and to initiate change (Metraux, 1964:127).

Traditional Knowledge and Western Knowledge

The conceptual framework for Melanesian knowledge processes is inspirational, revelationary and transmissional, while western knowledge is characterised by inquiry, reflectivity and creativity. Individual intelligence and perceptiveness are acknowledged as important factors influencing learning. In contrast, in inspirational systems intelligence has no equivalent concept, as Carrier noted when commenting on the Ponam Islanders: "Ponams do not invoke notions like 'intelligence' or 'a capacity to learn'. They have no word for intelligence" (Carrier, 1984:61). For the Melanesian the important thing was to possess knowledge. In practice this meant:

to know where to find the right sources; to have good contacts. In inspirational systems, people explain successful learning in terms of hardwork and struggle, not in individual intelligence or how smart one is (Lindstrom, 1990).

Consequently, "new" knowledge was received through initiation, dreams, purchase or through various ritualistic devices, (McSwain, 1977; Wong and Swan, 1984). It was not self generated, nor was it critically assessed.

PURPOSE OF TRADITIONAL KNOWLEDGE

A major purpose of traditional knowledge has been to pass on to the population the "know how" of getting things done in order to survive. In addition, an even more dynamic purpose was to preserve traditional culture, for essentially the future was basically seen as a reproduction of the immediate past (McLaren, 1974:350). The rationale for such a perspective is logical. Traditional ways of living were given to man
by the gods. They were perfect in themselves and did not require further enhancement or adaptation. The ideal had been achieved (Hogbin, 1946:283), and with it, an obligation to pass it faithfully on from one generation to the next. Hence, there was no obvious sense of change in society, though it did occur, "if it was considered worthwhile" (McLaren, 1974:350). It was slow change over many generations which made its detection unobservable to most villagers (Coyne, 1974:5).

...the body of knowledge, as the people see it, is static and finite, as the cosmic order within which it is contained. It was brought into the world ready made and ready to use. It can be augmented only by further acts of invention and revelation by old or new creative spirit beings, who inhabit the natural environment. Hence, it is hardly surprising that the epistemological system has taken this form. The religion is intellectually satisfying, for it operates within a framework that guarantees its validity. Because of the monotonous repetition of economic and social life, there is hardly any event which cannot be explained by or attributed to it. The whole visible world, the annually ripening crops, the fertility of pigs and human beings, and even death as the apparent result of sorcery - far from allowing it an aura of mysticism, proclaims that it is solidly based on empirical and verifiable fact. There is no need in fact, no room - for an independent secular human intellect (Lawrence, 1972:1011).

Physical Development

Most tribal peoples placed great importance in proficiency in the physical skills of "tool making, gardening, fishing, hunting, food gathering" (Isoaimo, 1974:105) and aggressive skills that would be useful in times of war. Mead (1930:42) stressed that Manus people highly valued the physical skills of swimming, climbing, fishing and sailing, not only for their immediate practical relevance but also, because they promoted personal self confidence, and reliance which usually made one, more fearless and resourceful, virtues that also were helpful in war. Cheetham (1980:63–64) described that while the Huli boys were in the men's house, they were encouraged to be self sufficient and independent as good hunters.

While amusing themselves, the children acquire physical skills and manual dexterity, and may exercise their imaginations and develop social awareness. They are bound to learn standards of interpersonal behaviour - perhaps the strong can bully the weak, perhaps that co-operation is necessary if the games and enterprises are to be successful and enjoyable (Chowning, 1972:162).

It was because of the recognition of the need to balance these aggressive tendencies with a co-operative attitude that great stress was place on self control. An example is appropriate; a man of wealth won great respect and prestige; more so when he maintained it, usually by warfare. Those qualities which were perceived to lead to this wealth were
aggressiveness, courage and fighting ability. Such behaviours, if emulated by young admirers in a random way, might easily promote hostilities among clan members. This was strictly forbidden; for survival of the clan in an unfriendly environment demanded internal unity and harmony. Children were encouraged to express their aggressiveness through temper tantrums, swearing or taking out their rage on a tree with an axe (Hogbin, 1951).

The aim of traditional societies was generally self control of the emotions in the sense of making sure that one's expression of one's emotions did not harm anyone else (Coyne, 1974:11).

Associated with the attainment of physical skills was the virtue of industriousness. Though children often learnt much in a casual and unplanned way, through observation and imitation, much encouragement was given to the conscientious attainment of skills that might assist in adult living (Oliver, 1953:193).

Girls, for example, learn to gather and prepare food and do much of the housework at home during these years, and boys to engage in such activities as fishing, handling a canoe and hunting. In the early years, play and work may be inseparable (Kemelfield, 1980:96).

Cognitive Development

At first perusal the development of cognitive skills may seem "limited to the development of a few basic personality ideals and some basic concepts of causality in the physical world" (Coyne, 1974:5), though even the latter was not overly developed, as their ultimate divine origin was sufficient to quench further curiosity.

However, cognitive skills were developing in subtle ways. There seems to be direct relationships between the complexity of technical knowledge and cognitive growth. White (1959:19) suggested that "the technological factor determines, in a general way at least, the form and content of the social, philosophic and sentimental sectors". The more complex the activities of a society, the more sophisticated is that society, which in turn is a manifestation of increased cognitive complexity; possibly this is because the manipulation of a wide range of differing tools may have a direct impact on cognition (Brainerd, 1978). Sutterthwaite (1980:314) in commenting upon Australian Aboriginal societies maintained that "more complex technologies [are] generally associated with more involved social arrangements for their use".
In the Papua New Guinea context, the various technologies may have affected cognitive complexity among the differing groups.

...from an evolutionary perspective, Yesner (1980) argues persuasively that maritime hunting and gathering (e.g., Ponam and Mandok) as a way of life is unstable and will change continuously in the direction of greater complexity (Lancy, 1983:122).

Moral Development

Honesty

The rationale for much of the moral behaviour in traditional Papua New Guinea depended upon the overall welfare of the community (Mantovani, 1986:7). Great stress was made of getting along with others. Virtues such as truthfulness, honesty and respect for property were encouraged, but generally the motivation evolved from a self interest perspective, rather than in a value for the virtues in themselves. There were exceptions, for the Malaita in the Solomon Islands seem to have developed the abstract ideal. Hogbin (1951) illustrates this by documenting the distinction in moral training between the Wogeo children in the East Sepik and the Malaita.

In moral training (among the Wogeo) the practical issues are stressed, and the elders quote the maxim that friends are more helpful than enemies if behaviour seems likely to give offence. Any ethical reasons for exercising restraint are ignored and the fact that honesty is the best policy is the most cogent argument by far in its favour. Thus the stock admonition if children begin meddling with other people's belongings is simply, "that's his; he'll be cross if you break it; better not touch it"... [On Malaita] parents consciously strive to inculcate feelings of personal responsibility. A child who interferes with someone else's property is told not: "that's his; he'll be cross if you break it", but "that isn't yours; put it down", and one who has made fun of companions after a rebuke has the enormity of his offence brought home to him by some such remark as he ought to go and hide his head for having said such things. It is not an accident that in Malaita there is a word closely corresponding with our term "conscience" a concept conspicuously absent from the Wogeo tongue...

Concern

Papua New Guinea's unique version of social security, "the wantok" system, has its roots in traditional obligations to be hospitable to one's kin, particularly in the generous provision of food and shelter (Berndt, 1962:100). The motivation appeared to have its basis in a very necessary self interest community context rather than altruism.
"Generosity built up obligations on the part of the recipient, and these obligations could be called upon in times of need" (Coyne, 1974:6).

Obedience
In most traditional PNG societies, obedience to authority was "an esteemed trait" (Chowning, 1972:161), though the degree of its application varied greatly. The Peri children seem to be able to do anything they wished without chastisement (Mead, 1930:43), while the Engans, who had very strict notions on obedience, inflicted severe punishments on those who deviated from parental commands (Bauer, 1962:6). In most traditional societies discipline was introduced in the context of initiation ceremonies (Townsend, 1985:53). Obedience then, was elicited mainly through probing, coaxing and scolding. Children seemed more concerned to avoid censure than to acquire rewards (Kemelfield, 1980:94). Yet again, self interest became the prime rationale for obedience: "Good behaviour is induced by accounts of the probable retaliation of those offended, who may withdraw support and aid, refuse to the child as an affine, or actually attack him with physical weapons or sorcery" (Chowning, 1972:161). Malinowski (1932:45) noted that most techniques to induce obedience in children were identical to those for adults. In other words parents were "generally treating the children as their own equals" (Coyne, 1974:8).

INFORMAL EDUCATION
Traditional education in PNG may be viewed from two perspectives, formal and informal (Townsend, 1985:103–2). Greater emphasis was placed on informal education particularly in childhood. There was an absence of formal processes during these years. By the time they reach the age of adolescence without any formal education comparable to our own for boys of the same age, they have mastered all the empirical knowledge regarded as essential for survival in their society, in the fields of gardening, house building, the preparation and cooking of food, hunting and fishing...a native boy can always see the direct significance of what he is doing. As suggested, his activities are always relevant to his survival, and the socialisation process is not in advance of the stage of social maturity he has reached. He can apply directly what he learns (Lawrence,1959:57).

Implicit in this description was that traditional informal education was context orientated (Bruner, 1966), with the learner's own intrinsic motivation being responsible for the initiation and maintenance of education. Mead (1943:634) has noted that the Arapesh
and Iatal of West Sepik were learning, not teaching societies, since they focussed on the child as learner, "as the one who needed and desired to learn certain skills to function as a competent member of society" (Stringer, 1984:5). Mead has observed that the emphasis centred on the self initiated learning of a universally agreed upon informal curriculum (Mead, 1943:634).

Miscarriage (in the transmission of knowledge and skills) did occur but not sufficient to focus the attention of the group upon the desirability of teaching over against the desirability of learning.

It would be appropriate to attempt to describe some of the characteristics of traditional informal education.

CHARACTERISTICS OF TRADITIONAL INFORMAL EDUCATION

Harris (1980) has conducted extensive research on the learning contexts of the Milingimbi Aborigines, some of which seems to provide some cautious insight into the Papua New Guinea context. Whiting (1941) has observed how Sepik-traditional education was conducted. These will also be discussed.

Learning by Observation and Imitation

The literature consistently describes observation and imitation as a principle of traditional learning. The children have been exposed to, and have participated in adult imitation models since infancy. Mead (1930:34–35) documented the deliberate use of playful repetition by parents and the encouragement of imitation in the child's learning to talk. "Adults play games of imitative gesture until the child develops a habit of imitation, which seems at first glance to be practically compulsive" (Mead, 1930:35). The technical aspects of hunting, fishing, canoeing, agriculture and butchery were learnt through observation, casually and unplanned for (Isoaimo, 1974:105; Smith, 1975:3), and generally in the context of play. The rationale for this procedure was the belief that children were incapable of real education, and hence a formal process would be meaningless.

No attempt is made to give the child any kind of formal instruction, as far as I am aware. People explain that it is pointless trying to teach small children, because they are mini nawi, which means literally "without sense". This is a key concept when the Huli themselves discuss socialisation and education (McLaren, 1974:362).
Learning by Personal Trial and Error

Since an official apprenticeship program was seen as inappropriate, proficiency and efficiency were gained through a trial and error process. Mead (1930:28) has documented what happens when Manus children learn to swim.

Swimming is not taught; the small wader imitates their slightly older brothers and sisters and after floundering about in waist-deep water begin to strike out for themselves.

A similar process was observed by Lawrence among the children of Madang:

It is not uncommon to see them pick up axes or bush knives and imitate the adults in the work they are doing. They are never discouraged...gradually as they grow older, they become adept in the use of tools and in the basic technical skills necessary for survival (Lawrence, 1959:57).

This does not preclude that some verbal instruction accompanied any learning process though "what interaction takes place is by spoken word alone, in the local language and there is no initiation toward discussion; young people must obey elders" (Young and Bartos, 1977:12). Verbal activity plays very much a supplementary role, while learning by doing is of primary importance. Verbal interaction may stimulate children to initiate further private trial and error learning.

It is difficult to describe the exact process by which children learn these things. It seems that mothers often talk to their small children while they are doing their work, and in this way children learn important information. Also mothers designate certain things as belonging to the child and say something like "This is your pig"; "this is your fish" etc., and this no doubt stimulates the child's interest in learning about these things (Cheetham, 1980:63-63).

Learning in Real Life Activities

Learning occurred in the context of the activity itself, and it is not considered to be a practice in a contrived setting. In assisting the child's acquisition of language, parents in the repeating of words are not only providing stimuli and models for the child, but are enjoying personal pleasure from it. The activity is not a monotonous, boring task to be endured for the sake of child rearing.

This random affection for repetition makes an excellent atmosphere in which the child acquires facility in speech. There is no adult boredom with the few faulty words of babyhood. Instead these very groping words form an excellent excuse for indulging their own passion for repetition...I have counted sixty repetitions of the same monosyllabic word either a true word or a nonsense syllable. At the end of the sixtieth repetition, neither baby nor adult was bored (Mead, 1930:35).
This acquisition of important learning often incorporated a play context as was the case of Fore children (Sorenson, 1971:200).

These activities should not be interpreted as purposeful practice for increased proficiency, but must be viewed as ends in themselves, since much pleasure was derived from them. ...it fits in so well with the game of repetition for repetition's sake, neither teacher nor pupil tires easily..." (Mead, 1930:37).

Absence of the Institutionalised Office of Teacher.
The absence of an institutionalised teacher in informal education was evident. This does not mean that a didactic approach was never used. It occurred but it was rarely planned. Technical skills were often accompanied by a commentary, though preeminence was always placed on the process itself. The person demonstrating as a "teacher" was of secondary importance to the actual activity itself.

Such teaching is always the primary responsibility of the parent of the same sex, though an expert at such specialities as canoe manufacture or weather control may teach a nephew or more remote relative, especially if he has no son of his own or is paid for the job. Much is learned by a child's simply trailing along, partly for amusement's sake, observing, and trying tasks for himself. Detailed instruction is sometimes given, however, with the adult demonstrating, explaining, and guiding the child's hands. Children are usually encouraged to help with small tasks even when they may actually be a hindrance, on the assumption that they will only learn by doing (Chowning, 1972:161-162).

The Huli developed a deliberate policy of "vertical grouping" education, preferring boys of different ages being together, while discouraging excessive mixing of boys of the same age, the rationale being that the younger will learn from the older children (Cheetham, 1980:63). Indeed, Mead documents that peer teaching was a common process in the learning of Tok Pisin: "Young men who have been away to work for the whiteman return to the villages and teach the younger boys who in turn teach the very small boys" (Mead, 1930:37).

"TEACHING" STRATEGIES
Having noted that the concept of "teacher" had broad connotations, it is appropriate to explore some of the methodologies employed by their many mentors. In his observation of the Kwoma of the East Sepik, Whiting (1941:177) noted three major teaching
techniques: motivation, guidance, reward. Such processes appear to be fairly representative of most other groupings in the country.

**Motivation**

Motivation included external stimuli such as scolding, threatening, warning, encouraging, bribing and punishing, with the latter generally invoked as a last resort, when parents had been overcome by bad temper through frustration.

Every gain, every ambitious attempt is applauded; too ambitious attempts are gently pushed out of the picture; small errors are simply ignored, but important ones are punished. So a child who after having learned to walk, slips and bumps his head, is not gathered up in kind, compassionate arms while mother kisses his tears away, thus establishing a fatal connection between physical disaster and extra cuddling. Instead the little stumbler is berated for his clumsiness, and, if he had been very stupid, slapped soundly into the bargain. Or if his misstep had occurred in a canoe or on the veranda, the exasperated and disgusted adult may simply dump him contemptuously into the water to meditate on his ineptness (Mead, 1930:30).

Traditional societies tended to lump scolding, threatening and encouraging together for all but the most minor offences (Oliver, 1953:192). Unlike Western societies there seemed to be no graduation of motivation. One of the most effective motivations in the form of threat centred upon self interest. If the child did not behave correctly to his relatives, they would breach relationship with him. This would deprive him of sources of aid, in time of need (Whiting, 1941:60).

**Guidance**

Skills were transmitted through leading, instructing and demonstrating under the guidance of a mentor. Toilet training was gradually accomplished "after a period of instruction and explanation, (though) the child may be scolded or slapped if he has an accident or misbehaves in front of a visitor" (Chowning, 1972:159). Likewise were the skills of singing, dancing, drumming and weaving transmitted (Mead, 1930:30ff). Foremost in such a process was the demand that the learner be an observer who demonstrates interest and motivation. "The surest way to learn something on Ponam Island is by direct sensory evidence - to see, taste or feel...though...one has to be interested in what is said and attend to it" (Carrier, 1984:74-5). The aim was to gradually and carefully introduce the child into the adult world, initially as spectators,
a process which should stimulate in the child the desire to be a participant (Gitlow, 1974:49).

Apart from food cultivation and hunting, the young boy also learns from the men how to open up new gardens, how to build a house. He also sits with men during a pig kill and mumu, and watches as they butcher and share out the pigmeat. They could also help him to recognise social relationships and social obligations, since pigmeat is shared according to those principles (Cheetham, 1980:64).

Rewarding

This technique needs some amplification. Chowning (1972:161) has commented that children seemed more anxious to avoid censure than to accumulate rewards. The concept has its basis in reciprocity. Rewards are bestowed in return for a service, as would be the case, when the adolescent Huli having performed such tasks as collecting firewood, fetching water or tobacco, the elders would distribute food. It is not seen simply as a reward, but had its basis in self sufficiency and fair exchange (Cheetham, 1979:89). Mentors helped their "disciples" after their "disciples" had helped them, but the aim was ironically, to promote self sufficiency and independence not cultic devotions. Mead described this principle in action, when she recorded how Manus toddlers learn to punt their canoes.

But that his small child may feel important and adequate to deal with exacting water life, the father retires to the central platform and the infant pilot mans the canoe. And here again, there are no harsh words, only a complete lack of interest. But the first deft stroke which guides the canoe back to its course is greeted with approval. The test of this training is the results. Manus children are perfectly at home in the water (Mead, 1930:30).

As well as reward, the withholding of praise or refraining from direct assistance are techniques aimed at stimulating motivation to goal attainment. "They are never discouraged and often complimented" (Lawrence, 1972:1010). Edoni in describing traditional Melanesian values, noted that egalitarianism was strictly insisted on, acknowledging that "no individual person is more important than the other" (Edoni, 1986:37). This value was also reflected in the fact that traditional societies did not encourage competition among individuals, praise individual superiority, single out talented children as models for others to emulate, or insist that there was to be a notional standard of competency to be attained at a certain time, in order to be classified as proficient.
...clumsiness, physical uncertainty, and lack of poise, is unknown among adults. They have no word for clumsiness. The child of lesser proficiency is simply described as 'not understanding yet'. That he should not understand the art of handling his body, his canoes well, very presently, is unthinkable (Mead, 1930:31).

All actions were to be judged in the context of their own merits and not in relationship to the behaviour of others (Hogbin, 1963:83).

**Myths and Tales**

"Myths and stories are another teaching method used in the village" (Townsend, 1985:85), with the main exception being the Titans of Manus Island, who devalued their importance for any pragmatic purpose with the result that "it never occurs to tell them to children" (Mead, 1930:85). Myths were a method of educating the whole tribe from cradle to grave for their contents included: history, religion, entertainment, morality, social obligations, science, theology, fairy tale, law, and psychology (Berndt, 1972:822–27). They assisted in resolving family, land and marriage disputes, in promoting a sense of personal and collective identity (cf Erikson, 1959), and provided a matrix of beliefs, that guided man throughout his earthly existence to a contented sojourn in the world of the ancestors (Lawrence, 1972:1011). Parents, peers, and respected elders were often the transmitters of myths and stories, while the graphic narrator was especially esteemed. The ardent listeners learnt history, basic etiquette, customs and taboos as well as the retribution that befalls the violators of society's laws (Chowning, 1972:162).

**Repetition**

If something is judged to be a necessary acquisition such as languages (Mead, 1930:35–37) or songs or myths (Lawrence, 1959:58), the learning process adopted is the use of repetition. Learning of songs was accomplished by mimicking and the gradual accumulating of more matter from the mentor. If a direct didactic intervention was needed, then "the whole section or story to be learnt is first told to the learners, then short portions are gradually added to the initial phrases with much repetition, until the whole is mastered" (Stringer, 1982:103). At times the repetition occurred while lacking a meaningful context. Children learn verbally, stories or languages by constant repetition but appear not to be aware they are learning anything. This process has been described
by Harris (1980:83) in commenting upon the learning of songs by the Milingimbi Aboriginal Community.

Informal traditional education stressed the acquisition of technical knowledge and skills in their practical everyday context, utilising intrinsic motivation, since the activities undertaken were seen as clearly related to survival. However, achievement of high degrees of proficiency and efficiency in these technical skills among children, particularly boys at this age was not regarded as significantly important. They still had to be initiated into the realm of "true knowledge", which only occurred during and after adolescence (Lawrence, 1972:1010).

FORMAL TRADITIONAL EDUCATION

Formal traditional education was a very elaborate and varied experience among the societies of Melanesia. Initiations have been the interest of many anthropologists (Herdt, 1982), though their impact upon contemporary village society seems to have diminished. Mission and government contact influenced the decline of aspects of this education process in many areas, often prompted by health and/or religious reasons (Serpenti, 1984:299). Because of the influence of western education, the formal aspects of traditional education came to be seen as irrelevant or undervalued by some in tribal society (Cheetham, 1980:67–68). This aspect of traditional education has declined substantially, so that few village youth experience the process, but what is of interest is the education rationales and structures employed, since they have their basis in a Melanesian psychology. An appreciation of these may assist educationalists in articulating and better understanding such a psychology, and so enhance learning and teaching in its Melanesian context.

Curriculum

The "secret" or "true" knowledge could not be naturally learnt but had to be passed on to the initiates by those who were already in the know. This special knowledge gave insight into negotiating for good or evil, with the unseen powers that influenced man's existence in such vital areas as human, animal and agricultural fertility. Often such knowledge was found in ritualistic formulae based on the secret names of powerful deities, as well as in magical rites and spells passed on to men originally, from the gods (Lawrence, 1972:1006). "Such knowledge is considered the most potent of man's
cultural possessions and is not allowed to fall into the hands of anyone who might not regard it seriously" (McLaren, 1974:361). As a consequence, only adults could be capable of its appreciation (Hart, 1955). So in the practical application of knowledge, the technical and the esoteric played their part, with the latter considered the more important. Rituals were needed to be performed before initiating any routine task which involved the possibility of failure, so that benign spiritual forces might be released, in order to augur more directly, the possibility of success (Smith, 1975:3). The man "in the know", with regard to ritual, myth, and magical religious formulae was a man of wisdom and power, whereas a youth possessing a high degree of proficiency in technical knowledge would state openly his limited scholarship as Lawrence has documented.

I asked him (one of the most intelligent informants) if he could make bows and arrows. He told me that he was able to frame them quite well but could not make them. When I commented that it was strange that the could do one and not the other, he explained: "Yes I could whittle them out of black palm and so forth. But they would not shoot straight. I do not know the proper myth and ritual for making them" (Lawrence, 1959:56-7).

Significance

Mastery of esoteric knowledge was an essential prerequisite for leadership (Lawrence, 1972:1010). The rationale was that a man who had gained a reputation as a successful agriculturalist or herdsman was accumulating goods, which was ample proof of his possession of sacred knowledge and the accurate recitation of spells and myths (Smith, 1975:3). The accumulation of goods and their gratuitous disposal to followers, were necessary for the acquisition of status as leader (Young and Bartos, 1977:12).

The leader was expected to demonstrate his knowledge through control over the dispersal of wealth. It is not an exaggeration to say that the control over, and dispersal of wealth was believed to be the overt sign of an inward character. If wealth failed, leadership failed (Young, 1977:26).

Formal traditional education was indeed tailored to the ambitions of leadership. It provided the means for the initiates to achieve that sense of identity and purpose, upon which psychological and personal maturity depended. "Learning the exegetic keys to ritual symbolism becomes..., not an end in itself, but a key to understanding – hence to being able to live as a male" (Keesing, 1982:9).
The process of formal education often demanded a prolonged separation from the rest of the community. The Oksampmin male initiation was held once each generation, with a two to three month isolation period, in which the initiates were formally instructed in the magic involved for gardening, hunting, care of family, health and weather (Boram, 1980), while the Abalam in the Sepik organised periods of formal education lasting up to about one year in every five or six (Neve, 1970). Perhaps the Bimin-Kuskusmin (Telefomin, West Sepik Province) illustrate to an extreme degree, the importance of formal education, since they "devote extraordinary time and energy to male ritual activities [which]...involved an ordered sequence of ten stages over a period of some ten to fifteen years" (Poole, 1982:107).

The initiates became involved in many elaborate ceremonies and rituals, which reinforced the uniqueness of gender. In males particularly, the esoteric knowledge and accompanying rituals were an important experience, if one were to establish a strong masculinity and be able to control the bewitching magic which women are known to use (Hays and Hays, 1982:218).

The processes involved in female formal education had similar purposes and women were instructed in the advantages and dangers of their own gender (ibid, 1982:222ff). This education aimed to fit the recipient for a role, approved by the community as a cultural ideal (Cheetham, 1980:690).

Most of the beginning ceremonies centred upon what constituted the means for good health and general welfare (Read, 1985:225ff), and what would be appropriate in attracting potential partners, and so society's preservation was ensured (Cheetham, 1980:69). Lawrence noted that at initiatory dances, magic spells were bestowed upon the ornamentation of the initiates (Lawrence, 1959:58) and in many regions some sort of bodily operation such as penile incision was performed (Newman and Boyd, 1982:275). It was then that a certain amount of information was imparted in verbal form particularly about the roles, intricacies and taboos of marriage (ibid, 1982:276–82) and related food prohibitions (Poole, 1982:106).
A verbal didactic approach utilising a "core curriculum" was employed in this learning of sacred knowledge which was often contained in important myths, songs and legends. Initiates were taught the esoteric names of important deities and how to evoke their appropriate intervention (Lawrence, 1972:1010). In addition, in some regions, there also existed instructions in sorcery (Glick, 1972:1080), the eating of magic herbs (Mead, 1937:49) as well as the competent use of the correct ritual appropriate to the situation (Lawrence, 1972:1010). It was only then, that the knowledge and accurate use of the esoteric, that permitted men to live in harmony with the seen and unseen, was imparted.

Teachers
In the formal education system, the institutionalised role of teacher was plainly acknowledged, for only those in the know, were able to transmit sacred knowledge to the uninitiated. Like the post graduate student at a university, the young Huli searched for those "scholars" widely acknowledged to be specialists in sacred knowledge, and negotiated a deal that might attract the scholar to take him on. The process involved seclusion, but like formal education in other societies, it was essentially an individual process (Cheetham, 1980:65-68). In contrast, Herdt (1982) has documented that the elders as a corporate body, often took the role of mentor and conducted elaborate ceremonies and rituals, accompanied by verbal instruction to small groups of initiates, at times appropriate to their learning development, from adolescence to mid adulthood. Though the process involved severe pain, this education met a demand, for without it one could not function fully in the roles society demanded. This education promoted a sense of individual identity within the clan-society as well as a sense of security. Traditional education helped the individual to know who he was, where he was going and how to get there.
SECTION 2:

**IMPLICATIONS FOR HIGHER EDUCATION**

From this review of traditional learning in Papua New Guinea, a number of implications can be drawn, which should be acknowledged and utilised particularly when Melanesians are negotiating Western education. Traditional education that has influenced many Papua New Guineans seem to have the following characteristics.

**Life Long and Adult Oriented**

Melanesian traditional education was a cradle to grave process. Infants and children learnt social and survival skills that promoted their integration and acceptance into the clan. However the "real" education process of formal education of induction into the esoteric knowledge and lore of a clan could only be undertaken by adults. It was life long since initiation was only the beginning of the process and important knowledge and experiences were only transmitted at times when the learner might best need them. Both in the formal and informal processes of education, there were no obvious differences in the teaching methods employed for the teaching of children, adolescents or adults. Education was a serious process and the more the children participated in it, the more they matured and undertook more adult responsibilities. Hence the contemporary distinction between andragogy and pedagogy would be incomprehensible to traditional Melanesians.

The implication from this is that traditional education was considered by all to be an important and serious experience. It was desired and welcomed because without it a sense of purpose and identity could not be achieved. It behoves the teacher of adults to recognise and appreciate this ancient education tradition within Papua New Guinea and to be aware that his own cultural experiences could very well blinker his/her appreciation of what learning and education meant in traditional Papua New Guinea.

**Practical**

All knowledge, both the technical and esoteric was perceived to be essentially practical, indeed of immediate relevancy to daily life. This invited learners to immediate practice to increase their proficiency. Such a learning cycle has been elaborated upon by
contemporary educationalists as Joyce and Weil, (1980:369) as particularly applicable for the development of complex behaviours. Since imitation is a particularly favoured learning strategy "practically compulsive" (Mead, 1930:35) the use of modelling accompanied by informed "coaching", aiming to promote an increase cognitive process seems to be very appropriate for PNG. Avalos (1985) has described a training program to stimulate more effective teaching in developing countries, which has a similar conceptual basis. The dynamics involved are complex and have great potential in the educating of more reflective practitioners.

When coach and student co-ordinate demonstrating and imitating, talking and listening, each component process fills gaps of meaning inherent in the other. The coach's demonstrations and self descriptions, the comparisons of process and product, provide material for reciprocal reflection-in-action (Schon, 1987:118).

Schon's reflection-in-action concept has similar constructs in some ways to Kolb's learning cycle. Kolb's cycle can easily be incorporated into learning styles favoured in Papua New Guinea, which not only provide the satisfaction experienced from traditional learning, but would promote increased cognitive reflective processes needed for greater understanding.

Field Dependence
Since traditional learning almost always occurred in the context of the activity itself then the context became the parameters of that learning situation. The problem with the village environment was that there was no demand to analyse processes and apply these to novel situations. This was because each task or process had its own peculiar sets of skills to be mastered. The generation of alternatives was positively discouraged (Wong and Swan, 1984), because knowledge and skills had not only a divine authority, but had proven their practical relevancy through the centuries (cf Holsman, 1982). This phenomenon highlights the major distinction between Melanesian and Western concepts of knowledge. For the Melanesian knowledge is a revelationary and inspirational process. It was meant to be faithfully transmitted. Individual creativity was devalued because of its lack of authority while external inspiration gained legitimacy because of its divine mandate (cf Lindstrom, 1990).

Traditional PNG learning experience can be characterised as field dependent, which "is marked by an awareness of the contextuality and contingency of knowledge and by an
appreciation of the culturally construed nature of value frameworks, social codes and belief systems" (Brookfield, 1986:43). Such a learning style has its basis in the way people conceptualise and categorise information. Field dependent learners use a relational contextual process (Kagan, 1963) which "involves a tendency to use concepts of functional or thematic similarity. Bits of information are made to fit together" (Smith, 1983:63).

An example would be appropriate. Confronted with these three items, chicken, coconut-milk and bananas the field independent person might classify them as edibles, while the PNG national probably would describe them as "mumu" makings (a special way of preparing PNG food), with associated connotations of an anticipated "good time". The same rationale applies for why in traditional PNG the cassowary is categorised as an animal not a bird (Bulmer, 1971) and why a fly can be labelled as a bird (Lynch, 1980). Field dependent learners are successful at employing critical reflection and independent enquiry strategies (Brookfield, 1986:42).

The teaching/learning implication from this is that initially Papua New Guineans appear to favour field dependent learning which has been described as a preference for observation and practice in the context of concrete experiences. "... they rely heavily on others for information rather than their own analytic ability" (Brookfield, 1986:47). They are therefore extrinsically orientated, responsive to external reinforcement, very dependent upon context in the exploration of personal meaning and view things holistically. Consequently, teachers would need to provide structure for learning experiences, which would include skill modelling (Brookfield, 1986:44), in the context a friendly and supportive atmosphere which emphasise group processes (Cox, 1985).

Collaborative Learning
Traditional PNG life was quite egalitarian and leadership was recognised not so much on how superior ones personal qualities were but on the acquisition of wealth which was expected to be bestowed with largess on followers (Foley, 1986:16). As a consequence individual superiority at learning tasks though recognised, was not rewarded as in western countries, since in traditional PNG "no individual person is more important than the other" (Edoni, 1986:37). A competitive atmosphere in learning was absent, indeed positively discouraged and proficient children were not singled out for the emulation of
slower or less abled. It was expected that learners would "catch on" in their own time and at their own rate. The open, accepting, non-threatening atmosphere was obvious. Quick learners or bright students were not considered, nor did they consider themselves, to be superior in someway. Such students very often acted as mentors for others who might need the additional tuition. "The Papua New Guinea child who decides to look at his fellow student's work...is in effect applying the mode of co-operative consultation as used in his village" (Ahai, 1986:4). Since there was not an institutionalised role of teacher, learners joined in where and when they felt so inclined. A collaborative learning style was very much a characteristic strategy in traditional PNG, and is today a preferred learning strategy for PNG students at university as Cox (1985:9) reported.

The student leader said 'in our society we tend to do things in groups'. Many staff stressed the ease with which they were able to use group work...

There maybe problems with such collaborative effort because although "wanting to do well, individuals may not try to stand out from their colleagues" (Burgoyne and Oembari, 1983:9).

Today contemporary collaborative learning is characterised by learning in small, face to face groups. Essentially individuals learn with and through other people, by utilising the expertise and experience of group members in order to achieve the group's goal.

Students need to be introduced to certain helping skills, (Smith, 1983:106–118), that promote a sensitivity to group processes, since the quality of interpersonal relationships and communication are a central concern to successful collaborative learning. It is essential that a mutually supportive climate be present so that trust, acceptance and teamwork may develop. It is in such an atmosphere that people feel free to disagree and to dare to take risks.

If a collaborative learning process is to be successful the teachers or lecturers need to offer personal example in the establishment of such a learning climate by their own open and trusting attitudes, the type of evaluation tasks they set and their own personal reactions to individual efforts to learning. "a successful climate for learning is almost assured when people are truly treated as adults" (Smith, 1983:49).
A deliberately fostered characteristic of the BEd T. program is the creation of a strong collaborative group identity among students in the program. Strategies to implement such an objective include weekly group meetings, pairs or small group assignments, social gatherings, syndicate learning tasks (Miller, 1987:43), and tutorials which demand group processes in solving commonly experienced and relevant problems. Initially, such an atmosphere is necessary for students who have not experienced the demands and pressure of Western higher education. The emphasis is to assist students to orientate themselves to university life and gain confidence in their own ability to be successful. The empowerment generated through collaborative learning in the early months of their first year of the program is much greater than if students worked in isolation on individual assignments. The group dynamic is a deliberately promoted feature of the BEd T. program that seems to foster a spirit of mutual confidence when embarking on the demands of academic learning.

Such a learning direction has support from Cox (1985) in his report on staff development in PNG universities. He noted that Melanesian students preferred to operate culturally on a personal level but the relationships between staff and student may at times seem to be aloof and distant and could be a factor that deterred student motivation to learning. This strong personal orientation in society generally and in the early stages of education in particular could be seen as an advantage and something that could be built upon it at university but traditional teaching methods do not generally stress interpersonal relationships as an important aspect of teaching. But one UNITECH (University of Technology) study in mathematics showed that students tended not to make a distinction between the quality of a lecturer and the rapport with the lecturer (Cox, 1985:8).

Such an observation has strong implication for the type of role the co-ordinator of the BEd T. program needs to develop.

It should not be concluded though that collaborative learning is the sole learning strategy, since independent critical thinking is also an objective of the program. It is a process among others in the development of a repertoire of learning strategies that students may utilise to meet learning problems.

Ritual in Learning
A phenomenon that needs elaboration is the place that ritual plays in learning. Classroom observers (Smith, 1975; Markwell, 1975; Roberts and Kada, 1979) have
commented that a noticeable feature of PNG classrooms is the apparent industry of the teachers and students without either communicating with each other. The teachers are said to use teaching "recipe" strategies and follow step by step procedures and the children in turn to respond ritually (Smith, 1975:6). In another study of Tolai (East New Britain) teachers Markwell (1975:84) noted similar occurrences. "... in all subjects in the primary school, teachers in PNG lean heavily on lesson plans provided for them, often resulting in little or no communication between teacher and child".

Pearse (1990), in his recent research of primary school teaching noted that teachers' communication skills particularly in explanation were very low and more alarmingly it revealed: "There were few instances also in which the teachers were observed to be teaching children how to learn, how to arrive at the right answer, rather than to be just seeking the right answer".

Howley (1980:11) has attempted to partially explain this phenomenon in the context of PNG cultural understanding of what contributes to learning. "There is a kind of thinking that regards the whole education process as somehow magical and automatic and goes on at least in part by the teacher and student merely being present". Similarly Alkan Tololo, PNG's first national Director of Education concurred with this observation. "The belief is that attendance at Western-type formal school is, in itself, a guarantee of material goods..." (Tololo, 1976:221). If teachers follow the accepted procedures or rituals of teaching then the scene is set for learning. The transcription of blocks of written exercises from teachers' handbooks to blackboards by the teachers and from blackboard to pads by pupils is one such common ritual. The emphasis on procedural and mechanical processes such as date and "correct" headings and properly ruled pages and the continued reminders for children to produce neat and tidy work are other rituals.

The classrooms appear to be operating at peak efficiency when children are given rote tasks such as writing, spelling, mechanical arithmetic or reading comprehension exercises. Repetitive writing activities remove the uncertain aspects of teacher/pupil relationships, but more importantly, "writing down" is perceived by children as "work"... Children say they are "learning English" (mathematics, reading etc) when asked why they are writing which suggests that they conceive the classroom experience in a deterministic sense...Outcomes are guaranteed in a sense when correct procedures, such as the sequencing of activities and rituals are brought together in village life. Teacher behaviour too might well be seen in this way as they strive to work in a situation where their formal teaching "methods" are perceived to be a guarantee that students will learn (Smith, 1975:8).
Now such an observation may have its basis in the traditional understanding of the processes in acquiring knowledge. In traditional Melanesian society the practical application of knowledge involved not only the performance of the physical activity itself but more importantly the performance of an elaborate ritual which ensured that the appropriate deities would influence a successful outcome. The ritual was believed to release dynamic forces which influenced results. Since such forces are essentially a part of nature, they themselves are subject to placations and partial control. As a result much of the ritual was quite visible and symbolic, though the essence of the ritual was on the correct utterance of a spell or secret name. For the traditional Melanesian, knowledge was not something that was generated from independent human intellectual effort but was distributed directly from a divine source on to those to whom the deity was well disposed.

Human technical knowledge was dependent upon the possession of a collection of magic religious formulae (cf Lawrence, 1959), as McSwain (1977) concluded from her study of the people of Karkar Island: "New knowledge could be obtained only through dreams or revelations, or by purchase, but not through human intellectual enterprise".

Thus in canoe building empirical knowledge of material of technology, and of certain principles of stability and hydrodynamics, function in company and in close association with magic, each yet uncontaminated by the other. For example, they understand perfectly well that the wider the span of the outrigger the greater the stability yet the smaller the resistance against the strain. They can clearly explain why they have to give this span a certain traditional width, measured in fractions of the length of the dugout. They can also explain, in rudimentary but clearly mechanical terms, how they have to behave in a sudden gale, why the outrigger must always be on the weather side, why the one type of canoe can and the other cannot beat. They have, in fact, a whole system of principles of sailing embodied in a complex and rich terminology, traditionally handed on and obeyed as rationally and consistently as is modern science by modern sailors... But even with all this systematic knowledge, methodically applied, they are still at the mercy of powerful and incalculable tides, sudden gales during the monsoon season and unknown reefs. And here comes in their magic, performed over the canoe during its construction, carried out at the beginning and in the course of expeditions and resorted to in moments of real danger (Malinowski, 1948:30–31).

Ritual in schools may be given emphasis because the experience of western education particularly in a foreign language has in many instances been incomprehensible or a matter of survival of the ablest (Johnson, 1972). As a consequence rituals were adopted to influence outcomes or processes, over which people believed they had no rational means of control (cf Malinowski, 1948:25–36). The implication from this is that it is
necessary to provide supports and challenges to students, so that they do believe they have a rational means of control of the education environment they are experiencing. All too easy is it for the expatriate lecturer to opt for the easier solution "to treat those students as essentially the same, and judge their worth using a basically white middle-class set of evaluation criteria", as Thaman (1977:26) had observed at the University of the South Pacific. When the students' results are of a mediocre standard it has been suggested that the only way to get better results is to present "material in a way a student can understand" (Cox, 1985:11), so that at the university there is:

a great deal of 'chalk and talk' backed up by more or less comprehensive handouts. Tests and examinations tend to be based closely on lecture notes..., plus reading of the text book.... The tutor's emphasis tends to be on an imparting of information; the students' on learning and regurgitating this (Wong and Swan, 1984:3–4).

Such an observation has been also lamented by Cox (1985). Henzell-Thomas (1986:505) commenting upon this phenomenon at the PNG University of Technology believed that lecturers created learning problems for their students. He maintained that lecturers saw their teaching as the transferal to students of packaged, module information which reflected the organisation of text books far more appropriate for mature learners in developed countries. Little was done to assist students in learning how to learn (cf. McLaughlin, 1988a).

Although lecturers complain a great deal about the mediocrity of their students, their reliance on rote learning and plagiarism, and their inability to apply their "knowledge" to the solution of problems, they often fail to realise that it is their own "teacher centred" lecturing style which is partly responsible for these deficiencies (Henzell-Thomas, 1986:505).

Consequently, students and teachers appear to follow rituals in the hope of influencing the outcomes of an education process over which they believe they have a diminished rational means of control. For this to change, it behoves the effective educator in PNG to leave behind his own cultural cargo (Jordan, 1987) and attempt to "take into account the experiences which have already been imprinted upon the learner's mind" (Jones, 1974:2), so that new learning would deliberately build upon "conceptual strengths in a context which is intelligible and familiar" (Jones, 1974:4), and reflect a "Papua New Guinea reality" (Jordan, 1987:5).
In the BEd T. program, a number of structures are designed to "empower" students (cf Yonemura, 1986) with a rational means of control of their learning processes. There is a weekly non-credit compulsory seminar that attempts to expose students to meta-learning strategies. These are not simply study skill types, since as the research reports their transfer potential to the real learning situation is minimal (Gibbs, 1981). The way a student will approach learning depends critically on the task itself, previous experiences and the context of the learning situation (Biggs and Telfer, 1987:158). Skills taught in isolation, devoid of context are not seen to be transferable. The program offered is based essentially on Graham Gibbs' (1981) *Teaching Students to Learn*, which examines individual study and organisational processes as well as taking notes, reading, writing and taking examinations. Hounsell (1984:201-02) comments on how Gibbs' process is a source of "empowerment" and further independence for students.

Rather than inculcating rigid techniques, therefore, Gibbs' aim is to promote in students a questioning, self-analytic attitude to perceptions of study demands and to pool knowledge of the strategies they have developed in their everyday studying. Above all the emphasis is on clarifying and exploring intentions and purposes - key determinants of students' approaches to learning...
SECTION 3:

THE EXPERIENCE OF LEARNING THROUGH ENGLISH

The Educational Reason For English

It is official government policy that the language of instruction in all PNG schools and colleges is English (Department of Education, 1976:215), even though "one of the greatest frustrations to efficient learning and understanding is the presentation of complex material in a language which is not the mother tongue of the students" (Lewis, 1974:63; cf Wuillemin, 1984:1).

A number of reasons have been promoted to support such a decision (cf Johnson, 1977:452-453). Though vernacular education is at present being judiciously encouraged in PNG's official Philosophy of Education (Matane, 1986:37), it had been generally agreed by the Department of Education's bureaucracy that it was not feasible to successfully mount vernacular education programs in a nation of 869 languages (Grimes, 1989). Moreover it was considered that any alternative to the national language English would be too expensive, as well as be counter productive in that standards would decline and divisive trends in nation building might be promoted (Solon, 1979:44). A discussion on the validity of these assertions is reviewed in Wivell (1980:14ff) and Litteral (1986). It is worthwhile to briefly examine the educational reasons offered for employing English as the medium of instruction.

The first reason is concerned with national independence and PNG's survival in a complex world. "There is absolutely no evidence that Papua New Guineans want anything less than the most modern that western technology has to offer" (Lancy, 1979:106). Yet that type of critical, analytical thinking which underpins western technology "is utterly at variance with all that the young Papua New Guinean has imbibed from his traditional culture..."(Wong and Swan, 1984:8). The conclusion is that Papua New Guineans must inhabit a conceptual universe which is in many ways quite different from westerners. Language provides an interesting insight on this phenomenon.

If "linguistic differences can produce cognitive differences" (Trudgill, 1983:24) and this is debatable (cf Brown, 1980:143) then none of the contemporary vernaculars in PNG
is capable of promoting a western technological process. European languages operate
in a largely similar cultural context and for the most part have shared cultural
assumptions, probably because of their "common genetic relationships and the long
cultural contact between them" (Trudgill, 1983:24). In contrast, the eight hundred
different distinct languages in PNG are not just different in the way English and German
and Dutch and French are different but in the way English and Chinese and Swahili and
Cherokee are different (Lynch, 1980). There is a significant difference in the world
view embodied in these languages when compared with English, since they tend to
classify objects in the environment in a fundamentally different way than do western
languages (cf Wurm, 1983). They offer few parallel conceptual structures that would
"provide adequate medium for advanced concepts or abstract thought" (Vernon,

It would appear, we suggest that to some extent language will pattern cognitive
structure; that if certain logical arguments are not usual in a language because they
have not formerly been needed then they do not presently exist as options;
traditionally, such demands are not made of the language (Lewis and Ramsley,

The vernaculars do not generate anywhere near the same size of vocabulary as does
English. Lancy (1983:169) has asserted that a middle class American youngster is
mastering a vocabulary of near 8,000 words, which is two and a half times the known
inventory of a number of vernaculars. A well educated native speaker of English could
utilise a vocabulary of between some thirty to sixty thousand words - twenty times the
size of some "tok ples" (vernaculars) languages. "It is hard not to believe that the
availability of so many more words does not make wider thinking possible" (Wong and
Swan, 1984:15).

With such as a rationale, it is further hypothesised (cf Whorf, 1956:212–214) that the
imposition a western language will in turn change ways of conceptualisation so that
educated Papua New Guineans would classify data using similar western processes.
Consequently technological thought is seen as best acquired through the use of a
technological language (cf Harwood, 1968:13). Again this is debatable (Ahai, 1984:34);
but what is true is that technological thought can be expressed adequately through
English, while it cannot be, through the current vernaculars, at least for the present
(Wong and Swan, 1984:15).
English Causes Problems

This being the case, then what is the problem? This is described in a government on education standards.

Most community school teachers, and a large proportion of high school teachers do not speak English well enough to be able to teach the language effectively. So across much of the country there is a situation where teachers lacking in knowledge are expected to do something that they cannot do. The result is that teachers are avoiding the use of English much of the time, or are teaching it badly (Kenehe, 1981:31).

This description has strong validity in the research data. Most teachers at the Port Moresby teachers' inservice college, according to feedback from pre-tests of reading skills had great weaknesses in the fundamental skills of comprehension and reading (Plummer, 1981:28). Many were performing at a level below that expected of average grade six school leavers (Scofield and Bain, 1979) and over half were unable to implement effectively the English syllabus (Wolf, 1982) or the Community Life (social science) syllabus (Watson, 1981) or Mathematics (Meek and Feril, 1978) because their reading ability did not match that required by the syllabus. Professor Downing summarised the situation when he lamented: "But one serious problem was revealed repeatedly—teachers in the Community Schools are not very skilled in reading themselves and their pronunciation of English is often poor" (Downing, 1982:10). More recent data (Herman, 1988) have revealed that about 30% of the sample of inservice and pre service teachers were operating at the frustration level of reading. They simply did not readily comprehend what they read. Only one third could read independently.

The results of this situation are alarming. The nation's former Principal Research Officer has concluded that "an increasing number of grade six graduates cannot read, write or speak English" (Lancy, 1979:95; cf Moore, 1984; McElhanon, 1975). The "cream" of the education system also has considerable difficulties in studying in English at University (Lewis, 1974; Price, 1973; 1974; 1976; Shea, 1976; Dutton, 1977; Lynch, 1980; Cox, 1985; Wuillemin, 1984; Herman, 1988; Mohok—McLaughlin, 1990).

What Causes The Problems?

Given that English is believed to be a vehicle to promote technical independence and having concluded that in so many cases learning in English is far from a liberating experience, then some exploration of the reasons for this situation is appropriate.
The great majority of PNG children commence school with no knowledge of English. It is at least the third language they have been exposed to after their mother tongue "tok ples" and later "tok pisin" the nation's de facto lingua franca.

Ninety percent of children grow up in a relatively isolated village community where "tok ples" is the norm (Weeks, 1977). Tok ples is as different from English as are the traditional explanations of phenomena different from the causality taught in school. There is little scope or encouragement to practise skills learnt at school in the village (cf Carrier, 1979:74). Consequently, what is taught in school and the language it is packaged in has an alienating effect since for most children, "it leads to frustration and the feeling that little has been gained from knowing English" (Wivell, 1980:14).

The implication is clear. Teaching young children in a language they do not speak or understand "restricts communication and slows down conceptual development" (Matane, 1986:37) as is illustrated by Giraure when he recalled his school experiences.

Despite my years at school I was put back into Class One to begin my education in English. It was at this school that I had my second break with my traditions. I was no longer allowed to speak Kuanua. All conversations had to be in English despite the fact that at this stage I had no English vocabulary. Teachers made sure we followed this 'golden rule' by forever shouting at us, 'Hey you, speak in English'. Large signs bearing the words, 'You must speak English only' were displayed throughout the school. Children caught breaking this rule were punished with grass-cutting, extra work or smacks. I remember being completely inhibited during my first year at school. I could no longer chat idly with my mates. I could no longer make fun through speech. My quick wit was of no use to me. I was like a vegetable. I was controlled by the limits of my vocabulary. My days were spent listening to my teacher. Many questions I wanted to ask remained unasked because I did not have the ability to express them in English. Eventually, I found it much easier just to sit and listen rather than attempt to speak, so I sat and listened (Giraure, 1976:62).

Quality education has its basis in adequate communication especially in childhood. The need to learn English is secondary to quality communication through the development of basic literacy and education skills, and this is most efficiently promoted if it is first learnt in the mother tongue. It is the bilingual pupil who performs better in English. "Overall academic achievement, including ability in a world language, is best achieved in the context of bilingual education" (Littoral, 1986:43).
This perspective has support from the cognitive psychological perspective. Concrete operational thinkers, who are engaged in an abstract system such as learning a new language can be meaningfully taught through exposure to that language's conceptual structures using concrete experiences (Collis and Biggs, 1978:45–70).

Thus in Papua New Guinea where children at a young age are compelled to learn a new language and use it as a tool to represent thought, it is paramount that the way English is taught is appropriate and matches the cognitive development of the child (Wivell, 1980:20).

The "Learning" Experience

Unfortunately, vernacular education at pre-school and the early primary grades has not been the norm, so that much of what is happening in classrooms impedes meaningful communication and is of limited educational value. All primary classes are taught by Papua New Guinea nationals many of whom have a tenuous understanding and command of English.

Given this situation, children learn to tolerate a high degree of incomprehension (Johnson, 1972), not only because of a non recognition of vocabulary but because of a lack of equivalence of concepts between tok ples languages and English (Price 1974:23; 1976:10). "...the local languages of Papua New Guinea are linguistically remote from English and all are extremely limited in the range of Mathematical concepts and relationships they can describe" (Jones, 1981:12). Any language is a symbolic way of representing reality. Ideally a second language might consist of learning new symbols for many concepts which the learner already possesses (Jones, 1974:41). This can only occur if the concept for which a new symbol is being learnt exists in equivalent form in the two languages. If this is not the case then the pupils are taught using meaningless symbolic forms (cf Bulmer, 1971:24–28). Little learning can occur, as Bruner posits.

Teaching is vastly facilitated by the medium of language which ends by being not only the medium for exchange but the instrument that the learner can then use himself in bringing order into the environment (Bruner, 1972).

Rote Teaching

Two things would seem to automatically follow from this situation. In order to survive the teacher indulges in a great deal of rote teaching. Ironically school administrators have acknowledged this in their implementation of the community schools' mathematics program. It was designed "so that it might be possible, provided the teacher slavishly
followed the instruction guide, for the children to acquire an understanding of mathematics possibly beyond that of the teacher" (Roberts, 1978:213). In a number of other initiatives, teachers were asked to implement curricula, the conceptual basis of which was either not fully appreciated by them or was not understood. Examples may be found in the areas of the secondary social science (Cleverley, 1975:21; Weeks and Guthrie, 1984:30), primary science, (Jones, 1976:47) generalist teaching (Field, 1980:28–31) and mathematics (Lancy, 1983:174).

Researchers (Avalos, 1989; Pearse, 1990) have noted that in PNG community school classrooms there is "little or no communication between teacher and child"? In a study focussing on community life lessons, Otto (1989) noted that much of what was observed was a communication of labels in contrast to a communication of concepts. She recorded that in a lesson on China the teacher wrote the names of the major religions of China and the children copied those in their books. "The teacher...told me that he did not know anything about these three religions. But he believed that 'to have heard the words' would help the students who were going to high school and who would deal with China again" (Otto, 1989:28).

**Rote Learning**

The second consequence of initial schooling in English is that pupils in order to survive engage in rote learning.

In the early stages of primary school the pupils' lack of comprehension is almost complete. At this stage imitation or parroting is almost the only response they can make. Later this incomprehension is replaced by the grey world of partial understanding, a world in which the teacher's utterances may or many not mean any one of a number of things; a world in which the safest strategy is to catch on the teacher's actual words. They are concrete, definite while the meanings that the pupils attach to those utterances are vague, and often prove to be illusory. (Dutton, 1977:28).

In a situation where pupils do not understand what is being said then they are unable to ask questions. The teacher in fact does most of the talking, though pupils do respond to questions generally through chorus answers (Pearse, 1990). Consequently from the beginning, school children are introduced to a pattern to be quiet, not to ask questions and to speak only when called upon. Such a pattern is also noted in secondary schools (Hayter, 1982:79). Such a mode does not promote significant cognitive functioning and is not consonant with a number of curriculum initiatives which required more dynamic
student participation (Lancy, 1979: 87). Regretfully and understandably, the indulgence in rote learning is still the present state of affairs in ever so many schools.

After having observed a large number of Community Life lessons, having heard hardly any student ask a question and having listened to teachers talking most of the time with students parroting back I realised that this overall lesson pattern, to a large extent, was the result of teaching Community Life in English, which is for Manus children their second or third language. They did not understand properly, and were certainly not able to engage in dialogue (Otto, 1989: 29).

Because of this feeble grasp of English, students who have developed a tolerance of not understanding (ie they accept words, rather than their meaning) evolve survival tactics, in contrast to learning strategies, to enable them to function. Behavioral manipulations of these tactics include the remembering of the right answers, and refusing to admit to or demonstrate a lack of understanding, as is aptly illustrated below (Johnson, 1972: 1).

Teacher: A gibob is a zingut and is used for willoting things together.
Alfred, What is a gibob?
Alfred: Sir, a gibob is a zingut and it is used for willoting things together.
Teacher: Excellent answer lad.

Thus it is possible for behaviour, superficially resembling comprehension, to take place even in an incomprehensible situation. Given an early indoctrination of this type, it is quite difficult for students to start to think critically. The chances are that they will continue to use survival tactics to camouflage ignorance. When this basic language difficulty is put into the context of Melanesian village life, where the influence of elders, and respect for established authority does not encourage questions and the questioning of authority (Kennedy, 1969: 45; Shea, 1976: 185) it becomes clear why many student are likely to be very unwilling to admit that they do not understand (Thamen, 1969; Cox, 1985: 8).

Learning Problems in Higher Education

As a consequence of this experience, students at university and their teachers should acknowledge and attempt to cope with a number of learning problems, particularly those associated with reading. PNG students generally read at a speed of less than half that of their western counterparts, while understanding and retaining proportionally less (Price, 1973; 1976; Price and Price, 1972). These surprising data are explained by the fact that most second language students read generally single words sequentially, in contrast to phrase or sentence groups. Skimming with any degree of comprehension is difficult. The very slowness of their reading retards understanding of academic content,
which tends to be written in "idea" units covering many sentences or indeed paragraphs (Dutton, 1977:70). This phenomenon may also explain why students who diligently read pages of assigned work with the aid of a dictionary tend to feel that the exercise is a waste of time, because of their failure to really understand what was read. They have understood individual words but the holistic conceptual comprehension had eluded them.

**Implications**

There are a number of ways that perceptive teachers might address this situation.

* set only carefully selected reading assignments, ones which students need to read rather than a long list;

* "walk" students through important readings both before and after their reading attempts in order to highlight the ideas and holistic meaning incorporated in the readings;

* be particularly conscious of the level of vocabulary and sentence complexity used in course handouts;

* provide tutorial assistance for the further explanation of reading and written assignments;

* initiate an 'Oxbridge' system whereby students consult lecturers with drafts of their assignments. This would demand fewer set assignments but would deliberately assist students to develop the critical skills universities are suppose to foster. Moreover it would be consonant with "the most important message this report (A Philosophy of Education of Papua New Guinea) is trying to communicate about the curriculum: *Aim for less and do it better*" (Matane, 1986:39) (author emphasis).

English plays an important factor in the promotion of meaningful learning. The BEd T. program has in its three year program a core language strand. No matter what the students' speciality will be, students are required to participate in English language subjects over the three years. Those students who have not gained matriculation level English do so in the second year of the program—the internship year through extension study courses. If education is to be demythologised, then those who are participating in it must use a language in which that they can understand and in which they can communicate effectively.

**Conclusion**

This chapter has explored the educational context that influences learning and teaching in Papua New Guinea. This thesis has avoided a narrow focus upon merely "teaching
the teachers of teachers”. Such a perspective has been challenged as it tends to ignore what the students bring to the learning situation (Anderson, 1984). By attending only to the technical strategies of methodology and teaching behaviour (cf Lanier and Little, 1986:551) there is the danger that little consideration is given to how students mediate and interpret context and thereby learn what is intended.

...it is necessary to understand why and how this occurs both in terms of the social macro-context as well as the micro-context of the classroom (Avalos, 1985:290).

That is why a comprehensive study of the complexities of traditional education beliefs and practices had to be undertaken. These experiences appear to influence Papua New Guineans undertaking higher education. Conceptualisations concerning the nature of knowledge and the purpose of the education process had as their aim the maintenance of the status quo. Such aims are at odds with the stated purpose of western education.

Such varying perspectives invite a variety of teaching-learning strategies. This review aimed at articulating traditional methods of education in order to utilise those, as well as other models in course design in the promotion of greater learning among PNG students. The concepts of field dependence and collaborative learning are particularly insightful.

This chapter also reviewed the experience of western education received by Papua New Guineans. Much of what goes on in classrooms does not promote communication. As a consequence, there are many rituals teachers utilise because they provide a safe guard, when in what they are forced to participate is not fully understood or under their rational control. This is further compounded when teachers who are not competent in English, or believe themselves to be incompetent, are forced to teach through that medium. It is obviously a sensible move in the process of exploring effective learning and teaching in Papua New Guinea to identify and articulate preferred learning modes as well as to compensate for neglected ones. Such an understanding may give insight in the planning, implementing, sequencing of strategies and content that would more appropriately match the needs of PNG students and so better promote meaningful education.
CHAPTER FOUR

THE BACHELOR OF EDUCATION (TERTIARY) PROGRAM: 
THE INTERVENTION CURRICULUM

The previous chapters have indicated the theoretical dimensions as well the implications of the PNG education context, that have been considered in the development of the intervention curriculum in the first and second year of the BEd T. program.

The diagrammatic conceptualisation of the issues identified by the research (Figure 2.15) that need to be considered in a curriculum, highlights the complexities that need consideration in translating the various theoretical inputs into curriculum strategies. The following are some broad guidelines underpinning curriculum component principles from which teaching/learning strategies have generated.

Deliberate provision for the PNG context
* students have tenuous grasp of English;
* all students participate in Practical English Writing;
* all students complete Matriculation English during Internship year;
* special workshops in study organisation;
* special workshops on assignment writing;
* start inquiry learning from assignment writing on concrete experiences;
* initial emphasis on collaborative group learning;
* students firmly rooted at Perry's Stage of Dualism;
* knowledge is seen as finite;
* learning seen as transmission of fact in contrast to an inquiry process.

Significant Role Taking Experience
* acknowledge PNG preference for learning that is relevant and pragmatic;
* influences growth toward more complex levels of cognitive development;
* stimulates more complex perspective taking; important for intellectual growth.

Careful and Continuous Guided Reflection
* need identified by Cox for UPNG students;
* should accompany action;
* stimulates deeper learning outcomes.
Balance between Real Experience and Discussion, Reflection and Teaching
* acknowledges learning preferences of field dependent learners;
* congruent with Kolb's learning cycle;
* congruent with traditional characteristics of learning by observation, trial and error, practice, modelling in real life activities.

Instruction needs to provide for both personal support and challenge
* Process needed to promote metacognition;
* Process needed to stimulate movement toward relative thinking;
* Process needed to fully utilise Kolb's experiential learning theory fully.

Figure 4.1 summarises the curriculum component principles from which the teaching learning strategies have generated for the six courses of the BEd T. program course.

STUDIES IN TEACHING
Research in community school teaching in Papua New Guinea (Meyer, 1989) indicates that most teachers have an unrealistically inflated view of their levels of competency and are unaware of their limitations. Their classroom repertoire of teaching/learning strategies is generally narrow and restricted. Given this, and also that past concrete experiences are an essential component in adult learning, both as a base for new learning and as an unavoidable potential obstacle (Brundage and Mackeracher, 1980:32), it is argued that this course is potentially ideal in introducing community school teachers to university study. A danger exists that the course might degenerate into a kind of pseudo-academic "cargo cult", which decries one set of methods, while simultaneously offering another.

The focus in this course is more on the development of the promotion of personal understanding in the context of teaching (Beeby, 1979). This aspect of teacher professional education is viewed essentially as personal development where teachers are encouraged to be their own best theorists (Hunt, 1980), even though such theories be open to criticism (Avalos, 1989; Meyer, 1989; Otto, 1989; Pearse, 1990). In order to promote quality change, teachers need to explicate and further articulate their current implicit theories about teaching. Once accomplished, this becomes the basis for investigation. As Fenstermacher (1980) asserts, subjectively held beliefs become objectively held if verified, while disconformation of that belief constitutes grounds for a change, consistent with the new evidence. Confrontation with the teaching self is the result of permitting practices which had previously been taken for granted to be seen as problematic and requiring fresh evidence (Diamond, 1985).
<table>
<thead>
<tr>
<th>Course</th>
<th>PNG Context</th>
<th>Significant Role Taking Experience</th>
<th>Careful and Continuous Guided Reflection</th>
<th>Balance between Real-life Elements and Classroom, Reflection and Teaching</th>
<th>Personal Support and Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>STUDIES IN TEACHING</td>
<td>Relevant and Practical Learning by Observation and Practice</td>
<td>Television Camera Operator Discussion Leader Supervisor of Peers' Group Work on a Project for PNG Teachers' College</td>
<td>Discussion, Reflective Teaching Journal Video review of lesson Weekly interview with co-ordinator</td>
<td>Weekly teaching in Community School and International School Sydney Microsoft videos Preparation of Microsoft Workbooks</td>
<td>Lecturer preview of lesson preparation Weekly interview Lecturer written response to journal entries Conferences with lecturer about assignment drafts</td>
</tr>
<tr>
<td>SEMINAR IN TEACHING</td>
<td>Adult-oriented Learning in Real Life Activity Collaborative Learning</td>
<td>Teacher of Adults Discussion Leader Researcher Assessment of Peers' teaching of adults</td>
<td>Reflective evaluation of own teaching of adults Maintaining a Reflective Learning Journal Video viewing</td>
<td>Teaching Adults One-week investigative study at Port Moresby In-service College Investigation of a personally relative issue</td>
<td>Tying out new teaching strategies Audience verbal and written reaction to adult teaching Conferences with co-ordinator about assignment drafts</td>
</tr>
<tr>
<td>ISSUES IN TEACHER EDUCATION</td>
<td>Content on PNG Education or Teacher Education Discussion about Collaborative exploration of issues</td>
<td>Seminar leader Adult Education</td>
<td>Reading journal kept on assigned reading before and after seminar Reading required for 2000 word assignment Interview with co-ordinator about assignment drafts</td>
<td>Selection of readings that are relevant to own teaching experience or future as teacher educators.</td>
<td>Leading peers in an 10 minute seminar on an academically challenging topic Interviews with co-ordinator about assignment drafts.</td>
</tr>
<tr>
<td>SUPERVISION OF THE PRACTICUM</td>
<td>Collaborative learning Identified as a need by supervising lecturers in internship year Preparation of a skill component relevant to PNG Immersion Teacher educators</td>
<td>New supervisory roles - manager - counsellor - instructor - observer - feedback</td>
<td>Supervision of the Practical student workbook video viewing reflection at post lesson conferences</td>
<td>Teaching Supervising &quot;student teachers&quot; Conducting pre and post teaching conferences</td>
<td>Interaction with peers and co-ordinator in the various activities in the course</td>
</tr>
<tr>
<td>INTERNSHIP</td>
<td>Peer collaborative work with college lecturer Supervisor Learning in real life situation Nursing English Matriculation Studies by correspondence</td>
<td>Role as lecturer - learning student teachers - Contact to young adults - Participate in observer - Supervise on practical</td>
<td>Daily writing of a reflective journal. Written observation of other lecturers teaching Written self-evaluation of lecturers Audio/video recording of own lectures Assignments on practical End of semester reflections</td>
<td>Gradual introduction into teaching Monthly meeting with supervisor Specific planned time given to reflective activities. Journals self-evaluation of teaching evaluation of lectures evaluation of students</td>
<td>Planned series of activities Clear communication with college supervisors Monthly newsletter to students Supervisory visits to students on internship</td>
</tr>
</tbody>
</table>
This effort at making practice more explicit may promote insightful and rational change, if support can be provided. Such a move is encouraged by Weathersby (1981:73), who suggested that current formal education should be designed to assist students to reorganise their past conceptions on the basis of new experience and develop personally generated insights, which should be a reflection of higher stages of development. In such a process, the role of the teacher educator is to engage students in a process of mutual enquiry rather than to transmit knowledge to them and then to evaluate their conformity to it (Bents and Howey, 1981:32).

Consequently, students on a weekly basis are required to visit a community school and teach. Each week, one particular subject is the focus of attention. At follow up seminars, students recall what they saw in the classrooms and compare this observation with their own beliefs. During this seminar, research data as well as video vignettes are presented which provide evidence of the dichotomy between teachers' spoken beliefs and their practices. This is the initiation of a disconformation. Alternatives to the routine accepted practices are brainstormed and then analysed. Within the week teachers put their alternative lesson into practice. This is videotaped and later discussed.

This process is a cyclic one. A final "perfect" product is never looked for, let alone achieved. Presently held theories about teaching are regularly challenged. The following are the steps in the process.

* Teachers are sensitised to their own beliefs about their teaching of routine lessons.
* Those beliefs are investigated through:
  - discussion
  - confrontation with research and observational data.
* Problematic issues may be resolved and new theories may be generated. These are made concrete through the development of a lesson plan.
* The new theory (lesson) is tried.
* Reflection and evaluation of the new theory is promoted.

Figure 4.2 illustrates the process. An example may be appropriate. Students are required to reflectively focus upon the routine lessons they teach daily. One such lesson is language drill. All teachers invariably confess that they have taught thousands of this type of lesson. They acknowledge that they have no difficulty in its teaching. Teachers are then asked to visit classrooms and record the time children who are not group leaders actually spend in speaking English in a typical twenty minute lesson. Surprisingly, the
average time ranges from thirty seven to fifty seconds. The routine now becomes problematic for them. They need to reflect and examine their "taken for granted" subjective beliefs. The problem of how to increase meaningful pupil participation with English, demands that they begin to reinterpret and recreate their beliefs about good teaching and pupil learning, initially at least in the context of language drill lessons.

Figure 4.2
Model of Reflective Teaching

In so doing, teachers have generated strategies that have increased the students' speaking of English to about eight minutes. They then practise their new theories in a classroom and in turn reflect upon their appropriateness. Similar processes are initiated with other types of lessons. The point being that very often this has become the stimulus for teachers to initiate a personal inquiry about the nature of teaching especially in terms of student learning, which is in contrast to the traditional Melanesian view of learning as essentially a transmission of knowledge (McLaughlin, 1988b; 1989d)
The second phase in the Studies in Teaching Course is a focus on microskill teaching. It is an adaptation of the Sydney Microskill (Turney, 1982a). As will be discussed in Chapter six, the Division of Teacher Education had recently endorsed a policy operating since 1977, that technical competency in teaching "can be best acquired through a careful step by steps or component skills approach" (Department of Education, 1989: 25). Such a policy, has contributed to an excessive focus on skills acquisition and assessment while neglecting more fundamental issues as pupil learning and teaching impact.

Although students try to carry out a well structured lesson plan the concern for the parts (skills) dilutes that concern for the substance of the lesson and so little teaching of new knowledge occurs and there is little concern for the pupils learning difficulties (Avalos, 1989:109).

Most colleges implement Division policy by teaching pedagogy through the Sydney Microskills program (Department of Education, 1987). There are difficulties with this practice. Traditionally, Papua New Guineans learnt holistically through a concrete experience, in contrast to step by step learning (Lewis, 1974). Yet microskills are primarily a focus on skills. The time for giving lessons are limited to ten minutes or students are asked to give only parts of lessons. Some of the skills are unsuitable for beginning student teachers in PNG. For example, Advanced Questioning and Explaining demand that students have some depth in content knowledge. Research indicates that students have a significant deficit in basic background knowledge (Avalos, 1989; Pearse, 1990; Otto, 1989). One can only be "creative" in teaching if one has confidence, gained from success from past experiences to dare to risk alternatives. It can not be acquired through micro skills. "Discovery Learning" is another doubtful teaching skill. Such processes require already established sophisticated knowledge and skills and ample classroom resources. Most typical PNG community schools lack the barest essentials in terms of furniture, student texts, books, stationary and syllabuses (Ross, 1989).

Beginning student teachers must be bewildered when exposed to the "parts" or skills approach to "learning to teach". The simple exposure to a series of well taught demonstration lessons would seem to be an adequate initial model for students to gain some sort of holistic understanding of a lesson with content to be taught to children, not skills to be practised. Such a move is consonant with traditional learning structures of observe and practice (McLaughlin, 1989d). An analogy might make this assertion
clearer. When a child is learning to swim, a sensible move is to let the child experience success in "swimming" by "swimming" (Mead, 1930:28). The child's efforts are far from stylish. They look awkward but the learner has achieved a small goal, which will be the basis for further development. The learner has experienced - "knows" - what swimming is like. It is a primitive experience but it will form the basis for all other learning of swimming. At this early stage it is inappropriate to focus on the skills of kicking or breathing. It is only later, that the young swimmer can really appreciate a focus on the improvement of weaknesses in kicking or stroking or breathing. The whole needs to be appreciated before the parts can be improved. In the instance of learning to teach students gain greater insights into the dynamics of teaching, by "teaching" whole lessons initially. It is only after considerable time in teaching full lessons that a focus on isolated skills is intelligently appreciated by student teachers. It is then, given this caveat that a microskills course is taught and issues mentioned above explored. A change of venue occurs. Students practise these skills within a whole lesson context at an International Primary School, where approximately 90% of the students are PNG citizens. These children have been exposed to western education and do not display passive or docile characteristics that children in the community schools do (Avalos, 1989). Indeed, the pupils impose upon the BEd T. students a "pull" not experienced by them before. There is increased pressure from the pupils for the BEd T. students to "read" their responses and react accordingly. Consequently, microskill acquisition is developed simultaneously with an increased focus on student learning. Both sections of the Studies in Teaching course are developed in a specially designed text book for students entitled The Reflective Teacher, (Mclaughlin, 1987a).

**SEMINAR IN TERTIARY TEACHING**

This course aims at introducing students who are primary teachers to some understanding and appreciation of the teaching of young adults. Although some of the students have taught adults before at inservice sessions of colleagues, the content of these sessions has been primarily on pedagogy (Myer, 1989). Strategies that have been used are similar to community school classroom teaching. Biggs, Maddock and Telfer (1983) in their evaluation of the Australian component of the defunct Diploma of Education Studies (Tertiary) program noted that often associate lecturers "taught down" to students using pedagogical processes in contrast to andragogical strategies.
It is emphasised that this course is an introduction. Although the issues raised by such scholars as Perry (1970; 1981), Boud (1987), Brown and Atkins (1988) and Marton, Hounsell and Entwistle (1984) are important and relevant, they would not be appreciated by primary teachers with a grade 10 education who have had no experience in teaching adults and who themselves are tenuously negotiating higher education for the first time.

Considerable time is given to practical tasks that require interaction with adults on topics that would be consonant with adult interest. For example, one of the very first activities students are required to do is to select a topic or idea that interests them and would be appropriate for an adult audience. It should be something that would be relatively novel for students in the course. Students are requested to prepare a brief (no longer than four minutes) lucid, interesting explanation concerning their topic, to a small groups of colleagues. Any resources may be used and the explanation will be videotaped. The sequence will not be reviewed until after a series of workshops on explaining is given. Students are then required to review their initial attempt and in the light of this review and the workshops' input, prepare a new explanation. Once again, the course begins with a concrete experience, that serves as a basis for reflection and further theory generation.

The themes of Seminar in Tertiary Teaching include explaining, lecturing, using visual resources, buzz groups, brainstorming, small group work and focus on student learning. The processes involved are very much activity/reflection oriented. All the student activities have been printed in the course text Tertiary Teaching in Papua New Guinea (McLaughlin, 1987b).

The assessment experiences are meant also to promote further reflection. One assessment is focussed on the Inservice Teachers' College. Since the students have not had direct recent experience of teacher education, then a prolonged stay of one week helps to sensitise them to contextual issues. Students are also required to carry out an investigation. This is an initial attempt to develop their critical faculties. Figure 4.3 details this assignment. The series of drafts with their conferences demands a more reflective mode. Indeed, coming into the college as a "researcher" is a new and more challenging role for the students.
Figure 4.3
Investigation into Learning in Teachers' College Assignment

In the mid term semester break you will spend five days in the Port Moresby Inservice College (PMIC).

Your assignment will involve guided observation and reflective thinking. During your stay at the college focus on a particular issue or issues that you believe want further investigation by you. Some issues might include. These are only suggestions. You identify issues for yourself.

Section 1 Describe the issue and clearly state why you believe this needed further investigation.

Section 2 Collect data
- who did your collect if from?
- did you get a large enough sample?
- how did you do it? - interview, questionnaire, observation.

Section 3 Discuss your data. Be careful not to generalise. Evaluate how valid is this information? Would some students/lecturers be biased? Is the information factually accurate?

Section 4 Make a series of recommendations for further improvement. Are these practical? Do they need large amounts of money and time to implement?

Process of Writing the Assignment

This assignment will progress through three stages.

Stage 1: Is your first draft. This should be your best try, you should get another student/students to reread this draft to check for its accuracy of fact, as well as for clearness of expression and correctness of English usage. You will submit this draft to me on Monday 16th April. On Monday April 24th and Tuesday, April 25th, a series of individual conferences will be arranged to discuss this first draft. Your will need an audio cassette which will be used to record the conference. The weighting for the work here is 10/60.

Stage 2: With information gathered from the first drafts written comments and recorded conference, you will write a second draft. This will require most of your time. You may have to revisit PMIC to clarify some issues or to interview more students, because your sample is too small. You will submit draft 2 on Friday 11th May. There will be a series of individual conferences to discuss this draft on Monday 14th May and Tuesday 15th May. (Recording is optional). Weighting for this draft is 30/60.

Stage 3: With this additional information, you will re-write your last draft. It should be set out clearly in four sections. It should be factually correct. Your arguments should cite evidence for their validity. You should analyse (judge) how reliable your data is. Be careful not to make sweeping generalisations. Your conclusions and recommendations should be practical and based on the investigation. This is to be handed in on Sunday 11th June. Weighting for this section is 20/60. Corrected scripts to be collected on Friday 16th June.

Figure 4.4
Learning Journal Assignment

LEARNING JOURNAL

You are required to develop a learning journal. It is about a page in length. You are required to do about 20 of these.

The aim of this journal is to explore your own experience of learning at UPNG. It is not a diary. You identify a problem and thoughtfully explore the issue as it affects you. Be as specific as you can. Remember its your feeling, so be personal.

Some issues might include.

* registration week
* organisating self
* study problems
* library
* good courses
* bad courses
* reading courses
* assignment writing
* good lectures
* poor lectures

These are suggestions. You should choose issues which interest you.

Put your entry weekly into my pigeon hole. I will respond to them within 2 days.
The other piece of assessment is a Learner's Journal. The aim of this task is to provide a structure whereby students can monitor their own personal learning journey as they negotiate study at UPNG. This can potentially be of real value when as lecturers they can influence the learning of their own future student teachers. Figure 4.4 describes the assignment.

This course, consequently aims at promoting the initial teaching skills appropriate for adult learning but also to initiate the incipient cognitive processes that will permit students to develop past the role of technician (Alder and Goodman, 1986) to a more committed and capable educator of quality (McNamara, 1989:69).

SUPERVISION OF THE PRACTICUM
The primary aim of the BEd T. program is to prepare future teacher educators. In the education of teachers the research (Turney, 1982a) overwhelmingly indicates that the practicum is the single most powerful intervention in a teacher's professional preparation. This being the case it appears that the quality of supervision would be the single most influential process in such an intervention (Turney, 1982b).

Research (Stones, 1987; Turney, 1982b; Goldhammer, Anderson and Krajewski, 1980) suggests that the way to best improve the quality of supervision is through systematic study, trial and practice. The above cited studies incorporate courses that describe experiences intended to promote the education of supervisors. The traditional apprenticeship model of practice teaching is seen as inappropriate (Stones and Morris, 1972). Such a stand does not devalue the contribution of the classroom teacher, but it rejects the notion that the supervising teacher is the criteria against which effective teaching is to be determined (Oestreich, 1974). In contrast, it is proposed that a different type of relationship should be established between the participants – teacher college supervisor and student teacher, and between learning/teaching theory and the practicum experience (Marland, 1981). This course is a PNG adaptation of Turney's (1982c) Supervision Development Program, in that a specially developed PNG text book was written, to make Turney's text and videos more appropriate to the PNG context (McLaughlin, 1987c).
Exercises that may assist in the implementation of the Instructor Role

1. With a fellow lecturer role-playing the student, combine the skill components of presenting with regard to improving the student teacher's proposed introduction of a lesson with a sixth grade on the traditional culture of Tolais. The student intends to begin the lesson by simply locating Rabaul on a map before explaining key features of Tolai life. The student is not responsive to suggestions and will need to be given well thought out reasons for attempting different approaches. After the role-playing discuss with your colleagues the effectiveness of your presentation and how it could have been more effective.

2. You will plan a 20 minute lesson in which you will teach to a grade 5 class at Waigani Community School. In a pre-observation conference concerning a student's lesson, discuss a proposed teaching strategy which could be improved. Use modelling techniques to present alternative strategies. Videotape or audiotape the episode, then replay it to evaluate effectiveness of the modelling.

3. In a post-observation conference, concentrate on: (i) several strengths of the student's lesson and on explaining the reasons for their success, and (ii) several weaknesses and on explaining their causes. Record these episodes and assess the effectiveness of your explanations in terms of their clarity, brevity and use of examples and of positive student reactions and student understandings.

4. Videotape or audiotape an entire post-observation conference conducted by yourself or a colleague. Identify the use of presenting components using the checklist. Were the components effectively employed? How did the student react to the use of the various components?

Assessment for Supervision of the Practicum Course

- Individual Project. You will be required to write a handbook for a role of your choice. The audience for this handbook are lecturers in teachers' colleges. You will need to write an interactive workbook that could be used for INSERVICE in a Teachers' College.

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<td>Draft 2</td>
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Turney aimed to develop a comprehensive research based set of guidelines on supervision development. The published material comprises a text on the supervisor's contribution to the practicum experiences and a set of video role programs that goes into considerable detail about the nature of the supervisory roles of manager, counsellor, observer, instructor, feedback and evaluator. Information, case studies and practical exercises have been developed to assist in the promotion of an understanding and acquisition of the skills needed to perform the roles. These are the foci of the PNG adaptation in the course text. Figure 4.5 gives an example of one such practical exercise.

In addition to the participation in exercises, the assessment includes an individual project, that attempts to assist students to apply some aspect of the course, as well as to sensitise colleagues to the issues involved in clinical supervision (see figure 4.6).
ISSUES IN TEACHER EDUCATION

Beeby has asserted that qualitative changes in an education system will occur only when teachers understand them, feel secure with them and accept them as their own (Beeby, 1979). This observation is the rationale for the Issues in Teacher Education course in the first year of the BEd T program. In their second year, students participate in an internship year at a college. In order to sensitise them to broad issues operating within the colleges and teacher education in general, and as a balance to the inclination to focus upon "technical rationality" (Schon, 1982), such a course is seen as a necessary preparation to the internship year.

There is ample evidence that the education students receive in teachers' colleges fails to develop a critical approach to children's learning needs (Avalos, 1989:110). It also lacks relevance to the students' community (Ross, 1989:36). Moreover, practice teaching lessons are often marked by reliance on form rather than meaning (Avalos, 1989:78–81) and this is actively facilitated by lecturers (Avalos, 1989:81) and the colleges' mechanistic training theory (Avalos, 1989:103). Such processes most probably promote the development of the observed formula or stereotype approach to the teaching of set lessons regardless of context (Myer 1989:15) as well as the reported lack of drive, enthusiasm and willingness by the student teachers to interact with children (Avalos, 1989:103). The communication of labels rather than the facilitation of concepts is a noticeable feature even among experienced teachers (Markwell, 1975; Otto 1989).

If these are the processes that are being promoted, albeit indirectly, then it behoves future teacher educators to be aware of them as well as other issues. Clearly, further development of adult teaching skills are an important objective for the internship year, but they are subordinate to the acquiring of technical skills associated with "critical enquiry" (Berlak and Berlak, 1981:252), and a disposition or a critical spirit towards inquiry (Zeichner and Teitelbaum, 1982:103). This course is an important input to the development of understanding and skills which would "empower" future teacher educators to analyse what they are doing in terms of their effects on students, the education institution and the society (Zeichner, 1982). The content of the course examines important issues and research relevant to contemporary PNG teacher education as figure 4.7 indicates.
Figure 4.7
Course Outline for Issues In Teacher Education Course

Session 1
1. Hypothesis of Education Change
2. Social Relations in PNG Primary Schools
3. A Dream about Community School
4. Community Schools in Central Province (Pearse)
5. Primary Mathematics Classroom Schools
6. Basic spills in the Basic Skills
7. Curriculum in Teachers Colleges
8. Beginning Teachers (part 1)
9. Students in Teachers Colleges
10. Characteristics of a Good Teacher
11. Matane Report
12. McNamara Report
13. Survival and Comprehension

Session 2
1. Progress through the Stages
2. Relevancy of Western Education
3. Taming the School on Pounam Island
4. Community Life Teaching (Otto)
5. Language Teaching in Community Schools
6. Yeoman Report
7. Behavioural Objectives (Lawton)
8. Beginning Teachers (part 2)
9. Teaching in Teachers' Colleges
10. Teaching Styles
11. Avalos's Report
12. Mashing the Message in PNG

Each of the above articles are in the course text Issues In Teacher Education (McLaughlin, 1987d) or are distributed to students at the commencement of the semester. Individual students are required to present a seminar from the topics listed in Figure 4.7. All other students are required to read the article and write a one page response in their journal as preparation. After the seminar, students then write a critical reflective exploration of some issue that interested them during the seminar. Journals are passed to the co-ordinator on a weekly basis for his written response. No marks are allocated on a weekly basis but the final journal is worth 50% as figure 4.8 indicates.

Figure 4.8
Course Journal Assessment

Course Journal 50%

The expressed objectives of the course journal are:

1) to demonstrate in writing what you have learnt, or thought about or like to question from your readings in preparation for each seminar.

2) to demonstrate in writing what has interested you from each seminar presentation by commenting reflectively on an issue identified by yourself.

3) to demonstrate your ability to express yourself clearly and competently.

This will be handed in every week. Comments will be made by the lecturer and returned promptly to students. A total mark will be given to students at the end of the course. Reflective thoughtful comments are the aim.

The other piece of assessment is the writing of a well structured and argued essay on a self selected topic (Figure 4.9). Papua New Guinea students find essay writing a very difficult process. Plagiarism is not uncommon. The aim of this assessment item is to develop critical thinking and assignment writing skills through a series of structured drafts. Because the self identified topic has been partially explored during the seminar
much library research time is saved because useful sources have been identified in the bibliographies of the seminar papers. Hence the emphasis is on the critical thinking of readily available research and opinion, and the judicious assembling of data and argument. As well as this, emphasis is placed on correct citation and bibliographic recording. Students are given guidance in the skills of assignment writing and criteria is established for its assessment (Figure 4.10).

Figure 4.9
Issues in Teacher Education Assignment

You will be required to write an assignment (2000 words). In consultation with your lecturer, you will decide on a topic that is relevant to teacher education in PNG. This is to be a very professional piece of work.

Process of Writing the Assignment

The assignment will progress through three stages.

Stage 1 is your first draft. This should be your best try. You MUST get another student to read this draft. You will be given information on how to write this assignment. You will submit a draft to me on the 12th September. On Monday 19th September, a series of individual conferences will be arranged to discuss this first draft.

Stage 2 With information gathered from your 1st draft, you will write a second draft. This will require most of your time. This will be handed in Monday 10th October. On Monday 17th October a series of individual conferences will be arranged to discuss this second draft.

Stage 3 Your final draft will be handed in on Monday 7th November.

Figure 4.10
Criteria for Assessment of Assignment

<table>
<thead>
<tr>
<th>STUDENT ASSIGNMENT CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
</tr>
<tr>
<td>* Establish that topic or question is important or relevant</td>
</tr>
<tr>
<td>* Outline of the essay/assignment</td>
</tr>
<tr>
<td>Sections of the Essay</td>
</tr>
<tr>
<td>* Appropriate headings for each section</td>
</tr>
<tr>
<td>* Present new information that is relevant to the section</td>
</tr>
<tr>
<td>* Paragraph work</td>
</tr>
<tr>
<td>* Ensure acknowledge correctly all sources</td>
</tr>
<tr>
<td>* Concluding sentence for the section</td>
</tr>
<tr>
<td>Conclusion</td>
</tr>
<tr>
<td>* Conclusion should address topic</td>
</tr>
<tr>
<td>* Should summarise each section</td>
</tr>
<tr>
<td>* Final sentence concerning topic</td>
</tr>
<tr>
<td>Bibliography</td>
</tr>
<tr>
<td>* Correct</td>
</tr>
<tr>
<td>Formalities</td>
</tr>
<tr>
<td>* Communicative English</td>
</tr>
<tr>
<td>* Grammar / Spelling</td>
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</tbody>
</table>

Total /50
This course aims at providing students with a more informed understanding of the context in which they will work, as well as the promotion of a critical stance towards that milieu. In addition, the attention given to the critical development of academic written work should be able to be transferred to other contexts.

INTERNSHIP A & B

Internship A and B are courses students participate in during their second year and as such are not part of the intervention as was measured by SPQ, but are an important part of the curriculum intervention in the overall promotion of quality tertiary educators.

The theoretical rationale for the internship year has been fully elaborated in Chapter Two, section six, Inquiry Orientated Teacher Education. The following are some of the curriculum components which are characteristic of Internship A and B.

Reflective Journal

Students are to keep a journal, which will not only provide a permanent record of their personal journey throughout the internship year, but hopefully will become a means of promoting reflection (Walker 1985:63), while judiciously permitting the observer a personal shared insight into the developmental nature of the learner (Warner, 1971:289). Such pedagogical claims for the value of journals have their basis in the literature (Bawdon and McKinnon, 1980; Rainer, 1960; Yinger and Clark, 1981). The journal is not a daily diary, for such can degenerate into a description of events of what has happened and not a process of reflection. "Experience alone does not promote growth". (Feiman & Floden 1980:135). The journal is both active and interactive, since students are directed "to hunt" for issues to be investigated as well as to reflect in writing, on their purposefulness and quality of implementation.

Reflective Observation, Tertiary Teaching and Self Assessment

Students participate in all these activities, utilising structures, that may direct reflection on a wide variety of issues in learning and teaching e.g. weekly conference with supervisor, audio & video recording of lectures, maintaining of observation and self assessment files. However it is a clear policy that the actual amount of time students spend in teaching is not as important as the quality of the experience (Salzillo and Van Fleet 1977:30). A substantial proportion of time has also been allocated to study and
reflection upon the college as an institution of teacher education, its programs and
students.

In this way, it is argued, the (college) no longer serves merely as a model for
practice but now becomes a 'social' laboratory, itself an object of scrutiny and
challenge. Through this kind of restructuring of the school based experience of
the student teacher (educator), it is hoped that students will become more open to
considering the range of possibilities that exist beyond what has become
institutionalised in their own immediate settings, and that they will become elaborators of culture rather than mere reproducers of it (Zeichner and Teitelbaum,

Student as Learner Investigation
For a week in the second semester the interns utilise the participant as observer
methodology and investigate the world of students in teachers' colleges. They will, as
students attend lectures, do assignments, tests, eat in the student mess, as well as
participate in work parades and study sessions. The aim being that the prospective
teacher educator will be exposed to "a view of [education] different from and
complementary to that which is acquired from merely learning the [lecturer's] role"
(Salzillo and Van Fleet, 1977:30). Such a process should provide data for an assignment
based on Van Manem's (1977) levels of reflectivity model.

Research Project on the Practicum
Research (Turney 1982a:1) suggests that while the practicum in teacher education may
potentially be the most significant intervention in a student teachers' experience in a
college, it often seems "to be lacking in purpose, narrow in scope, poorly organised and
repetitive" (Turney 1982a:195). Students are required to select a problem area from the
practicum for reflection and investigation and present a detailed paper, based on
structures offered in Guthrie's (1987) Basic Research Techniques. Such a process starts
to address a need recommended by Farrell (1986), as well as providing a process for
further understanding, skill development and reflection.

End of Semester Reflections
This is a structured personal investigation, which attempts to help the student to analyse
his/her own personal growth as a teacher educator as well as the various contexts in
which this growth has taken place. The relevancy of objectives, programs, and structures
in colleges are placed under scrutiny, as well as the entire BEd T. Program. Such an
exercise may reap more significant benefits than only the collation of quantitative evaluative data.

Teachers who have participated in studies of their thinking processes report that the process of reflection imposed by the research has had a major influence on the way they do their work. Bringing their sedimented theories of instruction to their own attention provides an opportunity for analysis and revision, that is self initiated rather than researcher directed (Clark & Lampert, 1986:30).

University Study by Extension
The students own competency in English needs to be improved. Indeed, they have only ten years of formal education. Consequently, all students enrol in Matriculation English during the internship year through the Extension Studies Department of UPNG. Ideally, all students should have gained this before they commenced their BEd T. program. But this is rarely the situation. This is the most appropriate time to address the deficit, at least partially.

Other Structures
These include:

* Weekly conference with college supervisor;
* Pre/post lecture discussion with college lecturers;
* Monthly letter from BEd T. Co–ordinator;
* Supervisory visits from BEd T. Co–ordinator.

CONCLUSION
This Chapter has outlined specific curriculum strategies that are utilised in the intervention curriculum. Each course has a particular emphasis and purpose, yet all of them provide experiences for reflective and critical enquiry as well as knowledge and skills that should qualify them as teacher educators. McNamara describes the type of PNG teacher that is required for the 1990s. These qualities must also describe the teacher educators, for one cannot inculcate a vision and means in others if they are deficient in oneself.

In its deliberations and review of the 33 submissions received, it considers that what is now needed is a more reflective teacher who as an independent professional will be capable of designing a suitable learning and teaching environment, able to participate effectively in community development, and will treat the child as an individual rather than as an object for instruction (McNamara, 1989:6).
CHAPTER FIVE

DESIGN OF THE STUDY

The research reported in this thesis focused on a detailed and critical analysis of a curriculum intervention appropriate for the PNG context, based on cognitive development theory, research on approaches to learning, as well as the literature concerning adult learning and teacher development.

In terms of the inquiry approach the curriculum that developed was the independent variable. The dependent variable was the level of cognitive development as measured by deep approaches to learning. The intervention curriculum had two major expectations.

(i) to improve the level of cognitive development;
(ii) to improve the quality of potential teacher educators.

Consequently, the following became two major research questions.

* Does the experience of the special curriculum promote greater cognitive development than increased general education at the University?
* What is the perceived impact of the BEd T. students in the Teachers' Colleges?

In order to develop and plan a curriculum intervention the following question needed to be investigated.

* What factors influence the learning of PNG teachers undertaking higher education?

In exploring question two, it became apparent that an understanding of the context in which the BEd T. students would teach was necessary, hence the following research question developed.

* What are the contextual factors that influence college lecturers' teaching and student learning?

As a consequence no one research methodology was considered appropriate for a research such as this as Shulman (1981:12) has asserted:

We must first understand our problem and decide what questions we are asking, and then select the mode of disciplined enquiry most appropriate to those
questions. If the proper methods are highly quantitative, fine. If they are more subjective or qualitative we can use these responsibly as well.

Since such a research process has gained recognition for its legitimacy only recently and since it has incorporated a variety of "new paradigm" perspectives in data gathering, some detailed explanation of the processes involved is necessary, as well as the rationale for their use in this study.

The research reported here then is multi disciplinary in scope and uses structures from the following perspectives:

* ethnographic approaches;
* illuminative evaluation approach;
* case study approach;
* quasi experimental approach.

SECTION 1: ETHNOGRAPHIC APPROACH

The problems that this research has attempted to address may be appropriately undertaken through an ethnographic approach (cf. Marton and Svensson, 1979). The question seeking exploration is not simply: "Does the curriculum work?" (Gagne, 1967:29). The research is not an assessment, for such provides parsimonious information about the "whys" of data (Stenhouse, 1975:120).

Evaluation must be concerned not only with the characteristics, variables and processes relating to the class as a whole, but also with individuals each with his own set of abilities, preferences, styles of learning, attitudes interests and past experiences. It is a formidable task to take account of all these factors and it requires a change of conception of what are relevant models for gathering and analysing data... (The) classical experimental model .... ignores the characteristics of the learning environment and the interaction of learners and teachers with that environment, both in the development and evaluation stages. In reality, what pupils learn in any situation depends on a complex collection of factors, which have to be taken into account if the evaluation information is to be of practical value (Harlen, 1976:35–36).

It is acknowledged that a subjective approach appears to be the most appropriate process to address the issues, though more traditional, "scientific" and "objective" models also have a subjective dimension since all the variables are not able to be equalised (Harlen, 1976:34). The conservative models then appear to have reality have an "illusion

Moreover, such scientific research seeks to develop descriptive and generalizable theories (gained from "experimental" conditions), and then attempt to apply them to situations that are not generalizable to the conditions which practitioners experience (Harre, 1981).

Such descriptive disembodied knowledge cannot, in principle help acting systems learn how to act better next time... (or) provide an educational process whereby the practitioners studied might come to question their effectiveness and seek knowledge relevant to more successful education (Torbert, 1981:143).

This is the precise distinction between "new paradigm" research (Reason and Rowan, 1981; Reason, 1988) and the positivist empirical approach. The former focuses on doing research with people in contrast to the latter's research on people, as a detached observer so that generated data is not contaminated and so is as "objective" as possible. Such an attempt "kills everything it comes in contact with, so what we are left with is dead knowledge" (Rowan and Reason, 1981:xiii). It should not be interpreted that the new paradigm research repudiates all the research methodology that has originated from the more traditional and objective research models. "There are some aspects of orthodoxy we would like to hold on to and even to urge more strongly" (ibid), but only in so far as they help to explain how real people experience their slice of life in a real world (cf Rowan, 1981:93).

This is the point that Avalos (1985:30) laments about the majority of research on teaching carried out in developing countries. It has not helped in the generation of better education practice, where such is needed. She observes that only recently have studies within the phenomenological and ethnographic perspectives provided insight to stimulate more effective teaching and better promote student learning.

One of the purposes of the ethnographic approach is to articulate theory which is embedded in practice, "how people make sense of their everyday world" (Cohen and Manion 1981:33) and thus contribute to emerging curriculum theory. The ethnographic approach adopted in this study aims to bridge the theory–practice gap.

Ideally ethnographic researchers reject completely the systematic observer's insistence on knowing what to look for. Quite deliberately they adopt a catch-what-you-can-approach (Furlong and Edwards, 1977:122).
As a consequence then in ethnographic research,

the steering is not reducible to routine; that is what makes it so hard... sensitive awareness empathy and intuition are not ruled out, far from it, but merely not enough. Pre-existing models and frameworks are inseparable from the requisite training, but one must be able to get beyond them. It all comes down, unfortunately, to being attentive and smart. Being there won't allow one to sop it up; methodology won't allow one to guide it out. The steering is indeed cybernetic, a matter of feedback, of dialectical interplay (Hymes, 1977:170).

Cybernetic steering in this study means that, although a research plan was visualised, the accumulating data generated further questions or identified new problems which in turn gave direction for further exploration, or alternatively guided the processes of curriculum change. Moreover, the strategies used to explore issues were different for each phenomenon and generally were generated from an analysis of how a greater understanding might emerge from that phenomenon's characteristics and context. Clearly, a preconceived "cookbook" type of methodology was not practically possible nor was it theoretically appropriate, since the aim was to seek "to meet phenomena on their own terms and not to press them into the mould of preconceptions" (Keen, 1975:41).

The design of qualitative studies is frequently ambiguous as often little is known about the nature of the phenomenon before the study. Design modifications are common throughout in response to the needs of the participants in the study or because of the nature of the preliminary findings (McLean, 1987:133).

Such comments were appropriate descriptors of the processes that operated in the research reported in this thesis. Little research had been done on student learning at UPNG and none from the perspective of inservice teachers. No research has been conducted into how lecturers see their work in teachers' colleges. Moreover, educational ethnographic research in PNG has been negligible. Crossley's work (1983) is a notable exception.

In the beginning stages of this study, the general investigative question concerned the experiences of inservice teachers while at University. However, issues such as language difficulties, financial support, survival strategies, manipulation of courses and lecturers dictated that sources of data develop from individual interviews to small group forums back to further individual interviews with some students maintaining a journal. Such a research process evolved as a result of "cybernetic steering" with this researcher
interacting with students and data. A detailed research blueprint could not have been planned before initial fieldwork was undertaken.

Le Compte and Goetz (1984:38) postulate that ethnographic studies elicit data with the following four characteristics which is what is desired to answer the inquiry questions of this thesis. Ethnographic strategies should be phenomenological, empirical and naturalistic, holistic, and multimodal.

**Phenomenological**

Phenomenological research focuses on the study of direct experience taken at face value (Cohen and Manion: 1985:31). Phenomenologists are careful not to assume or generalise the meaning of an experience of those being observed or researched, but highlight the subjective aspects of individual's behaviour (Wiersma, 1986:235). As a result, the researcher employing phenomenological strategies refrains from merely documenting certain behaviour, but attempts to understand, "to clarify and categorise what is going on for person's in relation to their research situation" (Heron, 1981:161). Such understanding, naturally enough, demands often to a large extent, a qualitative interpretation of the behaviour (Davie, 1987). Yet, it should not be interpreted that phenomenological research merely highlights the subjective in the quantitative/qualitative distinction in methodology.

Marton and Svennson (1979) argue that the conceptual basis of their research on student learning encapsulates much more than degrees of methodological distinction. It has a fundamentally different philosophical framework (cf Boud and Griffin, 1987:9; McLean, 1987:127).

The quantitative methods imply reductionism and the use of formal mechanical models which embody assumptions about the chain of causality. In contrast the alternative paradigm involves approaches to research rooted in phenomenology which derive from a direct exploration of students' experiences of learning. The traditional research paradigm involves explaining student behaviour from the outside, as a detached, objective observer. The alternative approach seeks an empathetic understanding of what is involved in student learning derived from students' descriptions of what learning means to them. It involves a shift not just of methodology, but of perspective (Entwistle; 1984:12-13).
It is through a phenomenological perspective that personal data can be generated. Questionnaires and interview schedules may not deliver information to explain the deep seated "how" and "whys". Yet, this is the type of data sought that may give answers to the four general research questions of this thesis.

**Empirical and Naturalistic**

Such research strategies involve the "acquisition of first hand sensory accounts of phenomena as they occur in real world settings" (Le Compte and Goetz, 1984:38), which means that there is a better understanding of those being researched (Weirsma, 1986:235). "The meaning of human expression (is) context-bound and (can) not be divorced from context" (Smith and the Heshusius, 1981). The researcher should aim to: "Respect the nature of the empirical world and organise a methodological stance to reflect that respect" (Blumer, 1969:60). According to Blumer, one is unable to really understand human beings in social interaction unless one understands how those actions are created and the best way to do this is to occupy the role(s) of those being observed.

This is a point that Sarason (1971) focuses upon when he asserts that traditional forms of research methodology have tended to underestimate the negative influence of the "culture of the school" on the creative potential of faculty. Moreover, there appears to be little evidence of the systematic and detailed use of empirical and naturalistic strategies in education research conducted in the context of developing countries (Heyman, 1979; Avalos, 1985), even though such is needed (Crossley, 1988). Also, Beeby has argued that field based education research is appropriate for developing countries, since the strategies and assumptions of the positivist tradition in scientific methodology have "so far proved of limited value in attacking the peculiar qualitative problems in the classroom that are now the main worry of educators in these countries" (Beeby, 1979:139). He asserts that a strategy to assist in redressing this imbalance is by engaging in a combination of "action research and comparative studies, with what help they can find in scientific methodology, (to) get at the general principles behind the transfer of practices" (Beeby, 1979:151).

Stenhouse (1979:8) maintains that first hand accounts have been neglected to the detriment of good research in comparative education.
The aspiration toward positivist and predictive social science models in the hope to return to Lauwerys - "that it may become possible to provide a body of general principles which would help to guide policy makers and reformers by predicting, with some assurance, the outcomes of the measure they propose", has led to an undervaluation of observation and description and overvaluation of written sources, of the statistical, of the accounts educational systems offer of themselves.

Contextual Holism

The positive empirical approach to research has traditionally involved 'a priori' hypothesis formation and the development of specific structures aimed at testing hypotheses (Wiersma, 1986:13). However, ethnographic research suspends preconceived hypotheses and aims at the collection of data in the hope that hypotheses might emerge from its analysis.

The information that is gathered in the field is used by the holist to build a model which serves both to describe and explain the system. The model is built by 'correcting themes in a network or pattern, (Diesing, 1972:155); the connection may be of various kinds, but they are discovered empirically rather than inferred logically' (Diesing, 1972:156);[Reason, 1981:185].

Ethnographic research is holistic in the sense that it is interested in studying a "whole human system in its natural setting" and so can provide unique interpretations of data and events within context. Diesing (1972) provides a succinct rationale for the importance of the concept of contextual holism in research.

The holistic standpoint includes the belief that human systems tend to develop a characteristic wholeness or integrity. They are not simply a loose connection of traits or wants or reflexes or variables of any sort... they have a unity that manifests itself in nearly every part... This means that the characteristics of a part are largely determined by the whole to which it belongs and by its particular location in the whole system (pp.137–8).

This is an important notion as well as the corollary which maintains that wholes exist and that potential generalizability is embedded in the concept of 'holistic quality'.

By 'holistic quality' is meant not only the manifold interrelations among parts that appear in the original, but also some of the unique characteristics, the distinctive qualities and patterns that differentiate this system from others. This is the point where many social scientists part company with the holists; it seems to them that an emphasis on uniqueness makes generalisation impossible, and without generalisation there can be no science (Diesing, 1972:138–9).

This need not necessarily be so. Alderman, Jenkins and Kemmis (1976:140) insist that the understandings generated through ethnographic case study are significant in their own
right and that three different types of generalisation are both legitimate and possible; these are generalisations about the case, from the case to the class and from the case to a multiplicity of classes. Such generalisations have their authenticity in the "naturalistic" context as opposed to "scientific" grounds.

Naturalistic generalisations develop within a person as a product of experience. They derive from the tacit knowledge of how they are, why they are, how people feel about them and how these things are likely to be later on in other places with which this person is familiar (Stake, 1978:6).

Multimodel

Ethnographic research is multimodel as it uses a variety of research technologies (Wilson, 1977). Since the issues ethnographic research focuses upon are concerned about understanding "from within" (Burrell and Morgan, 1979), then multiple data collection strategies are employed as these provide the flexibility for the many different situations from which data may be obtained. Denzin (1978) argues that research designs based on a combination of data collection strategies provide a substantially more complete and complex data on phenomena, than do unimodel research. Such strategies are more likely to assess processes as well as generate specific data on the effects of curriculum interventions (Parlett and Hamilton, 1976:100). Moreover, they possess more credibility because they increase the reliability and validity of results (cf Reason, 1981:239 ff).

SECTION 2: ILLUMINATIVE EVALUATION APPROACH

Until recently, Tyler's influential classic behavioral objectives model (Tyler, 1949) has dominated the dynamics involved in curriculum evaluation (Davis, 1981:24). Parlett and Hamilton (1976) and others including Stenhouse (1975), MacDonald and Walker (1975), and Lawton (1983) have highlighted the failings of the Tylerian model.

This thesis aims at generating phenomenological data. More is required than a report on the achievement of objectives. Parlett and Hamilton's (1976) concept of illuminative evaluation is firmly embedded in the ethnographic tradition and seeks more to illumine than to draw conclusions. In contrast to traditional models, the illuminative approach attempts to broaden curriculum evaluation so that processes in addition to product are scrutinised. Another aim involves the collection of more varied forms of data/evidence,
as well as a focus on the description and interpretation of curriculum in a specific context. Parlett and Hamilton succinctly describe the notion that illuminative evaluation, 
...takes account of the wider contexts in which educational programs function. Its primary concern is with description and interpretation rather than measurement and prediction. It stands unambiguously within the alternative anthropological paradigm. The aims of the illuminative evaluation are to study the innovatory program; how it operates; how it is influenced by the various school systems in which it is applied; what those directly concerned regard as its advantages and disadvantages; and how students' intellectual tasks and academic experiences are most affected. It aims to discover and document what it is like to be participating in the scheme, whether as a teacher or pupil; and in addition to discern and discuss the innovation's most significant features, recurring concomitants and critical processes. In short, it seeks to address and to illuminate a complex array of questions (Parlett and Hamilton, 1976:88–89).

This study is particularly interested in teaching and learning in higher education in Papua New Guinea. Parlett and Hamilton (1976:89) cite two concepts as central to an understanding of illuminative evaluation, notably the "instructional system" and the "learning milieu".

The "teaching blueprint" (instructional system) for the traditional evaluation is the process that permits an assessment to be made regarding objectives attainment. In so doing, it ignores the phenomenon that instructional systems or teaching blueprints are continually being evaluated by participants as they interpret and reinterpret their perspectives concerning the educational enterprise (cf Davis, 1981:121). "In practice, objectives are commonly reordered, redefined abandoned or forgotten" (Parlett and Hamilton, 1976:90). This is a necessity, since a curriculum, as well as teaching and learning do not operate in a vacuum. It behoves the researcher to explore the cultural, psychological and physical milieu in which participants operate.

Connecting changes in the learning milieu with intellectual experience of students is one of the chief concerns for illuminative evaluation... The learning milieu concept is necessary for analysing the interdependence of learning and teaching and for relating the organisation and practices of instruction to the immediate and long term responses of students (Parlett and Hamilton 1976:91).

In this particular study, information concerning the effectiveness of the BEd.T program and the impact of associate lecturers in the teachers' colleges, did not focus on their acquisition of technical proficiency. Much of the data gathered from the broader perspectives indicated, that though some technical proficiency may have been
established, influences such as the national basic skills examinations and inspectoral processes from the Division of Teacher Education might have muted the potential fullness of the teaching impact.

Illuminative evaluation, in that it is a research perspective utilising an ethnographic approach to curriculum evaluation, (Parlett, 1981:226), is not a methodological package; it has an eclectic view in the selection of strategies which are considered appropriate. Indeed it is the "problem that defines the methods used, not vice versa" (Parlett and Hamilton, 1976:92).

Illuminative evaluation is characterised by a flexible methodology that capitalises all available resources and opportunities and draws upon different techniques to fit the total circumstances of each study (Parlett and Dearden, 1977).

To be more specific, researchers employing illuminative evaluation perspective rely extensively:

on interviews and observing in the field, along with analyses of documents collected, and short questionnaires often open ended in structure. In addition, the study of stored records (e.g. admissions data, test scores, costs, number of students pursuing different options) often form an integral part of an in-depth programmatic investigation (Parlett, 1981:222).

According to Parlett and Hamilton (1976:92-93), illuminative evaluation has three characteristic stages that overlap and are functionally inter-related. Stage one is essentially concerned with observation. The second stage focuses on the selection of issues, occurrences or perceptions which form the basis for more intensive enquiry, while the third stage seeks to desire general principles underpinning the research, while placing individual findings within a broader exploratory context.

In this research, observations, and interviews were conducted with UPNG students as well as the staff and students at the eight pre-service Community Teachers' Colleges. In addition to reviewing the current literature on students' negotiating studying at tertiary institutes in PNG, a number of "forums" were held with students, concerning their learning experiences. From these observations, significant issues became manifest through analysis. These were pursued by further interviews and the use of questionnaires and participant observation. (See Figure 5.1 for an overview of the strategies used as part of illuminative evaluation).
Figure 5.1
Overview of Strategies used as part of Illuminative Evaluation.

It is clear then, that the researcher employing an illuminative evaluation perspective, rejects the notion that his role should be distant, aloof, objective and non contaminatory and so invites criticisms that such generated data are "subjective, biased, impressionistic, idiosyncratic and lacking in precise quantifiable measures..." (Cohen and Manion, 1980:125).

Differences in interventions are not easy to research because interventions which are part and parcel of a teaching program are contaminated by the pervasive effect of the normal context of assessment and teaching. However, interventions not so contaminated are not only difficult to arrange with any degree of realism, but will have limited relevance to improving learning in other normal teaching contexts (Martin and Ramsden, 1987:157).

Such differing perspectives on the role of the researcher have their basis in the conflicting views of human beings interacting with their environment. The positivist-empiricist approach seems to portray humans as responding mechanically to the environment, while the alternative paradigm views people as initiators of their own actions (cf Harre, 1981).

The conventional notion of the researcher as an objective and unbiased observer in the research process is one which is discounted in qualitative research. In this approach the researcher is seen as an integral part of the research process, and it
is acknowledged that his or her attitudes and behaviours do in fact influence the course of the research (McLean, 1987:134).

Recognition of this problem in this research, has generated structures to accommodate its influence such as clarification of the researcher's roles, open communication about relevant sections of the study (Parlett and Hamilton, 1971:97) and democratic principles of procedure (MacDonald, 1976).

As the study was also attempting to ascertain the impact of potential teacher educators in colleges, it became necessary to explore this milieu in order to understand data in its wider naturalistic perspective. In this research, such data were derived through a case study analysis.

**Participant Observation**

The basis of the illuminative evaluation methodology employed most often in case study research is the sociological methodology of participant observation.

The relatively unstructured scanning of information through participant observation is basic to all the other, more refined research techniques. The preliminary data from participant observations provide the fieldworker with insights and clues necessary for developing questionnaires, psychological tests, or other more specialised research tools. Participant observation also provides the further checking and monitoring of field information that is necessary for evaluating data gathered by the specialised techniques. The chronicle of a field project usually consists of the interplay between participant observation and the other modes of data collection (Pelto, 1970:10).

Participant observers may adopt roles that are either formal or informal, concealed or revealed, passive or active (Schartz and Schartz, 1955). Ball (1982) has summarized the main styles identified from the literature. The focal concern is with the role that evolved for the present research. Can the lecturer who is implementing the intervention curriculum implement the role of a participant observer? This is a crucial issue, since much of the data have been generated through this strategy. Much of the validity of the research, then pivots around this question. Malinowski (1961:7–8) believed that participant observation was central to effective ethnographic work.

It must be remembered that the natives saw me constantly everyday, they ceased to be interested or alarmed, or made self conscious by my presence, and I ceased to be a disturbing element in the tribal life which I was to study, altering it by my very approach as always happens with a newcomer to every savage community. In fact, as they knew that I would thrust my nose into everything even when a
well mannered native would not dream of intruding, they finished by regarding me as part and parcel of their life, a necessary evil or nuisance.

This description of a participant observer is seen in the traditional terms of the objective, disinterested, marginal and rather aloof anthropologist. Such a perspective is impossible since the writer is researcher, teacher and evaluator of the curriculum under investigation. Such a role is also inappropriate in this research since, during the interviewing and analysis process, the researcher did not attempt to detach himself from the experience in order to judge the appropriateness of the interviewee's experience. Rather the researcher "actively engages with the individuals or their data or both in order to understand better their experience" (McLean, 1987:134). Where bias is most likely to be induced, albeit possibly unconsciously, is if the evaluator/researcher/implementor has an interest in obtaining a "successful" outcome, (e.g. his job, income, status, promotion, ego). Related to this issue is the question: Is the data that is being investigated or generated mainly research or mainly evaluation?

A touch-stone for discriminating an evaluator and a researcher is to ask whether the inquiry would be regarded as a failure if it produced no information on whether the phenomenon studied was useful or useless. A research answer qua researcher will probably be "No" (Glass and Worthen, 1972:84).

This study is essentially research, and "success" is acknowledged to be relative and subordinate to "impartial" data gathering. However, the lecturer/implementor in this kind of interested position must safeguard against bias and unreliability. This can only be achieved, if the lecturer as participant observer has secured the acceptance of those being studied. It is also essential they do not feel threatened or intimidated by authority or the "power" the researcher has.

This research has utilised a variety of research gathering instruments and has focused on a number of participants from a variety of perspectives. Techniques included participant observation, significant personal interviewing, use of questionnaires and opinionnaires, quasi experimental design procedures, student journals, which formed the basis of triangulation (cf Cohen and Manion, 1980:254–270).

Equally, no method (with its own built in limitations) is used exclusively or in isolation; different techniques are combined to throw light on a common problem. Besides viewing the problem from a number of angles, this 'triangulation' approach also facilitates the cross–checking of otherwise tentative findings (Parlett and Hamilton, 1976:92).
SECTION 3: CASE STUDY APPROACH

Case study is an umbrella term for a smorgasbord of perspectives, "having in common the decision to focus on enquiry around an instance" (Adelman et al, 1976:141) in order to "capture and portray those elements of a situation that give it meaning" (Walker, 1980:33). Case study is essentially concerned with the interaction of factors and events and "sometimes it is only by taking a practical instance that we can find a full picture of this interaction" (Nisbett and Watt, 1980:5). Case study aims to provide information needed to be known by the researcher for decision making within a context of limited time frames, which may deny the appropriateness of full ethnographic methods in the collection of data (cf Fetterman, 1984).

Case study then aims to explore in depth, to possibly intervene, (Walker, 1983) and to report rapidly, hence the notion of condensed fieldwork. It attempts to establish a middle ground between the "worlds of academic research and education practice" (Walker, 1980:31).

The purpose of such observation is to probe deeply, to analyse intensively the multifarious phenomena that constitute the life cycle of the unit with a view to establishing generalisations about the wider population to which that unit belongs (Cohen and Manion, 1980:120).

The word "instance", then not only implies that though prolonged field work may not be possible, generalisation is still a goal.

...through the portrayal of a single instance locked in time and circumstance, he (researcher) communicates enduring truths about the human condition (MacDonald and Walker 1977:182).

Walker (1983:155) asserts that case study, though it can be problematic is an appropriate vehicle for curriculum research.

...those who share a view of the curriculum field as organised around issues rather than theories, find in case study an empirical genre appropriately flexible, eclectic and capable of creating surprises.

Even though case study methods "are rarely spelled out in advance" (MacDonald and Walker, 1975:4) except in the most general terms, Skilbeck (1983:18) asserts that case study as a style of research is doubly effective as:

Taken in one direction it leads us to the perfection of observation and documentation; in another it is a key factor in the revitalization and democratisation of educational knowledge.
In the present research, case study methodology was employed in studying the context of the teachers' colleges in which BEd T. students teach.

The greatest advantage of this method (case study) is that it endeavours to understand the whole individual in relation to his environment (Verma and Beard 1981:62).

Such data are important so that contextual variables may be identified as factors that contribute to the potential impact of the BEd T. students in the colleges. Kemmis (1982:104) maintains that qualitative case study enquiry is particularly helpful in addressing "problems (that) must be recognised and articulated". Weeks, Director of Papua New Guinea's Education Research Unit, commends case study to prospective PNG researchers while noting its utility in previous research (Weeks, 1987:78).

The case study is relied on in situations where researchers know little about the problems that they are studying but want to find out more about them. Most case studies are at the level of description, but they can go beyond that. Case studies are often exploratory. They can often be used at the beginning of a project to give insights and understandings into research problems. They can provide knowledge on which hypotheses to guide further research can be based (Weeks, 1987:77).

Such an observation has been corroborated objectively in a case study research design conducted by Crossley (1983) and through a full analysis of case study research methods in the comparative education context (Crossley and Vulliamy, 1984).

The case study approach has been used within the guidelines based upon MacDonald and Walker (1975).

(a) Case study research responds actively to practitioners' definitions of situations, conceptual structures and language thus facilitating the creation of alternative realities for practitioners.

(b) Condensed field work draws case study researchers closer to the traditions of journalism, documentary film-making and the novel rather than case study in the social sciences in order to fit the time-scales of participants.

(c) Rather than setting proof as a primary goal, the case study worker increases understanding of the variables, parameters and dynamics of the case under study.

(d) Validation is obtained via a continuous process by those involved. The continuous cross-checking of perceptions of the observer with those of significant personnel in the teachers' colleges was an important aspect of the methodology.

(e) The reliability of the study (i.e. the probability of its findings being confirmed by replication) is significantly enhanced by the expressed reactions to the report.
in its final form of the characters portrayed. *(A draft copy of the case study was made available to lecturers for their comment before final publication and lecturers' comments were incorporated in the final draft of that section of this thesis.)*

**(f)** Confidentiality is accorded to participants. The sharing of control over data with participants means that the researcher often has to face the fact that some of his finest data are lost. Conversely, access to knowledge about sensitive issues may guide the research in significant and unexpected ways.

**SECTION 4: QUASI - EXPERIMENTAL APPROACH**

Lindquist (1956:100) has classified research in the social sciences into two broad categories (1) experimental studies, and (2) investigational studies. The present study belongs to both these categories at least in part. Part of it investigates the life of PNG teachers studying at university. The investigational study (as defined by Lindquist) continues into the second year of the program, the internship year, in order to investigate the BEd T. students' impact on the colleges. The other part of the research explores the approaches to learning among inservice teachers at UPNG. It particularly focuses on BEd T. teachers who have been exposed to a curriculum purposely designed to promote greater cognitive complexity as manifested by a deeper approach to learning (Marton and Saljo, 1987; Biggs, 1987a;b) *(The research related to these concepts has been reviewed in Chapter Two).* This section of the research can be regarded as an experimental design. Incorporating an empirical research component in what is essentially research embedded in the ethnographic tradition is not an inconsistency. New paradigm researchers do not eschew the use of empirical methods. Indeed one of its strengths is that the paradigm is essentially an eclectic one, which uses the seemingly most appropriate method for the problem under investigation. Parlett (1981) appreciated the value of quantification in research when it is considered appropriate. It is not so much the use of empirical methods that alternative researchers decry, but the immediate use of detailed measurement before an appreciation of the total scene has been attempted. Most alternative researchers seem to utilise aspects of quantitative strategies within the new paradigm research without too much conflict *(Lawton, Gordon, Ing, Gibby, Pring and Moore, 1978:182).*

While concentrating on observation and technique, the illuminative evaluation does not eschew paper—and—pencil techniques...test scores can form merely one section of the data profile. Interest lies not so much in relating different test scores, but
in accounting for them using the study's findings as a whole (Parlett and Hamilton 1976:95).

Though this section of the research has been labelled as experimental, it is not a "true" experimental design, since it has not been possible to randomly assign subjects to the experimental group. Like much research in education (e.g. a class) the experimental group, (the BEd T. students) is a naturally formed intact group. When intact groups of subjects are used in an experiment, it is called "quasi experimental" research (Cook and Campbell, 1979).

Such research can make valuable contributions, but it is important the researcher be especially cautious about interpreting and generalising results (Wiersma, 1986:139).

The "pre-test control group design" is a widely used design in experimental research. Campbell and Stanley (1972) describe four quasi-experimental research designs which have much in common with the pretest–posttest control group design. The design used in this present section of the research then would be best called "The Non-Equivalent-Control Group Design" (Campbell and Stanley, 1972:47–50).

**Characteristics of the Design**

**Sample**

This component of the research was conducted in 1989 with forty school teachers who are enrolled in the Bachelor of Education program at UPNG. The control group is the Bachelor of Education (Inservice) BEd I., N=30, while the experimental group is the Bachelor of Education (Tertiary) BEd T., N=10. All had completed their grade 10 provincial high school examination, successfully graduated from a two years teachers' college, and have at least five years teaching experience. The majority of inservice (BEd I.) teachers are secondary trained. Acceptance into the secondary teachers' college is dependent upon candidates possessing a minimum of three credits in their grade 10 examination; those with lower passes enter Community (primary) Teachers' Colleges (Mason, 1984:12). BEd T. students are all primary teachers. Provisional entrance to the University, since none have matriculated (grade 12), is through a pass in a university examination based on English usage proficiency. Teachers are financially sponsored by the Staff Development Unit of the PNG Ministry of Education on the basis of their professional record. All students study eight courses per year.
**Control Group**

The control group is composed of thirty teachers (N=30). They were selected on the basis of similarity with the experimental group in terms of the number of years of general education, years of teacher training and teaching experience.

**Experimental Group**

The experimental group is composed of students accepted in the BEd (Tertiary) program. These are all community school teachers. They are two year trained teachers and all have had least five years teaching experience. They also do eight subjects per year, four of which are peculiar to BEd T. program. These are taught by that BEd T. program's co-ordinator. These have been specifically designed to promote cognitive growth and metacognition as noted in Chapter Four. This curriculum, unique to the BEd T. students is the intervention or independent variable. The courses in the curriculum are:

- Seminar in Tertiary Teaching
- Studies in Teaching
- Supervision of the Practicum
- Issues in Teacher Education

The dependent variable is the level of cognitive development as measured by deep approaches to learning. Consequently, the education curriculum unique to the BEd T. students (the intervention) has two major expectations.

(i) to improve the level of cognitive development;
(ii) to improve the quality of potential teacher educators.

The use of intact groups in their natural setting for this type of research has certain definite advantages. Keeves and Lewis (1983:274ff) have enumerated them, emphasising in particular the issue of representativeness. "In many cases, the independent variables of interest are ones which are meaningful in the natural occurring classroom situation and not amenable to reproduction in the experimental-type environments".

**Instrumentation**

The instrument used for pre and post assessment is the Study Process Questionnaire (SPQ) (Biggs, 1987a) (Appendix C). The Study Process Questionnaire was devised,
trialed and validated by Biggs (1979). Elsewhere (Biggs, 1987b), a detailed history of its inception, validation and reliability is documented. This instrument is made up of forty two statements of which a response is required on a five point scale. Three dimensions of study approaches are distinguished – deep, surface, and achieving, with each dimension having an affective (motivation) and a cognitive (strategy) component. Each of these two components is covered by seven questionnaire items on the scale of each of three dimensions i.e. fourteen (14) items of each dimension and forty two (42) items in all. This questionnaire was chosen in preference to other instruments e.g. Entwistle and Ramsden's (1985) Approaches to Studying because it is comparatively short, with 42 items. The common experience of researchers in PNG is that people do not like having to read long questionnaires. Only a small percentage of the population read English with any degree of fluency (Guthrie, 1987:57ff). Those that are too long are either not returned or returned incomplete. Moreover SPQ had been trialed and found appropriate in PNG by Wilson (1987), who had extensive consultation with Biggs with its initial trialing in PNG. Wilson was also a source of assistance in her sharing of the problems she encountered, as well as in offering her opinions concerning the advantages and limitations of SPQ.

The questionnaire had been altered with a few minor linguistic adjustments following trials in Papua New Guinea by Wilson (1987). The changes were intended to ensure that modified statements had the same meaning for second language speakers of English in Papua New Guinea as the original statements had for first language speakers in Australia. Wilson (1987) had made this modification of the scale in consultation with Biggs and English specialists at UPNG. Further minor modification and trialing were made by this researcher in order to permit it to be even more appropriate to PNG students.

As postulated in Chapter Two, the key conceptual premise for cognitive development theory is that teacher development is a form of adult development and effective learning or teaching is a function of higher stages of development (Hunt, 1975; Thies-Sprinthall, 1986:15). Biggs likewise postulates that students' approaches to study are related to cognitive processes.

It seemed a reasonable hypothesis that a student's study behaviour (Biggs emphasis) mediated the connection between cognitive style and performance. In
other words, the convergently biased or dogmatic student would go about study in a different way from that of the divergently-biased or non dogmatic student (Biggs, 1987b:5).

Students who seem to regularly approach learning utilising deep strategies are functioning cognitively at higher stages of development. "Deep level processing is a deliberate attempt to destructure the environment as given, in order to penetrate the obscured meaning" (Laurillard, 1987:205). This seems to be a worthy aim for future teacher educators.

In higher education, any program of study which does not require students to take a deep approach to learning that subject is unworthy of its place in the department's program (Bowden, 1986:13).

Methods of Analysis
The analysis of covariance (ANCOVA) is the statistical technique often used in experimental and quasi experimental research designs (Wiersma, 1986:354ff). Where subjects are not able to be matched or assigned to groups at random, as is the case in this study, ANCOVA is a particularly useful method of data analysis.

...It is frequently necessary to study groups as they are; subjects cannot be matched or assigned at random. Analysis of covariance comes to the investigator's assistance. Here is a splendid example of the creative use of the variance principles common to correlation theory and to analysis of variance to solve a long standing analytical problem... (Kerlinger, 1964:347).

ANCOVA is an extension of a more basic model of analysis of variance (ANOVA) modified to accommodate an 'adjustment' for pre existing differences between groups, as measured by a covariate (or a number of covariates). The pretest when used in this manner, provides an adjustment for initial differences between groups, for example in size of the sample of the different groups as in the case in this investigation (Cook and Campbell, 1979:153).

Reichardt (1979:155) succinctly explains the function of the ANCOVA technique.

...Thus the estimate of the treatment effect in the ANCOVA is the difference between the predicted post-test scores of individuals in the two groups that have been "matched" on pre-test scores. A statistically significant difference then "suggests" that one group would have significantly outperformed the other on the post-test if the groups had started with the same pretest scores.
The Internal and External Validity of the Experimental Design

The worth of an experimental design is largely dependent upon its internal and external validity. Internal validity focuses on the question: "Does the experimental treatment in fact, make a difference in the specific experiments under scrutiny?" (Cohen and Manion, 1980:194). Essentially, it is concerned with the efficient control of extraneous variables so that comparisons may be produced that are free from bias (Glass and Stanley, 1970:489). External validity poses the question: "Given these demonstrable effects, to what populations or settings can they be generalized?" (Cohen and Manion, 1980:194). Both types of validity are needed in a good design. However to measure the one is often to run the risk of decreasing the other (Campbell and Stanley, 1972:5). There does appear to be a lopsided relationship between internal and external validity. Without internal validity it is impossible for an experiment to be externally valid, though an internally valid experiment may or may not have external validity (Pilliner, 1973). Nevertheless, internal validity is regarded as the more important (Lehmann and Mehrens, 1979:340).

Threats to Internal Validity

* History: It is hoped that significant experiences other than the curriculum intervention will be detected through the researchers' participant observation status.

* Maturation: Likewise, participant observation hopefully will detect this influence, if it occurs.

* Statistical Regression: The SPQ has satisfactory reliability (Biggs, 1987a:29–31). Other possible extraneous factors that may prompt regression, have not been identified.

* Testing: Subjects were not told they were part of any special research. They were informed that their views about their personal learning were wanted to assist the Education Department to be more sensitive to students. Practice effect is not an issue for two reasons. One, there are no right or wrong answers, merely self reported preferences and secondly, subjects are readministered the instruments after an interval of nine months.

* Instrumentation: SPQ has statistically satisfactory reliability and validity. It is also relatively short enough to minimise subject rush, boredom or loss of concentration.

* Selection: This threat has been addressed when the topic of using intact groups were employed as experimental or control groups. The advantages of using intact groups in quasi experimental designs in their natural settings have been
enumerated by Keeves and Lewis (1983:274–275). Their point being that "independent variables of interest are ones which are meaningful only in the naturally occurring classroom situation and not amenable to reproduction in experimental type environments".

*Experimental Mortality*: The subjects remained substantially the same throughout the 1989 university year.

**Threats to External Validity**

* Failure to Describe Independent Variables Explicitly: The independent variable is the curriculum intervention. The theoretical dimension that contributes to the curriculum has been described in Chapter Two, while the learning experiences of the planned curriculum are detailed in Chapter Four. The cognitive development conditions underpinning the curriculum are significant role taking experience, careful and continued guided reflection, balance between real experience and discussion, reflection and teaching, continuity for a year, and a balance between personal support and challenge, which would be appropriate for the PNG context (cf Sprinthall and Sprinthall, 1983a; 1983b).

* Lack of Representativeness of Available and Target Population: The populations in the design are teachers experiencing university study and as such are representative of the population from which any generalisations may be generated.

* Hawthorn Effect: The subjects both in the BEd I. and BEd T. programs are unaware that they are participating in a research design. They were asked to do the SPQ as part of the UPNG Department of Education's desire to assist students' learning. Those who are participating in the intervention curriculum are not aware that this is "special". For them, the four courses are just like other university courses. The researcher is well aware of what planned learning experiences might better promote cognitive growth. This is potentially problematic. Harlen (1976:48) describes the problem.

When the evaluator puts himself so much inside the materials or methods being tried, there must be empathy between him and those taking part in the experiment and his attitude has to be positive or he would be in danger of undermining the confidence of the participants. Then judgement becomes less objective than desirable.
The four courses of the intervention program are: Studies in Teaching, Seminar in Tertiary Teaching, Issues in Teacher Education and Supervision of the Practicum. These courses do not explore any of the conceptual data underpinning the test instruments. Knowledge of student learning etc would be appropriate for the Seminar in Tertiary Teaching course. This is left to their final course at the end of year three after the Australian component, Course Design and Evaluation. This appears to be an appropriate time since BEd T. students have not only teaching college experience, but also some depth in their teaching subject specialisation. Within such a context, it seems likely that the problems of student learning would be more appreciated. The researcher did not consciously feed "right" answers for the instruments during the course of his teaching. Moreover, since the instrument assesses student perceptions of their own learning from differing perspectives, it is all the more difficult to alert students to what would be the more positive responses. Nevertheless, the second year of the research in which students impact into the teachers' colleges will be monitored will involve substantial interviews with Principals of Teachers' Colleges and college based supervisors. They will give other independent data concerning BEd T. students' behaviours. This concern is acknowledged. However, even the most rigorously controlled experimental research does not succeed in eliminating influences by the researcher on the subjects (Bakan, 1967; Rosenthal, 1966; Frieman, 1967). The researcher has attempted to be thoroughly ethical in this regard but notes from Torbert's ironically titled paper, Why educational research has been so uneducational: the case for a new model of social science based on collaborative enquiry, that research based on the model of unilateral controlled experimental conditions is fundamentally anti-educational because it produces sterile data, in that practitioners do not question their effectiveness, focus more attention on student learning or seek knowledge relevant to more successful education, and as such does little to provide:

a kind of knowledge that they (practitioners) can apply to their own behaviour, in the midst of on going events, in order to help them inquire more effectively with others about their common purposes, about how to produce outcomes congruent with such purposes and about how to respond justly to interruptions (Torbert, 1981:143).
While doing this research and while being the co-ordinator of the BEd T.
program, this researcher learnt much not only before and after the administration
of the instruments but actively while doing this study (cf Torbert, 1981:144).
Such seems to be a realistic experience for the practising educator-researcher.

As long as Hawthorn effects and expectancy effects are lumped into
"threats to validity", not only will research not apply to practice, but...(it)
obscures why teachers apply new programs at all.... If the conditions were
completely objective and neutral, it is doubtful that any implementation
would ever occur (Hunt, 1976:213).

* Inadequate Operationalizing of Dependent Variables: These can be further checked
by reference to students essay work as well as journal entries. Moreover, in the
second year of the program, the internship year the "operationalising" can be
clearly monitored.

* Sensitisation to Experimental Conditions: Pretests could not cause changes to the
subjects sensitivity to experimental variables, because of their briefness, the
informal setting of their administration and the information given to the students
that this was routine UPNG Department of Education data gathering procedures.
They were not aware that they were part of a study.

DATA COLLECTION PROCEDURE
No one strategy was used because ethnographic research seeks to describe and interpret
curriculum development and consequent decision making. It is concerned with the
contextual and cultural factors which promotes or hinders learning. Moreover, it seeks
to understand processes that influence curriculum planning, implementation and
modification. The phenomenon under study dictated the choice of strategy.

The research tries to understand the everyday reality of the situation but avoids
manipulating, controlling or eliminating situation variables (Evans, 1979:93).

As a consequence, the following strategies were used to gather data.

* participant observation
* significant personal interviewing
* structured and semi structured interviews
* questionnaires
* student forums
* journal records
* assignment work
SOURCES OF DATA
Data sources are indicated in Figure 5.2.

OVERVIEW OF RESEARCH DESIGN
An overview of the research design is indicated in Figure 5.3.

THE DESIGN SUMMARISED
The general approach and rationale for the research design has been discussed. An ethnographic approach was chosen because such a paradigm seemed appropriate for the type of information sought about curriculum intervention in specific contexts. Four main research questions eventually emerged to guide the research. They were:

* What factors influence the learning of Papua New Guinea teachers undertaking higher education?

* Does the experience of the special curriculum promote greater cognitive development than increased general education at the university?

* What is the perceived impact of the BEd T. students in the Teachers' Colleges?

* What are the contextual factors that influence college lecturers' teaching?

The research design is multimodel in scope and centres on the following perspectives.

* ethnographic approach
* illuminative evaluation approach
* case study approach
* quasi experimental approach

The research design incorporated a wide variety of data gathering techniques. Sources of data were identified from a varied number of perspectives. Care has been taken to ensure both internal and external validity for the research design.
Figure 5.2
Data Sources for the Four Research Questions.

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Data Collection Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>Cloze reading test&lt;br&gt;Questionnaire on learning at UPNG.&lt;br&gt;Study Process Questionnaire&lt;br&gt;Interviews&lt;br&gt;Forums&lt;br&gt;Self/evaluation of lectures.&lt;br&gt;Learning Style Inventory&lt;br&gt;Assignments&lt;br&gt;Journal writing&lt;br&gt;End of Semester Reflections.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Participant Observation</td>
</tr>
<tr>
<td>Principals of Teachers Colleges</td>
<td>Interviews&lt;br&gt;Associate Lecturer Characteristics Inventory</td>
</tr>
<tr>
<td>Staff members from Teachers' Colleges</td>
<td>Formal Report Writing&lt;br&gt;Interviews&lt;br&gt;Opinionnaires&lt;br&gt;Associate Lecturer Characteristics Inventory</td>
</tr>
<tr>
<td>Division of Teacher Education</td>
<td>Interviews</td>
</tr>
</tbody>
</table>
Figure 5.3
Overview of Research Design.

<table>
<thead>
<tr>
<th>Research Question No. 1</th>
<th>Information Required</th>
<th>Sources of Information</th>
<th>Obtaining Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What factors influence the learning of Papua New Guinea Teachers undertaking higher education?</td>
<td>In-service Bachelor of Education Students at the University of Papua New Guinea.</td>
<td>Questionnaire (N=10) September 1989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students Journals (N=15)</td>
<td>February - June, 1989</td>
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<td></td>
<td></td>
<td>Participant Observation</td>
<td>Throughout 1989</td>
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<td></td>
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<td>Informal Interviews and Student Forums (N=123)</td>
<td>July - October, 1989</td>
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<td></td>
<td></td>
<td>Close Reading Test (N=90)</td>
<td>March 1989</td>
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<td></td>
<td></td>
<td>Learning Style Inventory (N=30)</td>
<td>February, 1989</td>
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</table>

<table>
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<th>Research Question No. 2</th>
<th>Information Required</th>
<th>Sources of Information</th>
<th>Obtaining Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Does the experience of the special curriculum promote greater cognitive development than increased general education at the university?</td>
<td>In-service Bachelor of Education Students (N=30)</td>
<td>SPQ Journals Interviews March, 1989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and Bachelor of Education (Tertiary) Students (N=10)</td>
<td>Throughout Year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total (N=40)</td>
<td></td>
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<table>
<thead>
<tr>
<th>Research Question No. 3</th>
<th>Information Required</th>
<th>Sources of Information</th>
<th>Obtaining Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What is the perceived impact of the B.Ed (T) students in the Teachers' Colleges?</td>
<td>Students' knowledge of content of teaching specialization.</td>
<td>Principal (N=5) November 1989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teaching competency.</td>
<td>Throughout Year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>College Supervisors (N=10)</td>
<td>1988, 1989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B.Ed (T) Students (N=111)</td>
<td>End of semester 1988, 1989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Associate Lecturer Characteristics Inventory</td>
<td>Throughout year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interviews</td>
<td>1988, 1989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Semester Report Interviews</td>
<td>End of semester 1988, 1989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>End of semester written reflection.</td>
<td>End of each semester 1988, 1989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participant Observation Documentary analysis of lecturer plans self evaluation of lecturer supervision using daily reflective journals</td>
<td>Throughout Year 1988, 1989</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research Question No. 4</th>
<th>Information Required</th>
<th>Sources of Information</th>
<th>Obtaining Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What are the contextual factors in teachers' colleges that influence lecturer impact and student learning?</td>
<td>Lecturer perceptions of students at their college.</td>
<td>Lecturers September 1987</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lecturer perceptions concerning college curriculum</td>
<td>Senior Lecturers Interviews to April 1988</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lecturer perceptions concerning styles of teaching in colleges.</td>
<td>Deputy Principals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Officers in the Division of Teacher Education (N=6)</td>
<td>Participant observation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PNG Literature on Teacher Education</td>
<td>Documentary Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Informal Interviews</td>
<td>June 1988 to June 1989</td>
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CHAPTER SIX

PRESENTATION AND ANALYSIS OF FINDINGS

1. INTRODUCTION

This chapter presents and discusses the results of the research. The inquiry focussed on a curriculum intervention for tertiary teacher educators, which provided experiences that aimed at developing teachers towards more complex cognitive processing. This is considered a pre-requisite for more effective teaching (Thies Sprinthill, 1986). Consequently, it is important to explore problems that might promote or impede intellectual development of Papua New Guinea teachers at University, hence the importance of the first research question.

(i) WHAT FACTORS INFLUENCE THE LEARNING OF PAPUA NEW GUINEA TEACHERS UNDERTAKING HIGHER EDUCATION?

The results from this question must influence both the content and process of a curriculum intervention, since such must acknowledge and take into account a whole range of contextual influences related to meaningful student learning. It is necessary then to ascertain, if students as a result of the intervention had progressed toward more cognitive complexity, hence the second research question.

(ii) DOES THE EXPERIENCE OF THE SPECIAL CURRICULUM PROMOTE GREATER COGNITIVE DEVELOPMENT THAN INCREASED GENERAL EDUCATION AT THE UNIVERSITY?

If there is a significant growth in cognitive development as a result of the university curriculum experience, then it is anticipated that BEd.T students in their second year, the internship, should be perceived by the teacher college community as having incipient potential to initiate quality change. It is necessary then to monitor their impact within the colleges, hence the relevance of the third research question.
(iii) WHAT IS THE PERCEIVED IMPACT OF THE BEd T. STUDENTS IN THE TEACHERS' COLLEGES?

The essential pragmatic aim of the BEd T. program is to develop more effective educators, who will be a major means of promoting quality education in PNG. Though a number of serving teacher college lecturers have had both in-country and overseas university education, the Australian International Development Aid Bureau (AIDAB) in reviewing the Australian component of teachers' college lecturers' professional program commented:

However the programs of study have not in general, produced lecturers who have influenced significantly the CTC (Community Teachers' College) workforce (AIDAB, 1989: VII).

Such an observation was made as a result of intensive interviews with college administrators, staff and former students. Assuming the validity of this assertion, it is necessary to explore those contextual factors which might influence educators in their endeavours to promote quality change, hence the importance of the fourth research question.

(iv) WHAT ARE THE CONTEXTUAL FACTORS THAT INFLUENCE COLLEGE LECTURERS' TEACHING AND STUDENTS' LEARNING?

METHODOLOGY

As detailed in Chapter Five, the research design is multi disciplinary in scope and uses structures from the following perspectives:-

* ethnographic approaches;
* illuminative evaluation approach;
* case study approach;
* quasi experimental approach.

Each of the research questions was addressed by a variety of the approaches; some were emphasised more than others. Those will be detailed later. Though the four questions may appear to be distinct, the research methodologies at times addressed, at least some of them concurrently. Given this caveat, for the sake of clarity of explanation, each of the research questions will be explored singly.
QUESTION ONE:  WHAT FACTORS INFLUENCE LEARNING OF PAPUA NEW GUINEA TEACHERS AT UNIVERSITY?

KEY ISSUES

From the PNG research literature on tertiary student learning (Lewis, 1974; Shea and Still, 1976; Johnson, 1972) and from informal discussions with long serving academics from UPNG, key issues on this theme were identified. They included:

* What are the teaching strategies that lecturers use which help learning?
* What are the perceived characteristics of the best and worst courses experienced by students at the university?
* What are the perceived characteristics of good and poor teachers?
* What are the non-academic problems students experience at university?
* What are the academic problems of students?
* How does studying in English influence student learning?
* How can lecturers help students to learn better?
* Are there preferred PNG learning styles?

SAMPLE

This research focussed on the experiences of learning of first year inservice teachers at the UPNG in 1989. During that year, first year inservice enrolment approximated 103. This sample is relatively small, through sufficiently large to produce useful data. A problem with research such as this is that the same population is asked to be respondents to a number of instruments and as a result may become "sample weary" or even become hostile to answer questions. Papua New Guinea university students are often asked to be the sample for honours and masters students. In addition, there is a strong pervading Melanesian prejudice that does not encourage participation in a project that appears to assist another. The reasoning goes
something like this: "Why should I help here, since I myself will not benefit and my own efforts will be used in the promotion of someone else's career?"

Given this situation, it was planned that different groups of the first year population would be the respondents for the various instruments. This was important, since in addressing research question two, forty students (including the BEd T. group) were required to respond to the SPQ at the beginning and the end of the 1989 year. The thirty BEd I. students were selected on the basis of similarity with the ten BEd T. students in terms of the number of years of general education, teacher training and teaching experience. It was important not to alienate this sample, so in general, SPQ respondents were not involved in research question one. The exception to this were the ten BEd T. students, who as part of course work were required to keep journals.

Of the 30 BEd I. students, 5 were females. Respondents were representatives of 15 of the 20 provinces of PNG. The average age of the respondents was 32.4 years with youngest being 25 years and the oldest 52 years. The average number of years teaching experience of the respondents was 11 years with the minimum being 3 years and the maximum 32 years. The 10 BEd T. students represented 6 of PNG's provinces. One was a female. The average age of the BEd T. group was 29.2 years. The youngest being 27 and the oldest 38. The average number of years teaching experience was 10 years and the minimum being 6 and the maximum 16 years.

DESIGN
A number of instruments were used to address the already identified issues concerning research question one.

<table>
<thead>
<tr>
<th>INSTRUMENT</th>
<th>SAMPLE TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Questionnaire</td>
<td>N=30 September 1989</td>
</tr>
<tr>
<td>Student Forums</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6.1 summarizes the research design.
Figure 6.1
Summary of Research Design for Research Question One.

<table>
<thead>
<tr>
<th>Research Question No. 1.</th>
<th>Information Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>What factors influence the teaching of Papua New Guinea Education?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sources of Information</th>
<th>How</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire (N=30)</td>
<td>September, 1989</td>
<td></td>
</tr>
<tr>
<td>Student Journals (N=15)</td>
<td>February – June, 1989</td>
<td></td>
</tr>
<tr>
<td>Informal Interviews and Student Forums (N=12)</td>
<td>July, – October, 1989</td>
<td></td>
</tr>
<tr>
<td>Participant observer</td>
<td>Feb – Nov, 1989</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problems of English learning</th>
<th>March, 1989</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close Reading Test (N=30)</td>
<td>February, 1989</td>
</tr>
<tr>
<td>Learning Style Inventory (N=30)</td>
<td></td>
</tr>
</tbody>
</table>
QUESTIONNAIRE

The questionnaire (See Appendix A) was designed in consultation with five UPNG staff members. A questionnaire developed by Shea and Still (1976) for a similar purpose formed the basis of consultation. The purpose of the questionnaire was to obtain students' perceptions about their experiences of teaching and learning at UPNG. The initial questions were prepared addressing the following themes.

- the learning situation;
- teaching strategies;
- characteristics of good and poor courses; and good and poor teachers;
- non - academic problems of students;
- academic problems of students.

Some questions were suggested by previous research as documented in Chapters Two and Three. The list was circulated to five long serving senior academics for their critique and the version redrafted. A third version was proposed and administered to five students who offered comments. The final version was distributed to 40 students. They were especially chosen from the Education Foundations Course (N=103). They were personally approached and "pursued" until 30 returned their questionnaire. Few of these students were approached again to respond to any other research instrument. Most of these students had already completed a cloze reading test, which had been given to students during a Foundations course teaching period.

STUDENT JOURNALS

For the course, Seminar in Tertiary Teaching students are required to maintain a 'learner's journal'. The reflective dimension which may accompany journal writing has been discussed in Chapters Two and Five. This is the primary purpose for the activity. However, it serves also as an important source of data gathering "from within" (Burrell and Morgan, 1979). Indeed, they have the potential of judiciously permitting a colleague to share personal experiences and insight into the developmental nature of the learner.

Students were asked to write three entries each of about one page in length, per week. The theme of the entry is the students' own choice. However over the course
of a semester, they are asked to include the following themes when they believed it appropriate.

1. How do I go about reading for assignments?
2. How do I go about collecting information?
3. How do I go about writing an assignment?
4. My experiences of reading in English
5. How can lecturers help students learn?
6. What are your problems at UPNG?
7. What is your relationship with academic staff?
8. Group work versus individual work;
9. Teaching at UPNG.

Fifteen students, including the ten (10) BEd T. students were required to keep the journals.

FORUMS AND INFORMAL INTERVIEWS
In February, March and April of 1989, three (3) "forums" were held with interested inservice students. The themes of the forum focussed on learning difficulties at the University. Participants numbered approximately twenty (20). From these forums a number of students were identified as helpful and articulate informants. They were approached and asked if they would be willing to participate in a fortnightly interview with the researcher for approximately fifteen minutes duration. This occurred in the second semester 1989. It was stressed that students should maintain the commitment of the fortnightly interview, otherwise it would be better not to volunteer. Twelve (12) students finally accepted the invitation to be interviewees. Below is an informal interview schedule that formed the basis of much discussion. Quite often a single question/theme was pursued over a number of interview sessions.
INTERVIEW SCHEDULE

Reasons For Task
1. What have you been studying lately?
2. What have you found out? (Did you have a choice in its selection)?
3. How did you feel about this assignment before your started?
4. How did you attempt to answer the question?

Reading
1. Did you get much help from lecturers?
2. Did you ask for help?
3. Do you find getting information from books difficult?
4. How did you go about it?
5. How do you note-take?
6. How difficult is reading for you? (explain).

Writing
1. While you were doing your assignment, how did you feel towards your task?
2. What problems did you experience?
3. What did you feel you learnt?
4. Do you ever rush assignments?

Assessment
1. Do you usually get good marks?
2. How do you go about getting good marks?
3. (a) Is there any subject that you are doing in which you particularly like the assessment?
   (b) You don't like the assessment?

Teaching
1. For you what are good lecturers?
2. Tell me about good lecturers?
3. Tell me about good lecturers and the way they run
   - their course;
   - relationship with students.
4. Bad lecturers.

CLOZE READING TEST

It has been documented in Chapter Three how English, the medium of instruction is a hurdle to learning. It is important then to establish some base line data concerning the reading ability of inservice teachers at University. A cloze reading test was developed (Appendix B) and was administered to ninety (90) inservice teachers. This represented 86 percent of first year inservice teachers in the Education Faculty in 1989.

RATIONALE FOR THE USE OF CLOZE TEST

The cloze procedure is "the use of a piece of writing in which certain words have been deleted and the pupil, has to make maximum possible use of context available in predicting the missing words" (Bullock Report: 1975:93). A substantial amount of testing research has shown that the cloze test procedure correlates satisfactorily with tests of global language proficiency and they are as good predictors of general
language competence as standardized tests (Oller, 1976:340–74). The literature indicates that the cloze procedure is particularly helpful in the teaching of English as a second language (Rye, 1982:94).

Perhaps the best reasons for the selection of the cloze test would be those offered by Turner and Gillard (1972).

The underlying logic of the cloze procedure is that if the reader and writer have similar backgrounds of experiences, and interests and language skills, the reader should be able to predict accurately the words which have been deleted. If the reader is unable to predict the word, it is the result of lack of knowledge, understanding or interest. Therefore, success is in completing, reorganising words and responding to grammatical (syntactic) structures, to relating various ideas in the text. Successful construction of the cloze passage depends on the reader's competence in English, on his socio-cultural understanding and his comprehension ability.

**CONSTRUCTION OF THE CLOZE TEST**

A number of issues need to be considered in the construction of a valid cloze test. The following are mentioned in the literature (Rye, 1982:12 ff; Nuttall, 1982:25 ff; Turner and Gillard, 1972).

* Content familiarity
* Content interest
* Sufficient length of text
* Readability of text.

**CONTENT FAMILIARITY**

In construction of a cloze test, the content of the passage must be familiar to the reader. The particular passage "Teacher Preparation" was written by a Papua New Guinean for teachers in PNG (Tololo, 1975:7–8). Since the sample are practising teachers, the passage is familiar in the sense that it concerns their profession and that the sample would have had first hand experiences of the process bring described (Nuttall, 1982:29).
* **CONTENT INTEREST**

Nuttall (1982:31) states that the first requirement in choosing a text is that it should be interesting to the students. The passage used concerns the professional development of PNG teachers. It is presumed that this would be of interest to teachers, who desire to participate in inservice teacher education.

* **SUFFICIENT LENGTH OF TEXT**

Bormuth (1968) suggests that at least 250 words and 50 deletions are needed for the construction of a proper cloze test. This passage had 443 words and 50 deletions. Oller (1976:340–74) maintains that cloze tests should have deletions ranging from every fifth to every eighth word. In this passage, approximately every sixth to seventh word was deleted.

* **READABILITY OF TEXT**

The reading passage needs to be at the right level of difficulty for the students. After discussion with three UPNG academics (two from the Language Department and one from the Education Department), it seemed appropriate that the level of difficulty of the reading passage be at grade ten PNG standard. Such a criteria seemed sensible, since an upper pass or better in English in grade ten is the minimum National Education Board requirement for entry into pre-service teachers' colleges. A national academic in the Language and Literature Department at the University of PNG, suggested that the SMOG INDEX be used. This index is considered a reliable formula for calculating readability of a text (McLaughlin, 1969; Nuttall, 1982:27; Rye, 1982:16).

The SMOG INDEX formula was applied to the passage. The calculations revealed that the reading level of the passage was at a grade 8 level for a developed country in which English is the first language. Again, after consultations with UPNG Language Department academics, it was concluded that the passage was at a PNG grade ten level of difficulty.
As an additional means to ensure validity, the SMOG INDEX was applied to the front page of the *Post Courier* (the country's national newspaper, February 13, 1989) and the *Education Gazette* (Sept 1985:4 – Secretary's Tenth Anniversary Message). The *Post Courier* level of difficulty was rated at grade 10, while the *Education Gazette* was at the grade 11 level. The reading passage was considered to be of a similar difficulty to text commonly read by teachers.

**ADMINISTRATION AND PROCEDURE**

The test was administered to the groups of students participating in different courses during March 1989 (N=90). Time allocated for the tests was 55 minutes which was quite adequate. The students were given the following instructions.

1. Read the passage as quickly as you can and try to gain the general meaning.
2. Use only one word when filling in the space on the answer sheet.

**SCORING**

Given that English is the second language for these teachers, the advice recommended by Rye (1982:19–20) that only the author's original words be counted as corrected was considered inappropriate. If answers were judged to be similar to the original, then they were marked as correct. As a means to ensure a correct criteria in judging the appropriateness of synonyms, two speakers of English as first language (university academics) were consulted. For example, in the sentence: "This points to two important (26) in teacher education", the original missing word is "considerations". The following alternatives were scored as correct: "factors"; "aspects", "areas", "issues". Incorrect spelling was not penalised in the scoring of answers (Heaton, 1975).

**DEFINITIONS OF READING LEVELS.**

From the scores, the sample was categorised into three levels as indicated from the literature on Cloze Tests (Rye, 1982; Herman, 1988; Nuttall, 1982). They are:
**Independent Level**

If the passage is at the independent level for a student, then the student should be able to read the passage with a high degree of understanding without help from teachers. The student is considered to read with fluency, accuracy and enjoyment.

**Instructional Level**

If a passage is at instructional level for a student, the student would not be able to understand it sufficiently well to be able to read it without help. This is the level at which help and guidance from the teacher is needed.

**Frustration Level**

If a student is reading a passage at frustration level, the passage is far too difficult for him to cope, even if a teacher is available to help with the reading. The material is so difficult that the student makes many errors, and is slow and hesitant. He cannot readily understand meaning and is easily distracted. Results will be discussed later.

**LEARNING STYLE QUESTIONNAIRE**

Teachers may be knowledgeable, charismatic, dramatic, hardworking, caring and dedicated and still not be effective with students whose learning styles are not complemented by their teaching styles (Dunn, 1984).

The above quotation provides the pragmatic rationale for this part of the research. Learning styles can be defined as an "the individual's characteristic ways of processing information, feeling and behaving in learning situations" (Smith, 1983:24). The aim was to ascertain if there was any learning style that was common to a significant proportion of inservice teachers. Such information has serious implications for teaching strategies that might promote meaningful learning "...motivation to learn may well be a result of learning climates that match learning styles and thereby produce successful learning experiences" (Kolb, 1984:182).

**INSTRUMENTATION**

Kolb had developed a self assessment instrument, the Learning Styles Inventory to explore individual learning tendencies related to his theory (Chapter Two). It measured how an individual learns by the rank ordering of nine sets of four words in
terms of the degree to which a word best characterized that individual's learning style (e.g. intense, reserved, rational, reasonable). Herein lies the problem. Papua New Guineans, who use English as a second language would find difficulty with a number of the words in the inventory, particularly those which do not have a conceptual equivalence in either the vernaculars or Tok Pisin (e.g. discriminating, tentative, intuitive, pragmatic). Consequently the inventory as devised by Kolb appeared inappropriate to inservice teachers. This problem was discussed with Susan Weil, senior lecturer in adult education with the Centre of Higher Education Studies at the Institute of Education, University of London. She suggested another learning style inventory based on Kolb's inventory that had been developed and validated by Honey and Mumford (1984). It consisted of an eighty sentence item self descriptive questionnaire. Each sentence corresponded to one of Kolb's four learning modes (e.g. In discussions, I often find I am the realist, keeping people to the point and avoiding 'wasting time' conversation). Some items were altered linguistically to make the sentence clearer to the PNG audience. This was done with the advice of a PNG academic from the UPNG Language and Literature Department. This instrument appeared to be an appropriate PNG adaption of Kolb's learning style inventory (Appendix C).

SAMPLE
Thirty (30) first year students who had not been selected to participate in the SPQ were the sample to participate in the Learning Style Questionnaire. In February 1989, the questionnaire was explained to the students and they were requested to complete it that night. Students were told that the researcher would collect the completed forms the following day. Most did complete the questionnaire. The seven who failed to do so were 'pursued' until all were returned within the week.
2. PRESENTATION AND ANALYSIS OF DATA CONCERNING RESEARCH QUESTION ONE:

WHAT FACTORS INFLUENCE LEARNING OF PAPUA NEW GUINEA INSERVIE TEACHERS AT UNIVERSITY?

(i) PREFERRED TEACHING STRATEGIES

The presentation of data from the questionnaire, students' journals and interviews are integrated. Specific reference is made to the results of the Cloze Reading Test and the Learning Style Inventory. Table 6.1 details information concerning question 1 of the questionnaire.

Table 6.1
Preferred Teaching Procedures. Results expressed in percentages.

<table>
<thead>
<tr>
<th></th>
<th>like very much</th>
<th>like</th>
<th>uncertain</th>
<th>dislike</th>
<th>strongly dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturers</td>
<td>24%</td>
<td>56</td>
<td>8</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Large tutorials</td>
<td>0</td>
<td>16</td>
<td>8</td>
<td>64</td>
<td>12</td>
</tr>
<tr>
<td>Small tutorials guided by tutor</td>
<td>80</td>
<td>16</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Small tutorials run by students</td>
<td>20</td>
<td>40</td>
<td>36</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Teaching Activities</td>
<td>32</td>
<td>44</td>
<td>20</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Research Project</td>
<td>48</td>
<td>32</td>
<td>12</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Practical Activities</td>
<td>48</td>
<td>52</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Small, Project Type Practicals</td>
<td>52</td>
<td>36</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6.2
The Purpose of Tutorials

<table>
<thead>
<tr>
<th></th>
<th>like very much</th>
<th>like</th>
<th>uncertain</th>
<th>strongly dislike</th>
<th>dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss difficulties</td>
<td>88%</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gain confidence &amp; skill in speaking</td>
<td>48</td>
<td>32</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Exchange of ideas among students &amp; teachers</td>
<td>92</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Learn new information</td>
<td>60</td>
<td>12</td>
<td>16</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>For assessment</td>
<td>24</td>
<td>28</td>
<td>32</td>
<td>12</td>
<td>4</td>
</tr>
</tbody>
</table>

From the results tabulated above (Tables 6.1 and 6.2) students believed that tutorials were the best learning experience provide at the university (96%), probably because.
it permitted them to exchange ideas from among fellow students and teachers (92%) and discuss difficulties (88%). One student noted in his journal: "I really enjoy these sessions, where the groups discuss openly on the floor, the event" (topic).

Previous research (Lewis, 1974; Cox, 1985) has confirmed PNG student preferences for discussion and group work. Possibly, this was because students may not have developed sufficiently listening skills that permit comprehension of a quickly spoken lecture in English. One student identified this as a problem for him.

The lectures have been delivered as if the listening audience were ... people who speak and understand English as their first language. For instance, the use of technical terms is not easily understood. If they (lecturers) took some minutes to explain the meaning of those words then I could understand what was being transmitted.

Another student commented:

She went straight with her lectures. For my goodness sake I was lost. She said things with very hard terms, jumped from one point to another, got examples from unknown to unknown. I thought if (course named) is normally treated in this way, I had no choice of improving because the content wasn't clear.

The tutorial can provide the time and information for students to discuss the difficulties they had experienced through the lecture mode. The lecture may be problematic and not be the best means of promoting learning.

For the last two weeks I have sat through some education lectures and although some students may have gained new knowledge that has been transmitted during those lectures, I feel that a good number of other students have gained very little out of the lectures. From my observation, I have seen students leaving lecture rooms with expressions of dissatisfaction and confusion .... I have come home often from those lectures and tried to reflect on some of the major issues ... but I found it quite difficult to logically recall the main points from my notes.

All tutorials were not acclaimed as successful, primarily because the tutor appeared to assume the role of lecturer and so limited discussion.

The tutorial classes were dominated by our tutor. Limited time was given to students to contribute ... Sometimes our tutorial lesson is like a normal lecturing class.
The data (table 6.1) also suggested that teachers preferred learning experiences, that had a "research" component or practical work or pragmatic projects, possibly connected with their profession. These data are consistent with research that suggested that adults preferred to use personal experience as a learning resource (Simpson, 1980).

These results are also consistent with a learning style preference noted among the 30 teachers who completed the Learning Style Inventory. Of the thirty (30) teachers who participated in the inventory twenty nine (29) showed a preference to the divergence quadrant. Figure 6.2 illustrates diagramatically the mean profile of the sample. [A similar tendency was also identified when the researcher conducted a week long inservice program for secondary school teachers on Bougainville Island in September 1989. Of the twenty six (26) teachers, twenty three (23) had a pronounced preference for a divergent learning style. Those teachers who did not, were Australian expatriates, one of which had a balanced result in all four quadrants, while another had a preference for accommodation and the other for convergence.]

**Figure 6.2**
Learning Style Profile of Inservice Teachers.
The reason for such a preference toward divergence from those sampled can only be speculative. Indeed a larger sample needs to be tested to ascertain if the tendency is maintained. Moreover, if this is the case, further research needs to be undertaken to obtain data to find out if this tendency is indeed a Melanesian phenomenon or if it is confined to Melanesian teachers. If the latter is the case then a question that needs further exploration is: Does pre-service and/or inservice teacher education practices promote a tendency toward an emphasised divergence learning style?

Certainly, on initial observation there seems to be a similarity between traditional learning styles (See Chapter Three) and divergent learning.

![Figure 6.3 Melanesian Learning Style](image)

Though real life village activities may share much of what Kolb means by concrete experience, as does observation and imitation share similar concepts with reflective observation, personal trial and error should not be equated with active experimentation. In traditional Melanesia, though active practice was encouraged, innovation or experimentation was positively discouraged (Chapter Three). Certainly abstract conceptualization and teaching to generalization did not occur since learning was entirely context bound, as Harris explains"...when a skill is learnt in one real-life context, the same skill is not freely generalized into an abstracted body of
theoretical 'principles' which can be later applied to novel situations" (Harris, 1980:95). Within PNG teacher education, recent research (Ross, 1989) has noted that beginning teachers lacked the ability to transfer skills and processes learnt from one context to other appropriate contexts.

A reasonable hypothesis to investigate is that traditional Melanesian learning styles may be similar to Kolb's divergence style. Kolb (1984) has suggested that the divergent learning style emphasises concrete experience and reflective observation. Such learners prefer situations that are personally meaningful to them and value experiences consonant with their personal values. They prefer a concrete situation to be the stimulus for problem solving activities and prefer to organize sets of variables into holistic patterns, a meaningful gestalt first (Kolb and Fry, 1974:38) rather than to analyze each part individually in order to gain insight. The emphasis of this orientation is on adaptation by observation, rather than by direct active experimentation. Hence a modelling and coaching process advocated by Avalos (1985) for improved teaching in developing countries is consistent with divergent learning preferences. Diversers prefer to explore collaboratively a variety of possibilities to solve problems. Arriving at the right answer is not as important as their "thinking with mouths open". Argumentation, negotiation, compromise, and respect for the feelings and beliefs of those involved are highly valued. Such implications then need to be considered when selecting appropriate learning and teaching strategies for the teachers involved in higher education.

A cautionary conclusion from the results of the Learning Preference Inventory needs to be acknowledged. Most teachers showed a strong preference to divergence to the neglect of other preferences. This over reliance on divergence may promote in learners a paralysis in thought caused by the variety of alternatives generated, as well as an indecisiveness for action (Smith and Kolb, 1986:86). It is sensible to explore those structures offered by Kolb for the gradual development and exercise of the other learning styles (Smith and Kolb, 1986:2).
(ii) GOOD AND POOR COURSES

Question 2 of the questionnaire was concerned about students' perceptions of good and poor courses. Much of what was reported involved competent and "poor" lecturers, which is discussed more fully with data elicited from question three. However, it is acknowledged that least some students may find it difficult to distinguish between substance and style in judging good teaching. Traditionally, in an oral society flamboyant oratory is a much appreciated skill (Lindstrom, 1990). Likewise, an entertaining lecturing performance was much admired. Though, as Shea and Still (1976:33) have documented, the quality of courses tend to be judged by the performance of teachers rather than the lucid explanations of content. Given this caveat, good courses were reported to be well organised. Their content was perceived to be relevant to students' needs. Students commented that good courses were "practical" in that they would help them in their future teaching or administrative duties.

A comment that was offered regularly, was that good tutorial assistance was a valuable means of learning, since it could permit direct student participation. A balanced assessment program (i.e. not too many instruments and not too much of the same strategy) was identified as a hallmark of a good course.

Poor courses were identified as those in which lecturers dominated and/or talked too much or used language "that was too technical" or beyond the average student's comprehension. Poor courses had tasks that required extensive use of the library books of which there were insufficient. Poor courses were also described as too overcrowded in that too much was covered and there was little or no time for clarification.

(iii) GOOD AND POOR LECTURERS

Question three of the questionnaire was designed to find out students' beliefs of the characteristics of good and poor lecturers. The responses suggest that a good lecturer appeared to exhibit some of the following characteristics.
they knew their subject content
they prepared for lectures. One student commented insightfully upon this.

He knows the content alright but never comes prepared. He takes a long time to cover the work. He spends all of the time writing on overheads (projectors). Other lecturers prepare them before. He talks down to us. But who cares? We know he doesn't fail anyone. He really isn't interested in making us work and think; just keeping us happy.

they explained meaningfully
I learn from given examples alot. I understand when a text is explained with examples. That's how I learn best. Sometimes I learn alot when a lecturer is diverted into a real situation based on my background knowledge. I don't learn when lecturers talk about things I don't have background knowledge about.

they stimulated thought and promoted discussion

With your experience in PNG, you seem to understand our way of learning. You develop our learning by providing materials that suit us. What you give is not easy. But you want us to be critical.

They desired to challenge students, their values and beliefs. This should be done in a personal context.

I find the lecturer in this course to be very much interested in the students as persons. He is very critical about his students and their performance and we see this as a genuine sign of interest in wanting us to do better. He is warm and friendly with students without focussing on any particular student.

The last comment implies that another characteristic valued by students was fairness. There was much concern about assessment. Student forums in 1989, as well as previous research (Shea & Still, 1976) had indicated that some male students believed that there was a positive bias towards female students. This opinion needs to be balanced with the fact that there are relatively few women at UPNG (20% of students in the Faculty of Education are female; Wormald and Crossley, 1988:36–42.) Probably, by a process of survival of the fittest women students more intelligent, more motivated and more diligent at their studies than many of their male counterparts (Tawaiyole and Weeks 1988).

The issue of fairness manifested itself in the assessment program lecturers devise. Students believed it to be unfair not to have an assessment program given to students
at the beginning of a course or to change agreed upon assessment without
negotiation. Excessive workloads or assessment, employing examinations extensively
are considered 'unfair'. So is the tardy return of assignments. Feedback from
assignments was seen as important, as it provided the motivation to work harder on
further assessed work, particularly if initial feedback was not good.

Students valued in a lecturer "an open approachable personality who understands
students' problems". One lecturer who seemed to have a positive rapport with
students had this said of him.

He is interested in what we do. If we have problems he is very approachable.
I am happy with what he does. He criticizes us but gives advices (sic) on
how to improve on those failures.

In addition, an appreciation of the PNG cultural context created a special rapport.
One student in a journal entry noted.

Expatriates working in PNG have their own way of analysing the Papua New
Guinean way of life... . Some of the expatriates who can't cope with the PNG
way say that Nationals are of low standard in the way they behave and do
things. But there are a few expatriates who like PNG way of living. Those
are the ones who can fit well in PNG society and promote PNG culture. One
of the expatriate who is really interested in PNG ways is (named). I am
impressed with the way he creates deep thoughts in the UPNG students'
minds.

Another student in a letter to a lecturer emphasized the need for sensitivity and
respect for a student's culture.

You are one of the few expatriates, I have come across who is genuinely
interested in our culture and in us as people. I, for one, have been very
disappointed and frustrated with the attitudes of some so called missionaries
who do not seem to see anything good in our culture. I recall telling a nun at
High School: "If you can not see anything good in our culture and our
people, please don't talk or say anything about them.

Cultural sensitivity towards Melanesians and the inclination and gradual ability by
lecturers to attempt to see through Melanesian eyes (Jordan, 1987) may be necessary
for successful and genuine dialogue in the education process at UPNG.

What constitutes a poor lecturer is obviously a converse of a number of the positive
characteristics noted above and the results of the questionnaire concur with this. In
addition, the students did not like lecturers who can't teach because they fail to motivate students. Some criticisms of such lecturers derived from the questionnaire were as follows. They:

- cover too much content;
- talk too much and do not allow discussion;
- can't explain things;
- read from notes or text books;
- "preach" rather than teach.

The journal entry below is an insightful perspective on not what to do.

I've observed from lecturers and tutors the way they present whatever they want to get across to the students. I often wonder if students grasp what they are getting at. The first thing I notice is lecturers reading their notes. Not enough examples or good explanation is given to students to make things clear. For two to three weeks we had a lecturer ... who came along and gave lectures by reading his notes. It seems that he didn't know his stuff. Students fall asleep, some make unnecessary noises and some did other things. Most of the time this particular lecturer had his eyes on his notes and being a wooden man on one spot. Students found his lectures very boring because they weren't supplied with any notes related to what was being lectured on. I told myself that the lecturer was not making me learn but helping himself. If the lecturer focussed his eyes on the students he could have worked out that the students weren't attentive. But I watched him raise his head a few times and I expected him to notice something. But that didn't happen. Was that lecturer ignorant of the fact that his lecture was boring? Or was he there to pass the time and get his pay whether the students did learn something or not? That brings me to the question: Do these lecturers know something about effective teaching? If no, why tell community school and secondary teachers to be effective in their teaching when some of the university lecturers can't even do that? Do adults from university learn differently from students in primary and secondary schools? I think some of those lecturers need inservice on effective teaching. Otherwise they are only here to fill their pockets.

This quotation highlighted the strong expectation that for new students at UPNG, lecturers should provide a structured learning environment along with academic and emotional supports. Implicit in this description was that poor university communicators have ulterior motivations. "They are only there to fill up their pockets". This pecuniary perspective on people's motivations is a common one in PNG. Expatriate lecturers were believed to be in PNG for money. Even those who
perform a supposedly altruistic action were believed to have sinister motivations, that may enhance them in stature or career. Indeed such "altruistic" actions established retributory obligations on the part of the recipients, which was expected to be called upon at the appropriate time (McGregor, 1976:179). This perspective may explain at least in part, the reluctance of some students to participate in research projects.

(iv) ASSESSMENT OF STUDENTS

Question 4 of the questionnaire considers the issue of students' opinions about how they were assessed.

Table 6.3
Student Preference for Assessment Instruments

<table>
<thead>
<tr>
<th></th>
<th>like very much</th>
<th>like</th>
<th>uncertain</th>
<th>dislike</th>
<th>strongly dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>48%</td>
<td>52</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tutorials/Seminars</td>
<td>32</td>
<td>52</td>
<td>8</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Short tests</td>
<td>56</td>
<td>40</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Examinations</td>
<td>20</td>
<td>44</td>
<td>8</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Projects</td>
<td>32</td>
<td>32</td>
<td>24</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Practical work</td>
<td>48</td>
<td>44</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Assignments in drafts</td>
<td>32</td>
<td>36</td>
<td>24</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6.3 shows that students have a strong preference for assignments (100%) or practical work (92%) as assessment instruments. Students also preferred short tests (92%) in contrast to examinations (64%). Feedback from assignments and short tests permitted students to gauge their progress as well as to compensate for previous disappointing results.

Interview data from students indicated that the assessment program of different subjects was a leading factor in their choice of subjects in any particular semester. This was particularly so with regard to students sponsored by the Staff Development Unit (SDU) of the National Department of Education (NDOE). Sponsored education students have their university fees paid and are on salary while studying, though they are required to pay for university accommodation which is approximately one fifth (1/5) of their salary. To maintain sponsorship, SDU students must maintain a grade
point average of "C". Those who scored below this "C" average, have their scholarships terminated. In order to maintain their scholarships some students initiated a variety of covert procedures. They switched to subjects that they thought would more likely maintain their average, rather than the subjects that they were supposedly majoring in. Moreover, some students surveyed the assessment programs of lecturers and their choice of subjects was influenced by which courses had a final semester examination or not. One student from a group interview, articulated the rationale for his actions.

I take my course advisor's opinions on what subjects to take. In the first week I find out which lecturers have an exam. I only want to have to do two exams in the exam week. Any more is too much pressure for me. I listen to what the others (students) say about their courses and lecturers and then change into these ones. I don't tell my advisor. I have even put the lecturer's initials on the transfer course sheet. No one seems to notice. This way I can keep my scholarship (from SDU).

This pressure to maintain a grade point average of "C" was not only on the students. Lecturers in the Faculty of Education felt pressure to sparingly allocate a "D" grading. This has been noted at examiners' meetings when final gradings are ratified. Table 6.4 lists the allocation of gradings of courses for semester 2, 1989. Lecturers were aware that even if students had passed their subject with a "D", this may not ensure their continued sponsorship.

Table 6.4
Grading Allocations for Education Subjects.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>13%</td>
<td>34</td>
<td>36</td>
<td>15</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Student Records, UPNG).

The recommended Faculty guidelines for gradings are indicated by Table 6.5.

Table 6.5
Faculty Grading Guidelines

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>25</td>
<td>40</td>
<td>25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
There was another pressure on lecturers. This was more subtle in the Faculty of Education, when compared to other faculties but it exists and lecturers' actions were judiciously planned in order to minimise it. One economics lecturer wrote to a national newspaper describing it.

Here I extrapolate only from my own experience of the department of Economics and Commerce that many academics are simply in no position to fail students who do not work. The reason is that all academics who have failed large numbers of students have petitions written against them complaining against their quality as a teacher. This has happened in my department in virtually every semester....The claims are investigated, no matter how outrageous and how patently false they are. Administrators, being creatures that exist for the sole purpose of surviving, will never punish those who lie in order to bully their lecturers into passing them....In fact this year, one of the most senior administrators actually went into an advanced economics class and took a vote of students as to whether they were happy with the performance of a lecturer and was willing to bring the matter of his dismissal from the course to the university's academic board if the majority of students were unhappy. In such an environment, it is simply impossible to fail students so I do not. I have learnt my lesson clearly. The students will leave you alone and so will the administration. If you try to force the students to work you will just end up in trouble. So why bother? The answer is you don't (Grynberg, 1987:8).

(v) PROBLEMS OF STUDENTS

Question 5 of the questionnaire focussed on the non academic problems of students. It was reported in Table 6.6 that the most serious problem which affected studies was too much noise (92%), which according to qualitative data was related to male student drinking. This was the main reason for vandalism of the halls of residence. One female student documented her experience.

In private homes, weekend is usually the best time for working people to be with their families, sometimes inviting friends for dinner or just relaxing and watching television... At the University of Papua New Guinea that does not apply. Students tend to refresh their minds from a week's study and lectures with alcohol. Only a few students do that, but most of us students want to have weekends relaxing peacefully studying or catching up with assignments. But our interests are often taken away by a few selfish guys who go over to the girls' area screaming at the girls and throwing bottles on the backwalls. This is the time we have to lock ourselves in and force ourselves to go to sleep even if we want to study. I have witnessed this on so many occasions. The recent one was on 24.06.89. I had planned to have my dinner quickly that day so I could get my assignments attended to. I got to my room and began doing my assignments. No sooner had I started then there was a
rattling noise of bottles being thrown on the back walls. I stopped completely from doing my assignment and waited to hear what was going to happen next. While picking up my pen ready to write, I heard a cassette player being played to its full volume. I just had to cancel, because I could not concentrate with so much noise going on.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Serious</th>
<th>Uncertain</th>
<th>Not serious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dormitory rooms too hot</td>
<td>36%</td>
<td>20</td>
<td>44</td>
</tr>
<tr>
<td>Students drinking</td>
<td>72</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Disagreement between regional groups</td>
<td>32</td>
<td>24</td>
<td>44</td>
</tr>
<tr>
<td>Breakages in Halls of residence</td>
<td>60</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>Too much noise for study</td>
<td>92</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Text books unavailable</td>
<td>80</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Not enough sleep</td>
<td>32</td>
<td>48</td>
<td>20</td>
</tr>
<tr>
<td>Not enough recreation facilities</td>
<td>40</td>
<td>4</td>
<td>56</td>
</tr>
<tr>
<td>Not enough places to study</td>
<td>48</td>
<td>16</td>
<td>36</td>
</tr>
<tr>
<td>Not enough textbook money</td>
<td>80</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Males &amp; Females living close together</td>
<td>28</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>Too many recreational distractions</td>
<td>48</td>
<td>28</td>
<td>24</td>
</tr>
</tbody>
</table>

Student drinking had contributed to much violence on the campus, which was so serious in 1989 that the University constitution was temporarily suspended and the Vice Chancellor ruled by decree. One student documented the actual and the anticipated violence.

On fortnight Fridays, students who are under national scholarships get this allowance of K13.00. Some students are sensible enough to spend their money on useful things which are needed in their studies, while others spend it on beer. Some drink beer to refresh their minds from studies, they say. Others drink because they have problems with some of the students back at the campus. This results in students having fights on campus. These students don't appreciate this free money. Instead they get drunk and destroy buildings and other properties of this University.

Though females and males living close together was not considered a problem (28% said it was), it was considered a major problem for woman living in the female residence "Luavi". This was verified through follow up interviews with female inservice teachers. One recorded the problem in her journal as this:

This is a rule for females living on campus that from 8 am to 9 pm, ladies who have boyfriends can take them to their rooms. To those concerned they are happy about that. But what about the rest of the ladies? To me personally, I do not agree with this rule. Some of us want privacy (student emphasis). It seems as if our dormitories are public places for men. When
men come into Luavi House especially some of us ladies have to hide away in our little rooms because some of them get really drunk when coming to their girls. When this happens, we just don't have the freedom to move around the dormitories.

Threatening behaviour to women culminated with a rape of a student by another student in 1989. This precipitated widespread protest from the women, resulting in increased security for women, and a major and vigorous campaign to apprehend and exclude violent students. This has been largely successful, with male drunkenness and its exhibition having been contained. The diligent application of already existing laws and a new dynamism from the wardens of students have assisted in the establishment of a better discipline and personal accountability in male students.

Students reported that the limited availability of textbooks (80%) and book allowance of eighty kina per year (80%) were serious problems that affected study.

I have made an attempt several times to locate library books using the system but I have not been very successful. Had I gone through informations, and properly assisted with the system (sic), it could have been easier to locate the books. I therefore suggest that an information booklet on how to use the library be made available.

The UPNG library is well endowed with resources and trained staff. Interview data revealed, that it was in courses that enrolled large numbers of students and had the same assignment topic, that complaint of a lack of resources was made. In such courses, where lecturers had multiple photocopies of essential resources available in a reserved section administered by library staff, then there was a minimum of complaint. It seemed that much of the legitimate complaint of students could be dissipated if lecturers better organised their assignment and tutorial topics and made use of the library's reservation facilities.

Though the book allowance may appear to be modest, it is still a comparatively generous gesture that the government makes to students. It is speculated that at least some male students, who complained about the meagreness of the book allowance may be the very ones who invest their scholarship allowance or fortnightly salary into alcohol rather than the resources of the bookshop.
(vi) SOURCES OF SUPPORT FOR STUDENTS

Question 6 of the questionnaire investigated issues concerning the personnel who are available to assist students. Information about the quality of that support was also sought. Data are presented below.

Table 6.7
Approachability of Staff

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>4%</td>
<td>96</td>
</tr>
</tbody>
</table>

Table 6.8
Need for additional consultative staff

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>4%</td>
<td>96</td>
</tr>
</tbody>
</table>

More academic counsellors were suggested by one student.

Table 6.9
Sources of advice for students with problems

<table>
<thead>
<tr>
<th>Person</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDOE Staff</td>
<td>2%</td>
</tr>
<tr>
<td>SRC</td>
<td>2</td>
</tr>
<tr>
<td>Librarians</td>
<td>2</td>
</tr>
<tr>
<td>Pastor/ Priest</td>
<td>2</td>
</tr>
<tr>
<td>Student Counsellor</td>
<td>2</td>
</tr>
<tr>
<td>Dean of Faculty</td>
<td>2</td>
</tr>
<tr>
<td>Dean of Student</td>
<td>2</td>
</tr>
<tr>
<td>Friends</td>
<td>6</td>
</tr>
<tr>
<td>Tutors</td>
<td>6</td>
</tr>
<tr>
<td>Course Advisor</td>
<td>37</td>
</tr>
<tr>
<td>Lecturer Concerned</td>
<td>37</td>
</tr>
</tbody>
</table>

Students have strongly indicated (Tables 6.7 and 6.8) that staff are open and approachable for them to discuss problems. Academics may need to have some insight into how Melanesians react to confusion and criticism (Epstein, 1984). Among Papua New Guineans the distinction between truth/falseness is very different from the Western perspective. For UPNG students falseness is closer to falsehood.
Traditionally, the veracity of knowledge gained its legitimacy from its sources rather than its knowledge context. Consequently, if error is detected in a student’s work then such acknowledgement may be interpreted as a personal denigration.

As such, criticism and commentary (say in university seminars), no matter if this attempts only to evaluate the content of a knowledge statement, unavoidably also accuses the person making the statement (Lindstrom, 1990).

There needs to be a continuous balance of challenge and support. Moreover, students need to believe that the academic, who might be providing the challenge may really have their ultimate interest at heart. This was illustrated in the following journal entry.

I like (academic named). He is helpful, easy going caring and sometimes tough. I say this because I admire the way he advises me on personal and academic problems I have. He is quick with encouragements, whenever I was lazy to do given tasks. Laziness in me has greatly affected my studies. His toughness and the being hard on me had the feelings inside me say that anything can be possibly done, if I work hard towards that. He has made me see myself as a person with the potentials and capabilities to do just anything but my laziness pulls me back. Should I put everything into what I have to do, I could become a very good student. I also see in me that I have too many interests and they are contributing towards my poor academic outcomes. I can improve drastically if I work harder and take his advices much more seriously.

(vii) STUDENT PROBLEMS OF STUDYING

Question 7 of the questionnaire focussed on how students negotiated their academic study at UPNG. Information concerning their study problems was particularly sought. Table 6.10 indicates the range of these problems.

From an analysis of interview data and journal entries, it is suggested that the most common initial problem which teachers faced at UPNG was their own misconceived expectation of what constituted learning at UPNG.

Until I came to university I always taught (sic) that the lecturers will give us notes and write down on boards, then we copy them. At the end of the week, we have a test on them, then we continue like that until the end of the year. However my assumptions have changed after starting courses here. Each student is guided with course outlines, co-ordinators, lecturers and tutors and students have to do alot of independent work like reading and writing assignments.
Table 6.10
Initial Student Problems at UPNG.

- Didn't know how to study;
- How to use library;
- A lot of independent work;
- Not thinking deeply;
- Unable to analyse issues;
- Unable to motivate myself to study;
- Taking notes from lectures;
- Writing essays;
- Male/Female problems;
- Don't know where to get information;
- Lack of money;
- Too much personal freedom;
- Returning from married life to single life;
- Leaving family;
- Lack of privacy (small room);
- Sponsorship;
- Starchy food in mess;
- Disorganisation of registration week;
- Not really prepared for university.

These expectations possibly came from the very structured learning and teaching modes that teachers had experienced and were presently promoted in primary schools (Avalos, 1989), secondary schools (Vuilliamy, 1987) and teachers' colleges (McLaughlin, 1988c). Independent assignment work caused many frustrations. One student noted that this type of writing was a novel experience for her.

> Writing essays is what I hate to do. Not because I am not interested in doing it or finding out about more. It's because I've never written essays in my life time. In my teacher training period, essays were never part of our assessments. When I was on the field (teaching) I never wrote one. It was only in 1988 that I had to do one which was part of the university entrance examination. When I sat to do that essay, I was completely blank because I didn't have any background on essay writing. However I had to it to pass, whether I liked it or not. There were a few instructions, so I tried to follow them as close (sic) as possible....

A theme that occurred often in the data, was not that teachers lacked motivation to study, but that they were relatively unprepared for the type of work required, and initially lacked the skills and organisation to undertake with competence university work.
A lot of independent work and study is conducted here at the University. A total of 14 hours is spent on lectures and tutorials and the rest of the time is on private study. One of my main problems is just how I will quickly get on with my study or assignments. Many times I sit at my desk and I am undecided on what to do. This is because there are so many things to do. Once I've got my priorities right then it is the problem of actually starting to work, example: The major essay on Education Foundation. Since the essay was given I have skimmed and scanned through the ten (10) books from the lecturer handouts reference sheet. How I go about interpreting the text and putting them on paper is another problem to me. One solution to my problems is that I must refer my work to the lecturers for clarification. Then from the lecturer's advice I'd get started and continue on from there. One other fact I keep misunderstanding is that I tend to go off the main question or key point therefore, I bring in all unnecessary words and sentences. My thinking ability is rather slow too.

One explanation of such behaviour is offered by Lindstrom (1990). He suggests that traditional Melanesia was an inspirational society where the important thing was not individual intellectual endeavour but where to find the right sources. In inspirational systems, successful learning is explained in terms of hard work and struggle not in terms of individual intelligence.

The way in which educated Papua New Guineans talk about the process of getting an education is revealing. Images of struggle, climbing up, and escape are dominant... almost all references to the process of acquiring knowledge stressed 'hard work' or 'struggle' of some kind (Young, 1977:32).

It is the opinion of the writer that lecturers need to provide students direct guidance in the clarification of their learning problem. This may be a necessary interim step and structure towards personal independence. It seems erroneous to assert that this is not treating students as adults. For the beginning student, much of what is required at university is confusing. In terms of the Perry Scheme (1970), students are at the stage of dualism and need structure as well as challenge to gain increased independence. This issue is concretely explained by one frustrated student.

This is my first year of study at UPNG. I got no background of what it's like being a student at the University. I didn't have any background about where to get more information from and how to get it. Sometimes I want the lecturer to tell me more about a topic. But he tells me to look it up in books that are found in the library. When I go to the library, it takes me a hell of a time (student emphasis) to find the right books. In classes, a student who has no more background than me asks a question about something he doesn't
know but what he gets is, I am not going to spoon feed you. Now where does that student stand? He doesn't know where to look. He wasn't trained to find information himself. Whose fault is it? Most of us teachers who have taught in the community schools face the same problem. We need guidance from lecturers.

(viii) STUDYING IN ENGLISH

Question 8 of the questionnaire aimed at exploring students' perceptions about their competency with the English language. Tables 6.11 and 6.12 record the results.

Table 6.11
Student Opinion of a Need for a Better Knowledge of English.

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>96%</td>
<td>4</td>
</tr>
</tbody>
</table>

The following journal entry exemplifies student difficulties with English.

As English is not my first language, the assignment was like cracking a hard nut. Some of the sentences written by other students was (sic) correct to my judgement. The English speakers would say that there were alot of errors. Anyway to me it was like unjumbling a puzzle. I had to write and rewrite again until the sentence sounds sensible to me. The Practical English Writing Course is very helpful.

Table 6.12
Languages usually spoken by students on campus

<table>
<thead>
<tr>
<th>English</th>
<th>Tok Pisin</th>
<th>Vernacular</th>
</tr>
</thead>
<tbody>
<tr>
<td>64%</td>
<td>20</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 6.13
Frequency of English spoken in the homes of students

<table>
<thead>
<tr>
<th>None</th>
<th>26%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occassionally</td>
<td>36</td>
</tr>
<tr>
<td>Regularly not main language</td>
<td>36</td>
</tr>
<tr>
<td>Main language</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 6.14
Parents' level of Education

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No School</td>
<td>46%</td>
</tr>
<tr>
<td>Primary School</td>
<td>40%</td>
</tr>
<tr>
<td>Provincial High</td>
<td>6%</td>
</tr>
<tr>
<td>National High</td>
<td>0%</td>
</tr>
<tr>
<td>College or Uni</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>8%</td>
</tr>
</tbody>
</table>

Others recorded were:

- College of Extension Studies: 3
- Pastors Training School: 1
- Tok Ples (vernacular) School: 1
- Bible School: 1
- Catechist School: 2

These data supported previous research (Lewis, 1974; Johnson, 1972; Wuillemin, 1984) indicating that English as the medium of instruction was a major problem influencing learning among UPNG students. Certainly students acknowledged this (Table 6.11). A contributing factor was that much of what was learnt at school was unable to be reinforced at home (Tables 6.13 and 6.14). Consequently, English has been seen and used as an institutional language rather than a preferred medium of transaction and thought. Most teachers (64%) said they spoke English most of the time on campus. This is not the norm for serving teachers (Kenehe, 1981), as this journal entry illustrates.

Another problem that I have been trying to overcome is language. That is, that I am still trying my best to really master the English language. Fluency is what is lacking. However, I find this problem, only during formal conversation and when I am talking with someone, who is a better English speaker than me. For example when I am explaining something to someone, and then suddenly, my mind goes blank if I can not immediately think of the next word that I should say. At the same time, my mouth is heavy, and sometimes I began to repeat myself or else the conversation goes out of context. One contribution (sic) factor to this non fluency in language, is the fact that back in the community school, we speak English in the classroom. Outside of the classroom we either speak pidgin or vernacular. Besides that, English at the community school level is very low. Partly because we have to use English in the children's level of understanding.
Table 6.15 records the reading interests of teachers. Few teachers read novels regularly (12%). The daily newspaper, school text books and the bible were the next most preferred sources of reading among teachers.

These results are disturbing. All teachers in the Inservice BEd program are either matriculants or have successfully passed an entrance examination testing English competency. The PNG grade 10 level was originally expressed at the American grade 8 level. This observation is important, because the majority of text and library books that students are required to read are written by first speakers of English for native English readers. Previous research (Price, 1976) on the readability of text books used at UPNG noted that books selected were quite appropriate to introductory courses at university level, but that the reading skills level of the preliminary year students (year II students who matriculate in one year at UPNG) corresponded to about grade 7 in Australia. Price concluded that "the evidence suggests very strongly that all the text books sampled are too difficult for first year students at UPNG" (Price, 1976:8).

### Table 6.15

<table>
<thead>
<tr>
<th></th>
<th>Never Read</th>
<th>Not often Read</th>
<th>Sometimes Read</th>
<th>Often Read</th>
<th>Very Often Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novels</td>
<td>24%</td>
<td>24</td>
<td>40</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Bible</td>
<td>0</td>
<td>4</td>
<td>54</td>
<td>27</td>
<td>15</td>
</tr>
<tr>
<td>Religious Books</td>
<td>0</td>
<td>22</td>
<td>52</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Newspapers</td>
<td>0</td>
<td>15</td>
<td>26</td>
<td>33</td>
<td>26</td>
</tr>
<tr>
<td>Magazines</td>
<td>0</td>
<td>18</td>
<td>68</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>School Books</td>
<td>0</td>
<td>3</td>
<td>31</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td>Study Books</td>
<td>0</td>
<td>11</td>
<td>40</td>
<td>32</td>
<td>17</td>
</tr>
</tbody>
</table>

It is appropriate to present results of the cloze reading test. The level of difficulty of the passage was judged to be at the PNG grade 10 level, and ninety (90) inservice students completed the test.

### Table 6.16

Results of Cloze Reading Test

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Level</td>
<td>27.0%</td>
</tr>
<tr>
<td>Instructional Level</td>
<td>45.5</td>
</tr>
<tr>
<td>Frustration Level</td>
<td>27.5</td>
</tr>
</tbody>
</table>

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Some concern about the validity of the university entrance examination for non matriculants appears appropriate. Something is amiss if 25% of successful students find reading at the PNG Grade 10 level a frustrating experience. For those students, learning at UPNG must be a further refinement of the survival skills that they had developed in their schooling years (Johnson, 1972).

The questions to pursue are related to how this tenuous grasp of English influences students' learning at UPNG. It was through a series of interviews and journal entries that more illuminating data resulted that gave some insight to these issues. The following quotation from a journal was titled: The Problems in Collecting Information from Reference Books. It illustrated the complexities of a Papua New Guinean student attempting to make meaning from text.

Collecting information from reference books is difficult for me. There are three main difficulties that I have been facing. The first problem is the interpreting of English languages into own words. Vocabulary can also be a part of this problem. For example, when I am reading, and then come across an unfamiliar word, then I have to stop reading and consult the dictionary for the meaning of that particular word. This slows down the pace in which I should be reading. When I look at the dictionary I find that there are more than one meaning for a particular word. I get confused in putting the meaning of that word and it takes me a lot of time to decide. This can take me more than one hour to do and if I have to do other assignments, I start to guess and half the time my guesses are wrong.

Although the respondent suggested that the basis of his reading problem was a vocabulary one, this may be a simplistic hypothesis. Possibly the difficulty in choosing appropriate meaning is more a conceptual problem than a language one. In general, the method of teaching English to children in PNG is to use English only without ever using vernacular as a medium. Research (Elkin, 1964) into this strategy of teaching English to aboriginal children has shown it has had limited success, and this success was in the first two years and this with reference to concrete situations and objects. As schooling became more complex, there appeared to be a gap between the ideas the teacher wished to introduce and indigenous concepts..."unless the local language is used as the main structure of that bridge, the child is apt to flounder and seems unable to go beyond rote achievement" (Elkin, 1964:150). This has been observed in PNG (Johnson, 1972). This is an important insight to be
realized by PNG educators. For other second language learners, (eg Europeans and Asians) whose own education has progressed against a highly developed technological society, English language difficulties are likely to be mostly those of translation, since these learners have similar conceptual background as Americans, Australians or Britons. For Papua New Guineans, it is not a matter of translation but concept acquisition. They have to understand the reality that the symbols represent, before they can use the symbols intelligently. For those attempting to negotiate higher education, reading text books can be an incomprehensible and tedious experience. For no matter how many time a dictionary is used, the meaning of individual words do not assist in cracking the language code, that has its meaning embedded in alien concepts. Educated Papua New Guineans often exemplify this phenomenon in their own use of a variety of languages when explaining a topic. Some concepts cannot be adequately explained through vernacular (tok ples). One student reflected on this experience in his journal.

I don't feel confident enough to speak English much because I might say something incorrect. But there is something contradicting (sic) to this that I have experienced for some time. When I am telling a story or discussing something with others in either Pidgin or Kuanua (vernacular) I would switch to English to express myself more clearly. When I realized this I thought it was funny to switch from my own mother tongue and express myself more clearly in English. I even remember last Christmas when I used to talk in language (vernacular) to my family members I would do the same but from mother tongue to Pidgin.

For the majority of Papua New Guineans undertaking studies at UPNG, additional courses in English language appear to be essential. Lecturers need to be aware of the frustrating experience students must have in attempting to squeeze meaning from text. Especially in the first year of university, readings need to be selected that are appropriate to student ability. Tutorials would be an ideal means for the development of more sophisticated conceptual understanding. Unless structures are deliberately provided to foster this conceptual independence, students once again will resort to survival strategies.

Guidance and structure are particularly necessary in the writing of an academic essay. It is an alien process and it seems that the type of writing required is culturally at
variance with traditional cognitive processes. The following journal entry gave some insight into the problem.

I have been facing some difficulties with essay writing. Starting off a piece of writing has been the main difficulty encountered. For example, my mind sometimes just go (sic) blank and refuses to think of the next word to write. This often slows down the pace in which I should be writing and consequently also does affect the pace in which I should be completing my written assignments. Repeating myself (the same ideas) is another problem that I face. The cause of this problem is probably because I try to relate the English language to the way I say things in my language. For example, in my language there is a lot of repetition in words, and also we tend to talk around things rather than being precise. Adding irrelevant ideas is another problem that I face. I often make this mistake when I try to give more examples of an idea that I was discussing.

An attempt was made to explore the validity of this hypothesis and discussion with groups of students verified that this circular and repetitive approach was a common characteristic of Melanesian languages. Traditionally, Melanesians avoided direct confrontation with one another and preferred lengthy periods of negotiation perhaps covering days, in order to arrive at a compromise (Narakobi, 1980:18). Consequently, resolution through processes of compromise must by necessity, be circuitous and repetitious. Markwell in his study of religious conceptual development among Tolai children noted a similar process occurring.

Observation of the village people at their meetings, which in the Tolai area are frequent, prolonged and quite significant in the people's lives, and discussion with members of the Sub-Commission responsible for revising (religion) syllabus and texts, suggest that the people of Papua New Guinea do not proceed in a linear progression when they are trying to communicate a message or instruction to others. Rather they seem to proceed in a circular manner going around the point at issue again and again in ever widening circles. Instead of growing to a point, as Europeans tend to do, they seem to take the point for granted and proceed by growing further and further away from it in a repetitive process of illustration and example (Markwell, 1975:85).

The technological processes inherent in Western education demands a linear logical sequential product, as well as preciseness of expression. Essay writing needs to be learnt at University and the "Oxbridge" draft/discussion process to essay writing has been a significant structure in the learning of how to write more academically has been recorded by one student.
This journal focusses mainly on the three drafts written about the assignment we had to do. I will especially comment on the drafts written, time and effort put into the study, and the benefits, gained from the study. The drafts written were done in three different periods of time. They had to be written and shown to my co-ordinator who commented upon them. I was very frustrated when my first drafts mark was very low especially when a lot of time and efforts was (sic) put into doing it. The mark pushed me up in the second draft done, but I thought that was the last of things. After the conference with the lecturer, I still had to do the last draft on which I hope the points are higher. I was impressed with the outcome of the second draft because of what was scored. The drafting of those drafts helped me a lot in many ways. They helped because I know now how to go about doing writing, and organising information and referring to researchers and thinking deep into the issues being investigated. To sum up, even though plenty of time and effort was used, I gained a lot from the issues investigated and the drafts written. The use of the English language was definitely a problem to me.

Another perception that caused difficulties to some students concerned the concept of original writing. Students occasionally transcribed blocks of text from books to their own essay without acknowledgement. This is not generally deliberate plagiarism but an inability to express a complex concept in personally meaningful reformulated English. Students are encouraged to do their own work and if they use other sources they need to acknowledge them. After a discussion on the use of authorities from reading in the writing of essays, one student wrote this journal entry.

Having read through some of the assigned readings, I have come to realize that a lot of material written in text books seems not to be the author's original ideas. For example, a book with a lot of quotations, indicates to me that the writer has borrowed a lot of ideas from another author's work. Seeing a lot of quotations in books, has made me to wonder as to whose work was I reading. If I wanted to make a quotation, do I have to use the present author or the original author's name? Why do text book writers use a lot of ideas from other books? I feel that any writer who decides to write a new book on any educational subjects, should write down only their new ideas. In this way they will be expanding the knowledge in that particular subject, instead of repeating ideas from previous writers. Although this confusion exists, I have gained new insight as to how new books are written through research. That is, that the author is not alone, when he or she decides to write on a subject. But that he or she collects ideas from other sources, that is in line with the subject they were writing on. I have always thought that what we read in books are entirely new thoughts put into writing by the particular author whose name appears on that book. Realizing this I have come to conclude that writers do not write independently especially, when they write about educational matters. I now understand that if I wanted to write an essay on any educational aspects, I can quote from previous authors' works. I also have come to understand that a
A chain of ideas dealing with a particular subject can be carried on from one writer to another. Although there may be variables in certain aspects, the different ideas are usually helping us understand things better. For example, a writer may decide to write about some aspects of traditional education in PNG, he could quote from other sources, related to the subject. He may, for example, compare PNG's traditional education with Africa or traditional education in other Pacific countries.

This student's journal entry exemplified the traditional Melanesian perspective of knowledge as an inspirational epistemology.

In such a system, one learns or gains knowledge primarily through ritual, dreams or through hallucinatory experiences aided by traditional drugs e.g. kava, as well access to the elderly and wise. These processes allow contact with valued sources of information (Lindstrom, 1990).

In contrast, western learning aims to promote an environment where students creatively interact with text or person so that insight is generated. This may not be brilliantly novel, but it is personal and its validity is underpinned by understanding (Kuhn, 1979:353). The last few sentences of the previous journal entry illustrated that this may be happening to this student.

(ix) CAUSES OF POOR ACADEMIC RESULTS

Question 9 of the Questionnaire explored the issue of students who failed university courses or who did poorly. Table 6.17 records a variety of suggestions.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family problems</td>
<td>19%</td>
</tr>
<tr>
<td>Lack of personal study organisation</td>
<td>17</td>
</tr>
<tr>
<td>Problems with opposite sex</td>
<td>13</td>
</tr>
<tr>
<td>Excessive workload</td>
<td>13</td>
</tr>
<tr>
<td>Students overconfident in their ability: &quot;being at university means you're smart enough.&quot;</td>
<td>10</td>
</tr>
<tr>
<td>Physical tiredness</td>
<td>8</td>
</tr>
<tr>
<td>Novelty of university life wears off</td>
<td>7</td>
</tr>
<tr>
<td>Assignments left to last minute</td>
<td>6</td>
</tr>
<tr>
<td>Too much social life</td>
<td>5</td>
</tr>
<tr>
<td>&quot;Students don't pay for their studies, if they paid for their own studies they would be motivated to learn&quot; (self sponsored student)</td>
<td>2</td>
</tr>
</tbody>
</table>
Culturally, Papua New Guineans find support and identity in a community and extended family context (Narakobi, 1980: 17-18; Narokobi, 1989:17-33). Students, and in particular married students, indicated that this level of support was not provided at UPNG. Most teachers have to provide maintenance for spouse and family in the village, as well as maintain themselves as students. Since communication in PNG is difficult, it is hard to contact family quickly. Unresolved problems about welfare of family members affected the academic progress of some students.

Other factors that caused academic failure were clustered around a lack personal organisational skills, which was related to leaving things to the last minute and laziness. One student related his experience.

It took me two days to complete my assignment based on Practical English Writing over the weekend. The assignment was really an essay in which I am to locate the different areas in the essay and rewrite them into paragraphs. I started on Saturday morning. After reading over the instructions and the exercise (of course trying to detect errors) which I would omit when writing my first draft. By the time I completed my first draft it was already lunch time. I left the work on my study table, had lunch and went to Boroko to refresh my mind. I spent about 1/2 hour at Boroko and came back to the campus. Not being satisfied at my first work I began to lay out the second copy of the same essay. To make a long story short I wrote 3 pages of the same essay and kept improving it until it was satisfying to me. Finally on Sunday I completed the essay ready to be handed in on Monday as it was the due date. Analysing all I did from the two days I learnt that I must be in the right mood, there must be a lot of patience, and time is required to correctly do the assignment. If I had left it to the last minute, I would have made a complete mess.

(x) STUDY SKILLS

Question 10 of the questionnaire investigated how students might be helped in studying at UPNG. Table 6.18 records the results.
Table 6.18
Student Preference for Assistance in Study Skills

<table>
<thead>
<tr>
<th></th>
<th>Extremely important</th>
<th>Fairly important</th>
<th>Uncertain</th>
<th>not very important</th>
<th>of no importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using the library</td>
<td>72%</td>
<td>28</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&quot;Quick reading&quot; of texts find out what they are about</td>
<td>64</td>
<td>24</td>
<td>8</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Planning study time</td>
<td>80</td>
<td>16</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Note taking from books</td>
<td>76</td>
<td>20</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Note taking from lecturers</td>
<td>92</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Revising for tests</td>
<td>72</td>
<td>16</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Essay writing</td>
<td>84</td>
<td>4</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>How to do exams</td>
<td>60</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Many of the areas where students have identified a need for study skill assistance have been identified in previous results e.g. essay writing, reading. The mounting of courses to assist in the development of study skills have been appreciated by students especially on planning study time. However, if students are to acquire meta learning skills, these have to be context related (Gibbs, 1981). Lecturers themselves need to incorporate meta learning acquisition in the courses they design (Hounsell, 1984:199). Programs which teach study skills devoid of a real context have little transfer value (Hounsell, 1984:200–203). Students can only effectively acquire note taking skills, if the lecturer consciously plans the lecture so that it is "note takeable". This is important for second language neophytes at UPNG. Besides general common sense tips on essay writing, it is impossible to develop the skill, if constructive advice and feedback is not given through real essays. Consequently, there needs to be a trade off in the weighting of assessment, when students are learning the skill of essay writing and the final assessible draft. Learning to learn is far more complex than a diagnosis of a lack of general learning skills (Biggs, 1989a;b) Any remediation in terms of skill acquisition has to be in the context of personal academic development and cultural processes.

A large proportion of students believed that additional assistance in the use of the library was desirable.
Having been given the lecture notes with references, that can be found in the library, I found it quite difficult to locate some of these books in the library. The system of locating books in the library may be easy for those who are familiar with the system, however I feel that new students find it quite difficult. To assist new students, I strongly feel that a clearly spelled out information booklet, should be printed and be made available to all new students. I believe that such an information booklet will greatly assist new students to easily locate text books that they have been assigned to read. The present computerized system is quite sophisticated, and therefore new students should as much as possible be assisted by being shown how to locate a book using the system.

There are many difficulties Papua New Guinean inservice teachers have identified. University lecturers need to recognize these and attempt to address them, if more complex cognitive processes are to be promoted. This is the theme of the second research question.
3. PRESENTATION AND ANALYSIS OF DATA CONCERNING RESEARCH QUESTION TWO:

DOES THE EXPERIENCE OF THE SPECIAL CURRICULUM PROMOTE GREATER COGNITIVE DEVELOPMENT THAN INCREASE GENERAL EDUCATION AT UNIVERSITY?

(i) DESIGN
A more detailed description of the theoretical basis of this part of the research is described in Chapter Four. A brief summary of the design is appropriate here. The design in this part of the research is called The Non Equivalent – Control Group Design (Campbell and Stanley, 1972:47-50).

* Sample
The research was conducted in 1989 with forty (40) school teachers enrolled in Inservice BEd program. The control group was composed of thirty teachers (N=30) participating in BEd I. course while the experimental group (N=10) was composed of students enrolled in BEd T. program. The tertiary program is an inservice degree focussing especially on the development of tertiary teachers. Those students like the BEd I. students enrol in eight subjects per year, four of which are peculiar to the BEd T. and are taught by that program's co–ordinator. These have been designed to specifically promote cognitive growth (See Chapter Two). The BEd T. curriculum is the intervention or independent variable (See Chapter Four). The dependent variable is the level of cognitive development as measured by deep approaches to learning. The intervention variable had two major expectations:

(i) to promote the level of cognitive development;
(ii) to improve the quality of potential teacher educators.

* Instrumentation
The instrument used for pre (February) and post (November) assessment is the Study Process Questionnaire (SPQ) (Biggs, 1987a;b). (Appendix D). The SPQ is an instrument that gives information concerning student approaches to learning and studying. Biggs (1987a;b) postulated that there are a number of process factors, which influence the way or ways a student goes about learning. Three ways or approaches to learning are composed of affective components (motives) and their
accompanying *cognitive* components or strategies. Table 6.19 gives a descriptive summary of the three approaches to learning and studying.

The analysis of covariance (ANCOVA) is the statistical method used to analyse the data. Answer sheets were processed on a SONG IBM compatible computer using *Number Cruncher Statistical System (4.2)* (Hinze, 1984).

Table 6.19

<table>
<thead>
<tr>
<th>Approach</th>
<th>Motive</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA:</td>
<td>Surface motive (SM) is to meet requirements minimally; a balancing act between failing and working more than is necessary.</td>
<td>Surface strategy (SS) is to limit target to bare essentials and reproduce them through rote learning.</td>
</tr>
<tr>
<td>DA:</td>
<td>Deep motive (DM) is intrinsic interest in what is being learned; to develop competence in particular academic subjects.</td>
<td>Deep strategy (DS) is to discover meaning by reading widely, inter-relating with previous relevant knowledge, etc.</td>
</tr>
<tr>
<td>AA:</td>
<td>Achieving motive (AM) is to enhance ego and self esteem through competition; to obtain highest grades, whether or not material is interesting.</td>
<td>Achieving strategy (AS) is to organize one's time and working space; to follow up all suggested readings, schedule time, behave as 'model student'.</td>
</tr>
</tbody>
</table>

(Biggs, 1987a:3)

(ii) RESULTS

The scores and interpretative profile on the SPQ obtained by the BEd Inservice and BEd T. students for study motives, strategies and approaches are given in Tables 6.20 and 6.21.

Interpretation of terms

- **SM = Surface Motive**
- **SS = Surface Strategy**
- **DM = Deep Motive**
- **DS = Deep Strategy**
- **AM = Achieving Motive**
- **SA = Surface Approach**
- **DA = Deep Approach**
- **AA = Achieving Approach**
- **DAA = Deep - Achieving Approach**
- **AS = Achieving Strategy**

Figure 6.4 summarises the research design. Since no PNG norm are available, results are interpreted in terms of available Australian norms for Colleges of Advanced Education combined education males (Biggs, 1987a:38). Such norms seemed to be
Figure 6.4  
Summary of Research Design for Research Question Two.

<table>
<thead>
<tr>
<th>Research Question No. 2</th>
<th>Information Required</th>
<th>Sources of Information</th>
<th>Obtaining Information</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the special curriculum promote greater cognitive development than increased generality at the university?</td>
<td>What approaches do students employ at their commencement of study at university?</td>
<td>In-service Bachelor of Education students (N=30) and Bachelor of Education (Tertiary) students (N=10)</td>
<td>SPQ Journals and Interviews</td>
<td>Throughout Year</td>
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<tr>
<td></td>
<td>Why do students employ certain strategies?</td>
<td></td>
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<td>March, 1989</td>
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<tr>
<td></td>
<td>Do certain learning experiences promote metacognition?</td>
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<td>September, 1989</td>
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<tr>
<td></td>
<td>What approaches do students employ after a year's experience at university?</td>
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</table>
the most appropriate for the PNG sample. Because the female population was only 4, the male norms were used for the whole sample.

Table 6.24 compares the control and experimental groups over the 1989 university year. The ANCOVA applied to the November SPQ scores, using the corresponding February SPQ scores as covariates, yields the following results at the 5% level of significance (See Appendix F for calculations). There are no significant differences between the two groups in their surface and achieving motives, strategies and approaches. However, there are significant differences between the groups in their deep motives, strategies and approaches and also in the combined deep-achieving approaches; the average scores in these measures are significantly greater for the experimental group than the control group. The ANCOVA applied to the GPA scores (Table 6.23), using February SPQ scores as covariates indicates a highly significant difference between the control and the experimental groups (significant at 1% level).

Table 6.22 is a comparison of motives and strategies of Australian (CAE) Education students (N=298), PNG science students (N=102) (Wilson, 1987) and the combined PNG education student sampled in this research (N=40). This table shows that the PNG scores are consistently higher than the Australian scores, while PNG education students scores are higher in deep and achieving approaches and strategies than their PNG science colleagues, who score higher on surface motives. These data which indicate that education university students tend to have higher deep scores, while university science students have the least, are consistent with Australian research results (Biggs, 1987b:60).

A quick way of interpreting the numerical data has been the development of a "shorthand" symbolic profile devised by Biggs (1987b). The student's profile is a representation of a general orientation towards learning or learning preference, that is typical of that individual. In the SPQ, the subscales are reported in the following order:- surface, motive and strategy, deep, motive and strategy and achieving, motive and strategy. Biggs (1987a) designates "above average" (Deciles 8,9,10) as "+"; "average" (Deciles 4 to 7) as "O"; and below average (Deciles 1 to 3) as "−". A
"model" student would have a deep achieving profile which might read: −++++. It might be useful to view this graphically as illustrated below.

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In commenting upon how students might employ strategies as a result of their motivation, Biggs (1987b:12) asserts:

Students may endorse any or all of those motives to any extent. For example, a student may be both intrinsically and achievement motivated. (In fact students whose performance is high, tend to be so motivated). It is even possible to be motivated simultaneously both to reproduce detail accurately and to seek maximal meaning, however, this is not true of deep and surface strategies (Biggs' emphasis).

This is not the position maintained by Marton and Saljo (1984), who suggested that students adopt either deep or surface intentions toward a learning task, as a result of their perceptions of that task.

Though these authors differ on the exclusivity of students' deep or surface motivation, they both suggest that there is an exclusivity between the using of surface and deep strategies for the same learning task. "It is, however difficult to see how one could simultaneously rote learn and seek meaning" (Biggs, 1987b:12). That is, profiles such as O+ ++ ++ or −+ ++ ++ should not exist, though Biggs acknowledges that such could be the exceptional case, as instanced by an actor who initially memorises lines before interpreting them (ibid).
Table 6.20
Results of the SPQ February, 1989

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| Experimental Group |
| 17 | 25 | 26 | 26 | 21 | 15 | 41 | 52 | 36 | 88  | -+++++ |
| 26 | 31 | 30 | 27 | 27 | 28 | 57 | 57 | 55 | 112 | ++++++ |
| 27 | 22 | 28 | 28 | 26 | 27 | 49 | 56 | 53 | 109 | +0+++0 |
| 30 | 26 | 29 | 26 | 33 | 33 | 18 | 56 | 55 | 106 | +0+++0 |
| 21 | 29 | 28 | 24 | 25 | 25 | 52 | 50 | 50 | 102 | 00++00 |
| 22 | 20 | 24 | 34 | 30 | 30 | 42 | 58 | 60 | 118 | 0+++++ |
| 26 | 30 | 31 | 24 | 28 | 22 | 56 | 55 | 50 | 104 | +0+++0 |
| 29 | 27 | 27 | 27 | 31 | 26 | 56 | 54 | 57 | 111 | ++++++ |
| 25 | 19 | 25 | 22 | 20 | 25 | 44 | 47 | 45 | 92  | 00000+ |
| 35 | 29 | 30 | 23 | 32 | 28 | 64 | 53 | 60 | 113 | +0+++0 |

Tables 6.20 and 6.21 indicate that this contradictory pattern occurs regularly. What should be the exception is a trend. In Table 6.20, 12 students are reported to use surface and deep strategies at "above average" level simultaneously, while 31 out of 40 reported that they used surface and deep strategies simultaneously at "above average" or "average level".
The results reported in table 6.21 are still more curious. After a year at university more students (24 out of 40), indicated that they employed surface and deep learning strategies at “above average” level simultaneously.

Table 6.21
Results of the SPQ November, 1989

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<td>115</td>
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<td>44</td>
<td>63</td>
<td>62</td>
<td>125</td>
<td>000+++</td>
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</table>

Experimental Group

| 16 | 28 | 38 | 32 | 17 | 31 | 44 | 70 | 48 | 118 | ++++++ |
| 21 | 24 | 29 | 28 | 25 | 25 | 45 | 57 | 50 | 107 | 0+++++ |
| 22 | 22 | 28 | 29 | 31 | 27 | 44 | 57 | 58 | 115 | 0+++0 |
| 26 | 26 | 31 | 33 | 30 | 31 | 52 | 64 | 61 | 125 | ++++++++ |
| 21 | 22 | 28 | 24 | 26 | 21 | 43 | 52 | 47 | 99 | 00+0+0 |
| 29 | 27 | 34 | 33 | 23 | 32 | 56 | 67 | 55 | 122 | ++++++++ |
| 23 | 22 | 31 | 30 | 29 | 28 | 45 | 61 | 57 | 118 | 00++++ |
| 23 | 23 | 28 | 28 | 29 | 26 | 46 | 56 | 55 | 111 | 0++0+++ |
| 27 | 18 | 32 | 34 | 23 | 29 | 45 | 66 | 52 | 118 | ++++++++ |
| 31 | 33 | 30 | 31 | 32 | 29 | 64 | 61 | 61 | 122 | ++++++++ |
### Table 6.22
Comparison of Motives and Strategy means and SD between Australian Students, PNG Science Students* (1987), PNG Education Students (1989)

<table>
<thead>
<tr>
<th>Motives</th>
<th>Australia M</th>
<th>PNG 1987</th>
<th>PNG 1989</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>21.65</td>
<td>25.13</td>
<td>23.32</td>
</tr>
<tr>
<td></td>
<td>4.88</td>
<td>5.39</td>
<td>5.01</td>
</tr>
<tr>
<td></td>
<td>21.87</td>
<td>24.02</td>
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</tr>
<tr>
<td></td>
<td>4.54</td>
<td>4.08</td>
<td>4.64</td>
</tr>
<tr>
<td>Deep</td>
<td>21.93</td>
<td>24.76</td>
<td>28.72</td>
</tr>
<tr>
<td></td>
<td>4.84</td>
<td>4.76</td>
<td>3.49</td>
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<td></td>
<td>22.10</td>
<td>23.54</td>
<td>28.2</td>
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<tr>
<td></td>
<td>4.47</td>
<td>4.87</td>
<td>3.51</td>
</tr>
<tr>
<td>Achieving</td>
<td>20.70</td>
<td>25.04</td>
<td>26.35</td>
</tr>
<tr>
<td></td>
<td>4.98</td>
<td>5.35</td>
<td>4.24</td>
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<tr>
<td></td>
<td>20.42</td>
<td>21.48</td>
<td>26.07</td>
</tr>
<tr>
<td></td>
<td>5.32</td>
<td>5.24</td>
<td>3.80</td>
</tr>
</tbody>
</table>

* Wilson (1987)

### Table 6.23
Mean and Standard Deviation of Grade Point Average achieved in semester two examinations, 1989 by BEd I. and BEd T. students at UPNG.

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Experimental</th>
<th>Significant Difference*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEd I (N=30)</td>
<td>BEd T. (N=10)</td>
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<tr>
<td>Mean ((\bar{x}))</td>
<td>1.7</td>
<td>2.5</td>
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<tr>
<td>Standard Deviation (SD)</td>
<td>0.61</td>
<td>0.61</td>
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* This column indicates whether or not there is a significant difference between the two groups at 1% of significance.
Table 6.24
Mean Motives (M) strategies (S) and approaches (A) and SDs of BEd I. and BEd T. students at UPNG.

<table>
<thead>
<tr>
<th></th>
<th>Control BEd I. N=30</th>
<th>Experimental BEd T. N=10</th>
<th>Sign.</th>
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<tr>
<td></td>
<td>Pre (Feb)</td>
<td>Post (Nov)</td>
<td>Pre (Feb)</td>
</tr>
<tr>
<td>Surface</td>
<td>M̄ 24.3</td>
<td>23.13</td>
<td>25.8</td>
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<tr>
<td></td>
<td>SD 05.69</td>
<td>5.27</td>
<td>05.05</td>
</tr>
<tr>
<td></td>
<td>S̄F 24.5</td>
<td>24.03</td>
<td>27.7</td>
</tr>
<tr>
<td></td>
<td>SD 05.01</td>
<td>04.85</td>
<td>04.27</td>
</tr>
<tr>
<td></td>
<td>Ā 48.8</td>
<td>47.16</td>
<td>51.5</td>
</tr>
<tr>
<td></td>
<td>SD 09.64</td>
<td>09.12</td>
<td>07.55</td>
</tr>
<tr>
<td>Deep</td>
<td>M̄ 27.16</td>
<td>28.0</td>
<td>27.8</td>
</tr>
<tr>
<td></td>
<td>SD 04.72</td>
<td>03.64</td>
<td>02.3</td>
</tr>
<tr>
<td></td>
<td>S̄F 25.86</td>
<td>27.53</td>
<td>26.1</td>
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<tr>
<td></td>
<td>SD 05.34</td>
<td>03.71</td>
<td>03.38</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>SD 08.51</td>
<td>06.21</td>
<td>03.14</td>
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<tr>
<td>Achiev</td>
<td>M̄ 25.66</td>
<td>26.3</td>
<td>27.3</td>
</tr>
<tr>
<td></td>
<td>SD 04.9</td>
<td>04.19</td>
<td>04.4</td>
</tr>
<tr>
<td></td>
<td>S̄F 24.23</td>
<td>25.46</td>
<td>24.4</td>
</tr>
<tr>
<td></td>
<td>SD 05.2</td>
<td>4.00</td>
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<td></td>
<td>Ā 49.9</td>
<td>51.76</td>
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<tr>
<td></td>
<td>SD 8.34</td>
<td>05.64</td>
<td>07.27</td>
</tr>
<tr>
<td>Deep</td>
<td>M̄ 102.93</td>
<td>107.3</td>
<td>105.3</td>
</tr>
<tr>
<td>Achiev.</td>
<td>SD 015.99</td>
<td>010.7</td>
<td>009.45</td>
</tr>
</tbody>
</table>

* This column indicates whether or not there is a significant difference between the two groups at the 5% level of significance.

(iii) DISCUSSION
Tables 6.20 and 6.21 indicated that there was a definite trend by PNG students in contrast to Australian results to employ together surface and deep strategies for the same task.

The research of Thomas and Bain (1984) may assist in some explanation of the phenomenon. Their results from Australian student teachers (N=61; N=51) suggested that deep and surface learning (including the use of strategies) were not mutually exclusive. Learning activities varied with the demands of the learning context.
Surface activities were more frequently reported for multiple choice exams than for assignments. Why did these students report using a combination of deep and surface level activities? Thomas and Bain have reported that Ramsden (personal communication to them, 24 October, 1983) offered an explanation which hinged on the relative emphasis given to intention and process.

If the stress is on intention, then a bipolar model makes sense: you cannot intend to understand and at the same time intend merely to reproduce, although if you intend to understand you may use processes (even, in some topics, rote memorisation) that are 'reproductive' as well as 'transformational'. If the emphasis is on process alone, then learners will be seen, when learning complex material, to use both strategies (Thomas and Bain, 1984:273).

'Reproductive' and 'transformational' may be identified with the concepts 'surface' and 'deep' (Thomas and Bain, 1984:227).

This insight coupled with the data about how students read may assist in the explanation of why PNG students employed a combination of deep and surface activities.

The results from Table 6.20 and Table 6.21 indicated that PNG students have an intention to understand. For example, a student is given an assigned reading in a tutorial. As preparation, he attempts to read it. As it is academic work the number of new words requires him to consult a dictionary. Although he understands the vocabulary of the dictionary definition, there may be a lack of conceptual equivalence between the concepts the article is attempting to convey and the student's background understanding in which dictionary definitions are compared. As he perseveres with the reading, surface approaches are employed, and key phrase may be offered at tutorials as evidence of learning. The student resorts to time honoured survival strategies that have always brought him success during his schooling years (Johnson, 1972). The following journal entry typified the process.

Many times, I come across a lot of difficult words and I have to look them up in the dictionary. When I look at the dictionary, I find that there are more than one meaning for a particular word. I get confused in finding out the meaning of that word and it takes me a lot of time to decide. This can take me more than one hour to do and if I have to do other assignments, I start to guess and half of the time my guesses are wrong.
This insight into students' learning processes might explain Moore and O'Driscoll's (1983) conclusion, that in spite of PNG students' diligence in reading assigned work, they had an inadequate ability both to interpret and retain what is read. Although having the intention to understand, and while attempting to employ the appropriate strategies, for the PNG student, it becomes necessary to adopt surface or "survival" activities when the deep activities failed to promote the understanding that was being searched.

This hypothesis is inconsistent with Biggs' data. He found that English second language students scored the highest on Deep Achieving activities and postulated that "bilinguality is associated with the adoption of deep approaches to learning" (Biggs, 1987b:42), since the strategies employed in coping intelligently with a second language were similar to deep approaches. They "actually deepen one's approach to learning, although it may take some considerable time for that approach to manifest its effects on the outcomes of learning" (Biggs, 1987b:48). However, PNG pupils are not coping with learning English, and both teacher and student resort to rote teaching and rote learning, while developing survival tactics. The experiences of learning English in PNG are similar to surface activities than the deep approaches ESL students adopt in Australia.

Moreover, the ESL students in Biggs' sample were European and Asian students pursuing their education in Australia (Biggs, 1987a:41). These ESL students learned English against a sophisticated conceptual background of a modern technological society. Consequently, the problems in learning are more likely to be those of translation and this permits a focus on deep activities since the concepts employed are familiar. In contrast, the Papua New Guinean has to learn not only vocabulary but its underpinning concepts. This is the crux of the problem. Given the context of academic learning i.e. its complexity within a limited time span, much of what is "learnt", tends to be a communication of labels rather than concepts (Johnson, 1972; Lynch 1980; Otto, 1989).

The implication is clear. For PNG students, it is important that they undertake
formal courses to improve their use of English. For lecturers, it is important that their teaching deliberately promotes an understanding of the symbol system which underlies their discipline.

The results from Table 6.24 indicated that the intervention appeared to be successful in significantly increasing the experimental group's approach to learning from surface towards increased deep approaches in all areas as well as aligning achieving strategies with the achieving motives (DAA). This is confirmed by the significantly better GPA's attained by the experimental group in the final examinations in 1989 (Table 6.23). The intervention attempted to meet the psychological needs of students as well as their cognitive and academic ones. Emphasis was placed on the development of language competence, since all students participated in the Practical English Writing course. Emphasis was also placed on conceptual understanding in the intervention courses. This is a characteristic of the intervention. The strategies employed may be used by any academic in teaching. The intervention was not something esoteric or complicated. The emphasis included an understanding the problems of Melanesian teachers from their perspective while providing strategies which encouraged students to introspect and to be metacognitive about their learning. Biggs (1987b:116) argued that there were at least three conditions which seemed to promote students to successfully "learn to learn". These include:

(i) a degree of maturity;
(ii) high motivation;
(iii) a program that emphasised metacognition.

From reference to Table 6.22, it appears that Papua New Guinean students, particularly the teachers, were more motivated than the Australian sample. Such a situation is understandable in a developing country, where further academic qualifications permit considerable increase to status, salary, influence and material benefits than those available to the general population, most of whom are subsistence farmers. Teachers, in general are experienced family providers. They have worked for some years. In addition to pecuniary motivations, it is probable that there are a number of intrinsic personal and professional reasons for their high motivation.
Moreover, the BEd T. students are aware that theirs is a program which permits them entry into a "higher" status level, with its accompanying increased salary. Another consideration is that inservice teachers are probably intellectually stale, given the repetitive and stereotype educational experience in schools (Avalos, 1989; Vuillaume, 1987), and that exposure to university life more likely meets both their intellectual curiosity drives, as well as personal ambition. It would appear then that the intervention curriculum meets Biggs' criteria for the promotion of metacognition.

This section of the research indicates that Papua New Guinean students have high levels of motivation while undertaking university study. The evidence shows that they utilise a variety of study approaches. It suggests that instruction, assessment and learning experiences can be structured in university courses to improve study processes thereby encouraging students to think and reason (to use deep approaches), while diminishing strategies that promote rote learning. Such attempts, even if successful are likely to improve achievement only if they are accompanied by an increased competency in, and understanding of the language of instruction and learning.
4. PRESENTATION AND ANALYSIS OF DATA CONCERNING RESEARCH QUESTION THREE:

WHAT IS THE PERCEIVED IMPACT OF THE BED T. STUDENTS IN THE TEACHERS' COLLEGES?

(i) DESIGN

The BEd T. program is an intervention program ultimately aiming to promote quality teacher educators. As such the curriculum is the independent variable, while the dependent variable is the level of cognitive development as measured by deep approaches to learning. Consequently, the intervention curriculum has two expectations:

* to improve the level of cognitive development.

This outcome has been reported in the discussion of research question two. The second expectation is:

* to improve the quality of potential lecturers.

This is the focus of the third research question.

Instrumentation

In order attempt to address research question three, base line data was needed to establish characteristics that identified what the "ideal" student lecturer would be able to do and to compare BEd T. students against these criteria.

Fortunately, O'Toole (1989) has done considerable ground work towards this in her Impact Education Study: Teacher Education Fellowships First Primary Education Project (1982-1988). She surveyed the opinions of all teachers' college personnel (N=166) to identify the characteristics of an effective beginning lecturer. Respondents were asked to list in priority of importance from their experience important knowledge, skill and attitude characteristics necessary for an effective lecturer to fulfil the duties of their position. (There was a 55% return rate to the survey). In the final analysis, 45 separate characteristics were identified. Those characteristics described qualified beginning lecturers and all items were not appropriate for BEd T. students, who were still pursuing their professional education. The internship is the second year of the three year program. A twenty eight item
inventory was developed using a 5 point Likert type scale, (Wiersma, 1986:297), which requested supervisors and informed college personnel to make ratings about the characteristics of the BEd T.students undertaking the internship in their college (Appendix E).

In addition, a profile scale of the inventory was developed which had an abbreviated characteristic description and a Likert type scale, whereby raters' results could be easily graphed (Table 6.25).

From the opinions derived from lecturers and administrators, O'Toole in turn prioritised the identified desired lecturer characteristics as those of outstanding importance, very important, important and less important. These categorisations are also identified on the profile. Ironically, one item, number 26, Exercise initiative and self reliance was considered a less important characteristic by lecturers, yet the McNamara Report, when considering Matane's (1986) Philosophy of Education for PNG, asserted that such characteristics are essential for future PNG teachers, if quality education was to be promoted (McNamara, 1989:39; Ross, 1988:121). Such a characteristic cannot be promoted in student teachers in the colleges, if lecturers do not value such a characteristic or do not have the characteristic themselves. Consequently, item 26 is considered by the researcher as an important characteristic for BEd T.students to develop. The internship curriculum has been deliberately planned for the promotion of such qualities.

The inventory was sent to all the BEd T.students' supervisors, their principals and deputies as well as colleagues, who appeared to have an informed opinion about BEd T.students. No student was rated on the opinion of one observer. If raters differed the mean was scored.

Raters were instructed on the front page of the instrument that data generated would not be used in the compiling of a progress report for BEd T.students. The aim of the research was to "help develop general profiles to identify general strategies and weaknesses in the BEd T.program". It was hoped that supervisors would more
readily give accurate ratings, when they were aware that such data would not be used in their student's university gradings.

In addition, an interview schedule was developed which probed the following issues. These had been identified as important in O'Toole's study as well as Ross's (1987) evaluation of the lecturer training programs.

- knowledge of content of teaching specialisation
- teaching competency focusing on student learning
- planning for lectures
- self evaluation skills
- promotion of initiative, independence and self reliance
- openness to criticism
- co-operation with other staff members

Interviews were conducted with ten (N=10) supervisors and all principals (N=5 1988; N=3 1989) and their deputies. Some lecturers supervised a student in both 1988 and 1989. In addition, the following documentary evidence was analysed.

- student lecture plans
- student self evaluation of lectures
- lecturer observation notes
- supervisor's written evaluation of lectures
- students' end of semester reflection
- daily journals
- semester reports on student progress

Sample

The samples for the investigation of impact in the colleges was the 1988 (N=6) and the 1989 internship groups (N=5).

The 1988 internship group commenced at the university in 1987 with eight entrants. One resigned in February to become a nun; one failed university subjects and had his scholarship terminated and one, during the internship year had her scholarship terminated because she was found guilty in court of adultery with another lecturer.

The 1989 internship group commenced in 1988 with 8 members. Two failed university studies because they cheated assignments and one did not have his
<table>
<thead>
<tr>
<th>Research Question No. 3.</th>
<th>Information Required</th>
<th>Sources of Information</th>
<th>Obtaining Information When</th>
</tr>
</thead>
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<td>What is the perceived impact of the B.Ed (t) students in the Teachers Colleges?</td>
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<td>Principals (N=5)</td>
<td>Throughout year</td>
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<td></td>
<td>Deputies (N=5)</td>
<td>November, 1989</td>
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<td></td>
<td>College Supervisors (N=10)</td>
<td>End of each semester 1988, 1989</td>
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<td></td>
<td>Students (N=10)</td>
<td>End of each semester 1988, 1989</td>
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<td></td>
<td>Students knowledge of content teaching specialization.</td>
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<td>End of Semester written reflection.</td>
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<td>Self evaluation skills.</td>
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<td>- self evaluation</td>
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<td>Ability to be independent and self-reliant.</td>
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<td>- lecturer notes.</td>
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<td></td>
<td>Openness to criticism.</td>
<td></td>
<td>- daily reflective journals.</td>
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<td></td>
<td>Co-operation with college.</td>
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Figure 6.5
Summary of Research Design for Research Question Three
Table 6.25

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<td>5. PLANNING, DELIVERY, ASSESSMENT OF LECTURE</td>
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<td>6. EVALUATE SELF AND STUDENTS</td>
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Average rating of characteristics of outstanding importance (1-3) 4.5
Average rating of characteristics that are very important (4-8) 4.5
Average rating of characteristics that are important (9-21) 4.2
Average rating of less important characteristics (22-28) 3.8
scholarship maintained because it was realised he had two wives, a situation that would have prohibited his employment in the Christian Agencies' teachers' colleges.

Figure 6.5 summarises the research design for research question three.

(ii) RESULTS
Table 6.25 records the combined data which produced a general profile of the BEd T.internship groups of 1988 and 1989.

(iii) DISCUSSION
Inventory and interview data indicated that lecturers and principals believed that BEd T.appeared to be comparatively competent. One principal wrote this unsolicited letter to the program's co-ordinator about two students who undertook their internship at his college.

Both students have contributed significantly to the college. They have readily joined in with college activities and have been available to assist in extra duties. They have fulfilled their teaching responsibility and have proved themselves quite competent. Both men show themselves to be thinking people and reflective about the processes they use and the experiences they have had. A good measuring instrument for both men is that if they were available and if I had a position available in their respective areas, I would readily offer them employment.

In terms of the characteristics of outstanding importance including item 26, initiative and self reliance with the exception of item 1, the mean ratings exceed 4.5 which indicates that BEd T.students were perceived to be achieving on priority characteristics. In terms of actual teaching, these college supervisor reports documented the following typical impressions. These have not been selected because they convey positive data.

Mr X plans and selects his lecture ideas critically before presenting them. He has used different approaches and styles of delivery which were quite acceptable by his students.
Improvements in lecturing were seen as the year progressed. Mrs Y is competent but also willing to be advised. She has confidently stepped out on her own in the lecture room as the year progressed.

(Lecturing was) well above average from Mrs Z – a model for many of us long serving lecturers.

The BEd T. students were seen to be making solid progress as lecturers but also had much to learn. Their own self evaluations confirmed this observation.

My main weakness which forces me to seek assistance is the outline (curriculum). I find that most of the lectures (annotated teaching suggestions in the course outline) are too short and can be put together as one. Although I try to use my initiatives (sic), I tend to have hesitations having the idea that I might be doing the wrong things. Most of my colleagues are always encouraging (me) mainly with their advice for me to retain and use my ideas which I sometimes see as my weakness (end of semester reflection extract).

A general theme evident from supervisor interviews and documentation has been that BEd T. students prepared their work thoroughly, employed meaningful strategies for teaching and were very conscious of how their own teaching influenced student learning. The data indicated that students are progressing in the development of a thoughtful and more reflective approach to their work. They appeared to be able to realistically self evaluate their own teaching and its impact. Ross (1987:33) noted in his evaluation of lecturer training between 1982–1987, that this was lacking and that more guidance should be placed on its acquisition.

Repeatedly it was voiced that students displayed initiative and self reliance.

Mr P has been an asset to the college. He is aware of what is happening and is willing to co-operate and initiate, the latter with prudence often checking his ideas on important issues. (Supervisor's Semester Report).

These positive responses could easily paint a deceptively rosy picture. Given the context that lecturers are operating in, BEd T. students are making good progress as judged by college supervisors and administrators. However, as will be discussed in answering major research question four, there are many contextual factors, that influence lecturers' own teaching and their perceptions of reality. It is this researcher's opinion that many lecturers have a narrow view of what effective teaching is and from the perspective within these narrow parameters, effective
teaching is critiqued. This opinion has been formed from hundreds of hours of observing student lecturers teach, as well as interviews with lecturers on this topic. Teaching was perceived by many lecturers primarily as a direct structured transmission process. This perception was primarily responsible for the narrow view of effective teaching. Within such a narrow perspective a variety of techniques have been "perfected" e.g. worksheets, black board summaries, charts etc, and so quite effective teaching does occur. There was little evidence of consistent teaching/learning practices that promoted more direct student initiative and independence in learning. This observation has been confirmed in recent research (Ross, 1988; Avalos, 1989). The reasons for this are complex and have been explored in some detail in addressing research question four. BEd T. students are being rated between "good" and "excellent" on the inventory from characteristics generated by lecturers, many of whom possess narrow views of competency. The problem is that such ratings are made according to conservative criteria. Thus, instead of a process of developing new lecturers who may be change agents for quality, they instead may be socialised and reinforced into the values and structures of the "status quo". This is a problem in generating an inventory of desirable characteristics of lecturers, when that lecturing body is the only source for these desirable characteristics. An improved inventory needs to be developed, that has a wider input base particularly from the recent research in its development and prioritising of characteristics. Such a comment does not undervalue the pioneering work of O'Toole (1989), merely to identify a real problem. O'Toole has concurred with this observation.

This issue of impact, socialisation and the forces in the college context that may impede change are explored with BEd T. students at the end of the third year of the course, when students return from Australia, in a course entitled, *Course Design and Evaluation*. This is an appropriate time to discuss these issues, since the students have both college experience and extended university study to better appreciate those complex and often subtle forces operating in PNG teacher education. The rationale for such a course, beside the obvious need for technical proficiency in course design, is the promotion of an understanding of the various and many factors that influence
"curriculum" defined in its broadest sense (Print, 1987: 4), a move considered by Beeby as essential if quality education is to evolve (Beeby, 1979).

Table 6.25 indicated that item one concerning competency in subject content was rated at the "good" level and of the three items of outstanding importance, it was the one that supervisors believed needed attention. This was not surprising. What was surprising is that supervisors and college staff believed that the BEd T. students had high levels of competency in the content of their teaching specialization.

It is in the third year of the BEd T. program, the year after the internship year, that content specialization is emphasised. There are good reasons for this. There are three pragmatic aims of the first year of the BEd T. program.

* To develop confidence and academic skills in community school teachers, so they may successfully negotiate university study.
* To immediately prepare students for their second year internship.
* To introduce students to courses related to their future teaching discipline.

Thus semester one of the program does not include subject specialization emphasis. All students do:

* Practical English Writing I
* Foundations in Education
* Studies in Teaching
* Seminar in Tertiary Teaching

Practical English Writing is essential for university students, for whom English is a second language. All students are required by Faculty regulations to study Foundations. The importance of the other two subjects is self evident.

In semester two, BEd T. students do:

* Issues in PNG Teacher Education
* Supervision of the Practicum
* Subject Specialisation (2 subjects)

The first two subjects address internship preparation as well as study skill promotion. Students have subject specialization exposure in year one in only two subjects. It is
in year three that the subject specialisation is especially addressed. This is appropriate, since students who have experienced the internship are able to appreciate the need for depth in their teaching subject, as well as now being more able to relate it to the job they have to do (cf Hawes, 1979).

If supervisors believed that BEd T. students were "good" at subject content, then the reason for this may be the paucity of actual content in the teacher education curriculum itself, an issue to be discussed later; or it maybe because many lecturers in the teachers' colleges have a comparatively limited perspective of what constitutes minimum competency for a teacher educator. This was illustrated by the following observation from a supervisor's final report.

Although this is not the end of her programme, I feel with what we provided for her learning experience at the college may give her some ideas on her next programme ... I would say at this time that she has experienced all that is required for a college lecturer ... She is open to advice and suggestions for improvement, with that she (sic) achieved most of what a college lecturer needs to know.

Given this background, from interview and from participant observation data, this lack of content knowledge in subject specialisation is a more serious problem than the inventory ratings indicated. Biggs, Maddoch and Telfer (1983:52) in their evaluation of the Australian component of the now defunct Diploma of Education Studies (Tertiary) reported that Principals and staff members of colleges believed that "greater emphasis should be placed on content area subjects: In sum, it was found that teaching subject is the greatest perceived need (authors' emphasis)." McNamara (1989:60) also has asserted that in the preservice and inservice education of lecturers, strong emphasis should be placed on the development of subject specialisation. O'Toole (1989:25) reported that senior lecturers and lecturers identified knowledge of content as the first priority in future training needs.

The students themselves indicated that this lack of depth in the knowledge of their teaching specialisation has muted their impact.

Though it took me a while to prepare my lecture plans for all lectures, I feel that in the preparation of lectures I have developed the attitude of having a sound knowledge of what the lecture is about... I cannot say all my lectures
were good but the lectures that were not so good were the ones that I did not have enough background information.

Another student has recorded the very pragmatic difficulties experienced, when knowledge and understanding were superficial.

Besides those mentioned above, I need to do more research for background information. At times I seem to teach without knowing the content myself very accurately. Due to that fact, I run out of points quickly after covering the limited knowledge I have within less than thirty minutes. I don't feel confident when I'm not sure of certain things myself (End of Semester Reflection).

Table 6.25 (items 12 and 17) indicated that college authorities perceived that BEd T. students needs to increase their appreciation of learning theory in its PNG context. This criticism may well apply to the majority of lecturing staff in the colleges. Much of the education experience of lecturers from primary to tertiary has been essentially western education (McNamara, 1989:36), and little acknowledgment has been given to how PNG students negotiate it. Practices in the colleges may result more from reaction and custom, than from articulated theory. Little research has been conducted that reflects an understanding of the PNG students' negotiation of higher education. Surprisingly, courses that impinge upon educational psychology at UPNG cover issues typically offered in Australian or the United Kingdom universities.

Item 13, application to study (reading and studying in the area of one's professional competence) is rated at 3.8, which is less than most other items. It is difficult to explain this rating. Internship students undertake university subjects in that year (Internship A & B; and English 1 & 2). As mentioned previously, the major focus of the Australian year is increased study in the area of teaching specialisation. Because students are not pursuing university studies in their teaching specialisation area, then they may display little evidence of item 13. Certainly, from the perspective of the researcher, students are heavily involved in successful university
study, a point acknowledged by supervisors in other documentation.

"I'd say it (BEd T.internship program) is good. Heavy but worthwhile"

"I think the BEd T.program is really making the students work and be very independent"

"At first I considered it very demanding but on reflecting I feel it to be a course for the students in identifying quality".

Item 25 is rated at the 3 level and is considered the area of least progress. Ironically, few colleges possess many A.V. resources, both software and hardware. Hardware does need repairs and this is a difficulty in this developing country. Moreover, there is limited appropriate software available. Again, as it is a developing country, electricity distribution is not always consistent. This item was explored with students. One replied: "We haven't got AV's here except scripture videos". Be that as it may, possible increased emphasis on this area appears necessary.

The inventory has given cautionary and tentative results. Almost all Principals and supervisors indicate that the BEd T.students are making a considerable positive impact in the college in areas that they consider most important. As mentioned before, this is a strength and a weakness, and uncritical socialisation into "status quo" values is a problem that could impede innovation. Again, lecturers' perceptions of needs and student competency may reflect a narrower perspective than what is reflected in more objective research (Meyer, 1989). This is the major cautionary message from what may be seen initially as a clear indication of the BEd T.students' positive impact in the colleges.
5. PRESENTATION AND ANALYSIS OF DATA CONCERNING RESEARCH QUESTION FOUR:

WHAT ARE THE CONTEXTUAL FACTORS WITHIN THE TEACHERS' COLLEGES THAT MIGHT INFLUENCE TERTIARY TEACHING AND STUDENT LEARNING?

(i) DESIGN

The BEd T. first year component at the university has three unofficial pragmatic aims:

* to develop confidence and academic skills in community school teachers so they may successfully negotiate university study;
* to immediately prepare students for their second year internship;
* to introduce students to courses related to their future teaching specialisation;

It is possible that education and training goals may have some success, yet lecturer impact within the colleges may appear negligible. If the BEd T. program is to be a significant contribution in the promotion of quality education in PNG, then some appreciation of the contextual influences operating in teachers' college is necessary. Such an understanding is all the more important in the light of the AIDAB (1989) conclusion, that the increased education of lecturers appeared not to have significantly changed the quality of education given in the teachers' colleges. Consequently, it is helpful to explore the world in which teacher educators operate.

The research reported in this section of the thesis is the result of interviewing fifty three college personnel and ministry officials from the Division of Teacher Education.

Case Study Methodology

The methodology used to address research question four was characterised by three features. It was responsive (Stake, 1975), it employed case study methods (Bartlett, Kemmis and Gilland, 1983) and it incorporated principles of procedure which identified it as democratic (MacDonald, 1976).
Responsive Investigation
The research focussed on concerns or problems which teacher educators said they faced in the colleges. This required a constant orientation by the researcher to what teacher educators actually do, rather than what they say they do, towards the requirements for information and towards the different value perspectives in describing what concerns those who teach or administer in the colleges.

A perspective was adopted which aimed to provide a synthesised interpretation of the effects of the current practices in teachers' colleges. The interpretation reported here aimed not to be directly judgemental, but to collect and synthesise various judgements from data relevant to depicting concerns identified by staff members. The research did not aspire to "neutrality" or to assume that some kind of "objective truth" was possible. Rather, the position adopted was the disinterest of an "honest broker" representing the diverse interest of teacher educators. The views of the lecturers and Division officials were taken seriously and the form of the language reported is that of those interviewed.

Case Study Methods
Case study is an umbrella term for many perspectives (Adelman et al, 1976:141). However all case studies have the following features. They are:

* **field-work based** – the researcher spent many hours in teachers' colleges;

* **interpretative** – case study attempts to reclaim the meaning of situations and the "multiple" realities of participants' understanding;

* **truth testing** – as in most forms of science, case studies proceed by refutation and conjecture; often the case and procedures are redefined in the course of seeking "truth" in the case;

* **politically reactive** – case study is a particularly sensitive form of research since it attempts to turn private meanings of participants into public knowledge; some concerns or views will be favoured, others denied.

The researcher attempted to record and report those issues as an impartial observer.
Democratic Procedures

The politics of doing this research is acknowledged. The researcher has no role in determining a criteria of "good" or "bad" data. Hence the study belonged to the participants, not the researcher. The concepts in a democratic approach are confidentiality, access and negotiation. In attempting to improve the reality and validity of the final draft, participants were permitted to comment on the fairness, accuracy and relevancy of accounts before they were incorporated into this thesis. Draft copies were sent to all colleges and at their 1988 Combined Conference the Principals unanimously approved its publication as part of the Teacher Education Research Project (McLaughlin, 1988c). Some members of the Division of Teacher Education would have preferred that it not be published, and they voiced this opinion at the 1988 Combined Principals' Conference.

Focus of the Case Study

The value perspectives of the lecturers and Division officers meant that there was a wide diversity of opinions and concerns about issues. To ensure that case studies in several sites were focused and related, three general inquiry questions were investigated. These were based on research question four, which was the focus of the case study, namely: What are the contextual factors in teachers' colleges influencing teaching and student learning. The three inquiry questions are:

* Describe the characteristics of the student teachers who come to your college? (student/learning issues)

* Have you any concerns about what you are required to teach in the colleges? (curriculum/learning issues)

* What is your opinion about the ways lecturers teach in the colleges? (teaching issues)

In the course of the research, many subsidiary questions emerged. Those were pursued and reported. The data have been collapsed under three main heading:  

STUDENTS
CURRICULUM
TEACHING
Research Techniques

The main techniques used in the research were:–

* **documentary analysis**: documents reviewed included college course outlines, handbooks, minutes from Academic Advisory Committees and Governing Councils, and the National Education Board correspondence, testing instruments, and other research documentation concerning PNG teacher education.

* **informal interviews**: these were loosely structured and enabled participants to voice their concerns within the three general enquiry questions listed above.

The Cases Studies

The notion of a case or simple instance was built upon the eight preservice teacher education institutions. The latter included lecturers and administrators. The following colleges were visited:

- **Balob** Morobe (Lutheran/Anglican).
- **Dauli** Southern Highlands (Evangelical Alliance).
- **Gaulim** East New Britain (United Church).
- **Holy Trinity** Western Highlands (Catholic).
- **Kabaleo** East New Britain (Catholic).
- **Madang** Madang (Government).
- **Saint Benedict's** East Sepik (Catholic).
- **Saint Paul's** East New Britain (Catholic).

Personnel from the Division of Teacher Education (Port Moresby) were also interviewed (N=6).

It should be noted that the Government has direct control over one college. The rest are administered by church agencies. This means that church agencies nominate their own principals and to a large extent control the selection of staff and students. Although there is a national curriculum, colleges in theory have considerable independence in its interpretation and implementation. The government contributes to almost the full running cost of the colleges. The agencies have provided multi million kina college facilities. Except at the government college, expatriate staff (missionary and volunteers) are on local national wages. Overseas contract officers are on wages three or more times the wages of their national counterparts. Figure 6.6 summarises the research design for research question four.
<table>
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<td>Lecturer perceptions concerning college curriculum.</td>
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<td>Lecturer perceptions concerning styles of teaching in colleges.</td>
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<td>April, 1988</td>
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<td>June 1988 - June, 1999</td>
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(ii) STUDENT TEACHERS

In order to understand some of the procedures operating in teachers' colleges, as well as some of the behaviours of lecturers it is appropriate to explore the lecturers' perceptions of the students they teach.

The Quality of the Intake of Student Teachers

The grade ten results, by and large are the single most important criteria in the initial selection of candidates for teachers' colleges. At different stages in the selection process, other features are considered important also such as, first career choice, college of first preference, religion, and private communication with secondary headteachers. However, what is becoming more obvious to college authorities is the perceived invalidity of grade ten results.

When our principal came back from selection last year, he told us it will be easier, because so many more students have distinctions, credits and upper passes, yet 90% failed their basic maths. The grade ten results are suspect. They are not a good indicator of academic ability (Senior Lecturer, Education).

One Principal commented in this vein:

I have no faith in the grade 10 examination. How can you? If it is norm referenced, a set percentage of students must get their distinctions, credits, no matter how poor the standard. We're seeing the result of this here. Student "A" from (well known urban high school mentioned) gets a distinction in English. So does "B" (but from a lesser known rural school). Objectively, that distinction cannot be compared. We've tested students (reading) with the same grade ten results and there can be a discrepancy of as much as four years with the same grading. The grade ten results have little predicability value as far as I'm concerned (College Principal).

Whether these perceptions have a basis in reality is hard to determine, but the issue of the quality of the student intake into college is an important one and needs further elaboration. At the time of this research (1987–88) about half of the college entrants had met the National Education Board's (NEB) minimum entry requirement of four Upper Pass grades on the School Certificate Examination. Table 6.26 illustrates this observation.
Table 6.26
Number and Percentage of Student Intake who met NEB Minimum Entry Criteria.

<table>
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<th>YEAR</th>
<th>INTAKE</th>
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<th>ENTRY %</th>
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<tr>
<td>1984</td>
<td>1049</td>
<td>447</td>
<td>43</td>
</tr>
<tr>
<td>1985</td>
<td>1035</td>
<td>463</td>
<td>45</td>
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<tr>
<td>1986</td>
<td>917</td>
<td>544</td>
<td>59</td>
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<tr>
<td>1987</td>
<td>966</td>
<td>515</td>
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Since 1988, the entry criteria has been lowered to a minimum of eight grade points including Upper Passes (2 points) in both English and Mathematics. 77% of college entrants currently have these qualifications. Not only are the less academic students inclined to be attracted to teachers' colleges, but there seems to be a decline in the popularity of teaching amongst grade ten students in recent years (Moi, 1989). Certainly, this was the perception of a number of lecturers.

We have three types of students. One third are keen intelligent, dedicated and hard working. They want to be good teachers and have the drive to achieve their objective. One third don't particularly want to be teachers, but have applied themselves and are happy enough to be teachers and will make a satisfactory contribution; and then there is the final third who are intelligent enough to pass everything, smart enough to perform at teaching practice, but whose motivation is to collect a pay packet with as little effort as possible (Experienced Principal).

Not all colleges suggested that the ratio of the three different types of students was equal thirds, but most suggested that this description of student intake could well apply in different percentages for the students on their campus.

And at another college:

There are some about whom I can only say that I am so grateful that my children are not in their class (Lecturer).

Elsewhere:

I see (actual number mentioned) students go up at graduation time, there is only one third that seem to me to be really committed to be teachers (very experienced Senior Lecturer).
And, again at another college:

Yes, so many leave here qualified as teachers, but deep down in our hearts we know that they are not qualified and are never likely to become so. They will do more damage than good (experienced Lecturer).

For some disgruntled students, who may have good grade ten results, but not good enough for National High School (Grade 11-12), primary teaching may be seen as an easy option, regular holidays, good pay, and "easy work". Moreover, the rationale could well be: "if I can't get into anything else, at least I can teach", with the result as one lecturer commented, "We're getting the dregs", since teaching for these students has been the last resort.

As a result, lecturers say they employed a number of strategies which they believed to be inappropriate for a "tertiary" institution, but were necessary, given the type of student that is attracted to teaching. (This will be pursued in detail when the issue of tertiary teaching is discussed). The following quotation exemplifies a lecturer's frustrating dilemma.

Our attitude is that for anybody who comes here, it is our job to push, prod, poke, encourage or bully until they pass the academic and come out the other end as a qualified teacher, but deep in our own hearts some of us know that some who qualify are not good teaching material (English Lecturer).

Indeed, there is pressure on lecturers not to fail poor students. Those who do not do well have to resubmit assignments, or do extra work so that they do pass. It is the belief of this researcher that such a "modus operandi" is not motivated entirely by pastoral or academic concerns. Students who do fail subjects, may have their scholarships terminated and be required to leave the college. This means a loss of income to the running cost of colleges. Most colleges are "mission" colleges and have limited resources, so there is a realistic pressure on principals to maintain as far as possible their quota of students. Government funding is determined by the number of students attending a college.
High School Model Operating In Teachers' Colleges

A consistent theme referred to by many college staff members was that the colleges were not tertiary institutions, but a type of high school. Evidence for such a perception was based on familiar high school structures operating within the colleges, the perceived lack of initiative among students, the structured atmosphere compared with what staff had experienced in tertiary institutions within PNG and overseas; and the perceived lack of intellectual content in so many courses.

The application of such a model does appear to be generally uniform across all colleges, though some colleges are more vigilant concerning student behaviour than others, while there are wide variances of the colleges' interpretation of "in loco parentis" responsibilities to students. Given this, the general interpretation is that staff and colleges do too much for the students. In many colleges the complete day and parts of the weekend are organised for the students. Some organised "free time" is also programmed. One college which had previously programmed free study time, reverted back to a more structured approach since the students did not know how to use it. "We had to find something for them to do". The rationale goes something like this:

Students need to be more independent, and show more initiative for study. But they don't so we need to organise them. But they need to be more independent...

Student Attitude To Study

Many lecturers freely admitted that a transmission mode of teaching or "spoonfeeding" was the norm for instruction. Spoonfeeding is loosely defined as the process, that the teacher teaches content, mostly by telling and that content is expected to be generally reproduced through assessment. This "spoonfeeding" mode was necessary because of the perceived lack of student ability and application, and the quantity of work to be covered in a limited time span.

Many lecturers commented that too many students showed little initiative, and generally did the barest minimum in study assignments. Libraries were not used to their potential, and many students in some colleges spent most of their free time
"spinning" (walking aimlessly around a town). Students tended to follow given procedures but they lacked creativity and initiative.

Their teaching performance is OK. Our students are good technicians, though few are motivated as self-learners. They do things, assignments, charts, lesson plans, but their thinking is superficial. They don't seem to really think (Lecturer in Education).

This being the case, it is not surprising that the quality of the graduate is an issue of concern.

The students can teach lessons, often in a stepwise fashion, but on closer observation and on follow-up questioning, he or she does not understand what is going on (Senior Lecturer in Education).

This perception has been confirmed through the more structured lesson observations conducted by Avalos (1989:104). "... student teachers show evident weakness in their understanding of the content of subjects". However one lecturer believed that poor academic ability of students was not the reason for this stereotyped, "recipe" teaching.

Do you blame them? Would you spend your weekend colouring in a chart or writing up in great detail a spelling lesson? The life of a student is the doing of a countless number of relatively small and often boring tasks, that for most of the time require minimum brain power...Teachers' Colleges are not intellectually stimulating. We say that the students are not smart enough, but my guess is, that there is an awful large dose of self fulfilling prophecy here (lecturer).

This again became a recurrent theme. In general, there were many tasks, that were seen to be trivial by lecturers. Some lecturers volunteered that they found some of their work boring, and imagined their students did too, but it had to be done.

Ministry personnel were defensive about this comment and asserted that it was up to the staff in the colleges to address this situation, if it indeed occurred.

They're the ones at the chalkface, who can do other things, if they want their lectures to be more stimulating, to add additional punch to the task. Tasks should not be given for tasks' sake but related to assessment or learning or enrichment (Division Officer).
Yet, there appeared to be a number of curriculum constraints authorised and insisted upon by the Ministry, which may contribute to the promotion of a very structured teaching process. Avalos suggested that the "training theory" implicit in the colleges' programs, as well as the structural constraints of the education system and the college curriculum were factors that promoted a focus on style to the detriment of substance.

Although students try to carry out a well structured lesson, a concern for the parts dilutes the concern for the substance of the lesson and so little teaching of new knowledge occurs, and there is little or no concern for what or how the pupils are learning (Avalos, 1989:102).

Consequently, it is important to explore the curriculum issues in Teachers' Colleges. The point being, that even though colleges might be staffed by dedicated and creative lecturers, there appear to be official structures that may impede lecturers' teaching for meaning as the next section explores.

(iii) THE CURRICULUM OPERATING IN TEACHERS' COLLEGES

Initially, the single most homogeneous curriculum issue that lecturers were vocal about was the Basic Skills program.

*Basic Skills Program and Examination*

As has been described in Chapter Three, the English competency among PNG students and teachers is not strong. A direct way of addressing this problem is to develop competency in the English language of future teachers. Such a perspective was adopted by the Principals of the eight preservice teachers' colleges at their annual conference in 1979. Concern was expressed, that despite adhering to careful selection procedures, student teachers accepted into colleges had unsatisfactory competencies both in English and Mathematics. Indeed they were so low that the "task of training them to be capable teachers for Community Schools appeared an almost impossible one" (Wingfield, 1987:3). Consequently, they proposed to develop minimum performance standards in these two subjects by testing students on entry in order to assess their achievement of minimum standards. For those below standard, a
one semester intensive basic skills course including mainly remedial work was proposed. At the end of this program students would be required to sit for an examination. For those who failed to achieve minimum performance standards, their government scholarship and training would be terminated. In order to maintain comparable standards for all eight colleges, the examinations were to be administered by the staff of the Division of Teacher Education.

This was the rationale for the national Basic Skills Program. What has developed and which will be described was not congruent with the vision articulated by the Principals. Indeed, the Basic Skills course and its examination has promoted an unparalleled degree of animosity, conflict and resistance between the teachers' colleges and the Ministry of Education's, Division of Teacher Education.

Conceptual Basis of the Basic Skills Program

All staff interviewed voiced an opinion for the need for a basic skills program. When the concept was originally mooted in 1979, I was strongly supportive of the notion...I thought we were going about it the right way, by identifying what was considered common errors and then designing a set of objectives to remedy these difficulties (experienced senior English lecturer).

However, a large majority of experienced lecturers and administrators have very strong doubts about the validity of the conceptual basis for the Basic Skills Program. Repeatedly, it was voiced that the emphasis on skills to the neglect of the language context was to ignore current theory in language development (Bell, 1981; Lynch, 1980; Stern, 1983). Most of those involved over the years in the Basic Skills program expressed doubt about the value of the program's efficiency. This was also noted by Yeoman (1988).

A number of English lecturers expressed the view that for a Basic Skills Program to be effective, it must be based in a meaningful language context, and not on isolated skills' exercises; that it should be integrated, incorporating a PNG literature/language component and that it should be extended to twelve months or more. It was a very common view, though not unanimous, that the students did not achieve the overall
objective of the program, despite what test results indicated. When asked what
benefits the students derived from the program, an experienced Principal responded:

"Absolutely nothing. I have seen all the work involved in this. The hours of
coaching and student cramming, the neglect of the other subjects... sure they
pass, but I read their assignments afterwards. There is no difference. All this
energy for a miseducation (Principal).

Most lecturers involved in the English Basic Skills expressed similar or more
guarded opinions, though a few suggested that improvement had been noted, though
not as much as would have been hoped for, given the energy expended on it.

From another perspective, officers from the Division suggest that it is an over
expectation to hope that students:

Could sit down and write a very nice piece of composition in English
language. We're saying that they should .... write ten simple sentences that
make sense. And that from there, there should be reinforcement, throughout
the rest of the college .... to ensure retention (sic) (Division Officer).

The research literature (e.g. Stern, 1983:497–521) suggests that this retort is
simplistic. The ability to use language (including writing) occurs in a context of an
array of variables (Stern, 1983:500). Lynch (1980) in his explanation of the
difficulties that young students have in learning in English at UPNG noted, that any
effort to improve students' facility in English is superficial, if it concentrates on the
conventions of language (e.g. skills), while neglecting the conceptual basis of that
language. An analogy might assist in clarification. A child may have numerous
sores all over its body. One way to treat the child is to apply an antibiotic cream to
the affected areas. (Remediation of diagnosed weaknesses). Some short term
improvement may occur. However, if the child is suffering from malnutrition which
is the real cause of the sores, medication will not solve the problem.

Another point made by a Division representative for consideration was that some
lecturers were possibly against the Basic Skills examinations, because they might
interpret that failed students represented a slur on their own teaching ability. This
comment prompted an objection from a Principal of a teachers' college. This
observation implied that the Division had little faith in the professionalism of its officers, an implication he rejected.

Some Negative Effects Of The Basic Skills Program
College personnel have identified a number of perceived negative influences on students as a result of the program.

* Disruption of College Life
Many complained that the entire college program for the first six months had been disrupted. Students were inclined to be less diligent with other subjects, knowing that a failure in Maths or English would result in termination. An emotive response was:

... instead of being an aid to assist student development, we have had a monster forced upon us, that totally disrupts the whole process of Teacher Education (Senior lecturer in Education).

The sentiments in this opinion were commonly held by the staff. Officers from the Division did not share this perception that the Basic Skills program must by necessity, interrupt or disrupt college life. Lecturers, they argued should only have to spend the allocated time (100 hours in English; 60 hours in Maths) doing the course, not more. However, such a response seems to ignore the reality of the pressure that the examinations made on staff and students. These sentiments have been reported elsewhere (Matane, 1986; Wingfield, 1987; Yeoman, 1988).

It was stated by a Division Administrator that the program had existed for some time and the only difference now was that external examinations were used to gauge the students' standards of attainment. Indeed, this is the very point of contention. The majority of college personnel do not believe that the examinations do this, while Division's officers do.

Somewhere along the line the standard has to be set. That's what the department has done (Division Officer).

College staff concur with the first statement, but strongly disagreed that what the department has done in defining standards in a skills based context free examination,
is the means to achieve that standard. Data from Yeoman (1988) suggested that the
definition of "standards" in terms of articulated objectives lacked clarity and that the
instruments to monitor standards were so poorly constructed as to be both invalid and
unreliable.

Consequently it has become clear that the purpose of the program and examination
has changed. From the minutes of the Principals' Conferences of 1979 and 1980, the
Basic Skills Course was essentially conceptualised as a remedial one, however it is
now primarily used as an accountability mechanism.

In a reasoned essay on accountability and curriculum evaluation, Lawton (1983)
among many other things, emphasised that evaluation is concerned with much more
than measuring performance and should primarily focus on improving performance
by the evaluation of the teaching/learning context. Stenhouse (1975:83) described the
issue this way. "We do not teach people to jump higher by setting the bar higher,
but by enabling them to criticise their present performance. It is process criteria
which help the teacher to better his teaching". This is precisely the issue of
contention, for it seems in practice, that the Division equates measurability with
accountability and that the competency of lecturers is judged on their ability to
produce results in students.

Gipps (1988) examined the debate over standards and testing in Britain and noted
that there is evidence that teachers, who want to get high marks are teaching to the
test with the accompanying narrowing of curriculum content and teaching strategies.
They moulded their curriculum to fit what the tests test, and at times they actively
promoted a process and product of doubtful educational value, indeed "the opposite
of those we desire". This is what seems to be occurring in the teachers' colleges of
Papua New Guinea, particularly in the promotion of rote teaching and rote learning.

* Coaching
Three colleges have had staff officially doing extra coaching to small groups in
non-lecture times, in order for their students to pass the examination. Staff freely
admitted that the coaching aimed at students passing the tests and this aim became paramount. At times the primary objective of competency tended to fade into the background.

Let's face it. The kids need to pass that exam or they are history (English Lecturer).

* Rote-Learning

Akin to this, is the very common opinion that rote learning is occurring. Staff admitted that reliance on short term memory played a big part in passing the examination. Despite official reproaches that such is an indictment on lecturers' professionalism / competency, (Memorandum EC 6-4-2: 21 September, 1987) contextual circumstances demand such processes, if students were to pass the examination (cf. Marton, Hounsell and Entwistle, 1984:144-164).

We're not educating. We're drilling and the students are cramming. The whole thing of skills, one after the other, is not how language competency is taught. The real education starts when these tests are over (Education Lecturer).

Test Validity

Much comment was made concerning perceptions of validity and reliability. Many lecturers expressed doubt about test validity: does the test actually measure basic skills attainment and the extent of transfer of those skills after the examinations?

I have taught Basic Skills since its inception. It is my opinion that we have achieved almost nothing in terms of remedying student deficiencies in their language usage ... We've achieved almost nothing ... with the exception of possible question forms (Senior Lecturer).

A Principal in commenting on the issue of test validity noted, that he/she as well as staff members could see little evidence of improved written ability in other subject areas. Moreover, two Principals revealed evidence showing that there was little correlation between a pass in English Basic Skills and credit and distinction ratings in the grade ten examination. A senior English lecturer suggested this interpretation of why some bright students might fail.
At the moment I think some students are de-educated because they come into a college and do things that they are supposed to have done in grade 6. That is a demoralising kind of experience. In my judgement, some students fail because they don't see any point in doing such trivial stuff. They don't want to do what they are being offered. It is very, very boring. Staff are not available to teach separate courses (Senior English Lecturer).

Such descriptive data have been confirmed by quantitative evidence. Yeoman (1988:27-44) has thoroughly analysed the examinations and showed that they displayed a complete absence of principles relating to test construction. They lacked validity. Such objective measures are also perceived by people in the field through the effect the tests have on attitudes to learning in general and English language specifically.

**Test Reliability**

Reliability is an indication of the consistency of a measurement; that there is no dramatic change in measurement over time. One lecturer recalled an experiment he did in 1986. He collected items from the English Basic Skills Examination and gave them to his class in October in 1986. He repeated the same process with the same class in 1987. Twenty four of the twenty eight scored less than the 80% pass mark. He expressed his disillusionment with the whole process:

> We've terminated competent, dedicated keen kids because they failed by 2 or 3 marks and we have kept on some who can hardly write a sentence (Senior English Lecturer).

Statistical data (Ross 1989:22) have confirmed that there is a lack of retention of the basic skills (Table 6.27). A sample of beginning teachers was asked to sit for the same version of the Basic Skills test that they had taken in college as the National Examination. The results are recorded below.

<table>
<thead>
<tr>
<th>Basic Skills Retest</th>
<th>English</th>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985 Graduates (n=38)</td>
<td>+3.5%</td>
<td>- 22.7%</td>
</tr>
<tr>
<td>1986 Graduates (n=32)</td>
<td>+4.12%</td>
<td>- 27.2%</td>
</tr>
</tbody>
</table>
Slight changes in English performance are not significant, although one would expect a more marked improvement in skills which are supposed to be basic, and are presumably practised daily in the classroom. The decline in mathematics is significant and more serious.

Yeoman (1988:44) reported that reading passages in the 1987 examination had never been trialed for readability! Lecturers using the Fry Index of Readability compared pre and post text passages and found a nine grade difference.

Lecturers from other colleges expressed similar concerns. They criticised items on the examination and what they perceived to be a rigid interpretation of what is considered correct in their marking. This same observation was identified by Ross (1989:22).

The extremely pedantic marking criteria (author emphasis) in the mathematics examination means that a student can be penalised more than once in an examination for a simple mistake such as careless use of symbols (eg mins instead of min.) Despite correctly computing the answer to problems, students were awarded few marks if there was even a slight mistake in the symbol.

There was considerable concern expressed about the perceived artificiality of examinations to assess English competency.

It does not reflect the normal speech that people use. I look at the paper and I ask: How would the ordinary lecturer answer it? There is so much emphasis on parts to the detriment of real communication. Basic Skills is not an educational programme. It is a guillotine (English Lecturer).

This was further explored and lecturers and administrators were able to document cases when in their opinion, competent students had their scholarships withdrawn, because they scored between 79.0 and 79.9, while others who were less able (in their opinion) scored above 80%. A standard error of measurement had never been applied. Certainly there was a general belief, that an injustice had been done to some terminated students. Similar documentation is recorded by Yeoman (1988:44).
Division personnel believed it was "curious" that college staff articulated to this researcher so much negative opinion about the Basic Skills, but failed to do so at Basic Skills workshops. Indeed it was asserted that lecturers were enthusiastic participants in the design of examinations at workshops.

The Division has received considerable feedback about the doubtful educational value of the examination. One college (St Benedict's) had its entire staff sign a letter (4 September, 1987) to the Division expressing "no confidence" in the process. Yeoman (1988:13) has commented:

> The perceived undesirable effect of the exam on the quality and nature of the course was the most fundamental area of concern and was expressed frequently in a variety of contexts, in interviews, questionnaires and in unsolicited responses from colleges, held on National Department files.

It should also be noted that many of the criticisms made to the researcher were also recorded in Wingfeld (1987), Matane (1986), Yeoman (1988), and McNamara (1989).

The reasons why lecturers participated enthusiastically in workshops can only be speculative. But a reasoned hypothesis is this. The workshops are organised or conducted or monitored by Division personnel whose responsibility is not only curriculum but inspection of staff. It could be that if staff perceived that if they pursued their opposition openly, any ill feelings so generated with Division Officers might influence inspection reports, which determine eligibility for promotion. The fact is that there is widespread opposition to the Basic Skills course and its examinations. The Principals at their 1988 and 1989 Combined Conferences unanimously voted for its abolition.

Criticism of the Division was unwarranted, it was argued by a Division Officer:

> Much of what goes into Basic Skills is presented to us by the College lecturers. One assumes that this reflects their perceptions of what the students are capable of. It is interesting, that quite often you might get within a college somebody writing in after the exam and say that perhaps some item was too difficult. Indeed it would be that very same college that submitted
that piece of work that was accepted for the exam. Even items submitted by an individual, will be criticised by that same individual. I wonder how carefully lecturers look at material they send to us for consideration? (Division officer.)

Such a comment is an example of what Yeoman (1988) has identified as a lack of rigour to the principles of test construction. Few lecturers, if any, are qualified in measurement and test construction. This has been formally acknowledged in an AIDAB report for staff development for lecturers (AIDAB, 1989). It is ironic that assistance is sought from the non-qualified and then complaint is made about the quality of that assistance. It seems that much of the workshop activity in examination construction was pooled ignorance, with the result:

The examinations themselves are not constructed according to the principles and standards necessary and are not adequate instruments for determining whether a student can 'successfully cope with the rest of the course' or whether a teacher can carry out his/her duties in a satisfactory manner? (Yeoman, 1988:74).

There is a general and strong belief among lecturers involved in Basic Skills and all college administrators that this program is not achieving its goal. Students are not acquiring an increased understanding of the basic skills in English or Mathematics and "standards" are neither being identified nor monitored. "It appears that the exam 'tail' is wagging the course 'dog'" (Yeoman, 1988:74).

From an educational perspective it is asserted, that the friction between the various parties has its genesis in the perceived way the program was conceptualised (a remedial program) and the way it has now developed (an accountability mechanism). The present structures lack any educational theoretical basis. Its implicit rationale basis is challenged by most. Since it has not been articulated, personalities have clashed rather than ideas.

The Political Dimension of Curriculum

If this program has generated so much reasoned and widespread opposition from an educational perspective, why have there not been any major changes?
The answer to this question may be found within a broader context. Except for Madang Teachers' College, the seven other colleges are conducted by the various Christian mission agencies. They have considerable independence in the conducting of their colleges. This independence may be what the Division of Teacher Education would prefer to truncate. This hypothesis was offered in a written submission to a national task force exploring future directions of community school teacher education in Papua New Guinea (McNamara, 1989). In its final report the following is quoted as part of a rationale for the need of an autonomous Institute of Teacher Education.

McLaughlin (Submission 17) states that 'to put it simplistically, it is an issue of power. The colleges cherish their church agency independence and the Division would like to have its control over them'. He goes on to argue that the 'value of diversity can be utilised through consultation, participative decision making, and dialogue. Accountability and comparability with regard to standards are obligatory, but there are more professionally mature, creative and challenging procedures than the introduction of a National Examination' (McNamara, 1989: 54).

The opinion in this submission was formed because it became very evident that the Division of Teacher Education was prepared only to negotiate a change in the Basic Skills Examination, if a series of National Examinations were to replace it. In a Report of the Task Force on the Philosophy of Education: Ministerial Committee Report (Markis, 1987), three times it is stated that a National Examination in Teachers' Colleges would be a solution to identified problems. Each time the stated problem included reference to the independence of the Teachers' Colleges as a source of the problem (cf p. 10; Recommendations 5; and 21). An example is appropriate. It is stated that:

There is a commonly held, although not unanimous view within the Department, that the present independence of CS (Community School) Teachers' Colleges has led to a lack of uniformity in the quality and style of teacher training, particularly in respect to implementation of curriculum materials (Markis, 1987:10).

Yet the research evidence strongly contradicts this opinion. Avalos' (1989) study of second year students from all colleges reported that there was a remarkable similarity in the teaching styles of all students irrespective of the college in which they trained. Students demonstrated a standardised pattern of teaching independent of pupils'
learning needs. There was a reliance on structure rather than on meaningful communication.

Again, it is ironic that in another recent research (Ross, 1989) the beginning teachers placed "in Church agency schools had significantly better performance on TPI (Teaching Performance Indicator) than those in government agency schools.... This was the most significant effect in the multiple regression equation" (Ross, 1989:18). The overwhelming majority of beginning teachers in Church Agency schools came from Church Agency teachers' colleges (Ross, 1988:62). The assertion that the independence of teachers' colleges is a hindrance to the maintenance and improvement of education standards seems unable to be sustained by the evidence.

The Task Force Report on the Future of Community School Teacher Education (McNamara, 1989) carefully examined the issues pertaining to the Basic Skills. It "strongly recommended that the administration of the National Basic Skills Examination be discontinued from 1990 onwards" (p.49). It rejected the notion that uniformity was the direction to promote quality teacher education, but opted for a National Institute of Teacher Education, which would decentralise decision making in order:

To enhance the maturation of the tertiary teachers' colleges and the exercise of professional direction by their principals and staff. This implies a shift in style to processes of negotiation, and not an extension of the bureaucratic model of authority presently governing the colleges (McNamara, 1988:7).

The Task Force lists recommendations for the collaborative development of staff, of curriculum, its moderation and the monitoring of standards. Possibly only then may tension about power be dissipated and energies released towards a more participative effort to enhance quality in teacher education in Papua New Guinea.

A caveat is acknowledged. The Task Force Report is as yet a series of recommendations. They have not been adopted. The Secretary of Education appears to have been advised to ignore the research data, and Matane's (1986), Yeoman's
(1988), Ross's (1989), Combined Principals' Conferences (1988 & 1989) and McNamara's (1989) recommendation for the Basic Skills Examination abolition and has directed that it continue in 1990 (Secretary's Circular EC6-4-2/EC6-4-8)

This discussion on the Basic Skills is of value because it highlights the very structured environment of the teachers' colleges and the centralised administration they endure. It is hypothesised that no matter how enriched and educated lecturers may be as a result their university training, there are so many conservative structures operating in the colleges, as to stifle initiative and frustrate enthusiasm. This is especially manifested through the inspectorial processes.

INSPECTIONS

Primary teacher education in PNG is under the direct control of the Ministry of Education's Division of Teacher Education. There are no formal links with the University and the certificates issued by the colleges attract no tertiary accreditation by UPNG. The administration of teachers' colleges parallels in many aspects the administration structures of primary and secondary schools. One anomalous structure for "tertiary" teachers' colleges is the inspectorial system. If teachers' colleges are to evolve toward truly tertiary status then this structure needs to disappear.

Interviews with staff centred on the perceived conflicting roles an inspector had to play; that of an assessor, whose report determines eligibility for promotion and that of an evaluator attempting to promote staff development. When this was discussed with Division Officials, one representative believed that there was no such conflict.

Any staff development we conduct, for example, our national objectives and the tests themselves are done in workshops. In a workshop there always appears to be plenty of interaction. The tests are a result of people in workshops working out what the tests will comprise. There are a lot of arguments. People openly voice their opinions. This is encouraged. (Division Officer)

There is evidence to the contrary. Those staff members of St Benedict's Teachers' College who signed a 'common letter of "no confidence"' (St Benedict's, 4th September, 1987) in the Basic Skills examinations were each sent letters signed by
the Secretary of Education, reminding them of their loyalty to the Division. Three principals had been accused of being disloyal because they "openly voiced their opinion" (Simpson, Correspondence to Secretary, 21 August, 1989). Moreover, one Principal who acted as executive officer to an Academic Advisory Committee was sent a letter (Secretary of Education: 8th August, 1989; reference E S 2–7–5) under the signature of the Secretary of Education which reminded him of his loyalty to the Ministry. This situation is not new. In an evaluative report on teacher education in PNG, Farell (1985:28) made among many the following recommendations.

I recommend that all members of the teacher education community review their communication style, to see if it might contribute more consistently to positive and productive working relationships... In the meetings of professional educators, there must be room for dissent...

I recommend that all those engaged in teacher education recognise that many of the issues are debatable, that not all the questions can be simply answered, that second opinions are often worth hearing.

There were also anecdotal recollections and inspection reports that indicated that the inspection processes focused on administrative structures. Lecturers with many years experience have been reminded to stick to the lecture steps in their course outlines. One Principal with a doctorate and over twenty years experience in tertiary education related his experience of being complimented on his lecture but was mildly castigated for not having his lecture notes. The narrowness of the inspection system along with the narrow curriculum operating in the colleges appear to contribute to a formalistic style of teaching, which is so prevalent in the colleges and which will be elaborated upon later.

NATIONAL OBJECTIVES

The National Objectives for Teachers' Colleges are the curriculum outline for all the Teachers' Colleges in Papua New Guinea. They number approximately 1,134 objectives, generally expressed in behavioral terms.

It appears that they have their genesis in a Master's dissertation (Leach, 1972), that the then Principal of St Benedict's Teachers' College (St Benedict's) undertook at James Cook University, Townsville Australia in 1971. Br Graham Leach was interviewed
and was the source of much of this background knowledge. He had been concerned about the curriculum being used in teachers' colleges in the 70's. Essentially what was the curriculum were course outlines of two or three pages, making summary topic statements. He believed these to be quite inadequate and so studied curriculum development at university. He commented that he was particularly influenced by the works of James Popham (1972) of "stamp out non-behavioral objectives" fame.

Leach's dissertation incorporated an education curriculum for PNG teachers' colleges essentially based on the Tylerian model: "(the) author readily acknowledges the existence of design elements in it, drawn from the models of curriculum masters, Tyler (1949) and Johnson (1967)" (Leach, 1972:1). He implemented his curriculum on his return to PNG. In the following years, he initiated staff development in order to develop a similar curriculum structure for other subjects in his college. This was a major innovation, because up until that time, curriculum development was generally haphazard and lacked any explicit theoretical basis. Moreover, the use of the rational model with its behavioral objectives appeared most appropriate to the situation at the time, when many student teachers were accepted with grade 9 standard, which indicated that the level of education was very basic. Moreover, the majority of staff in the church agency teachers' colleges were missionary personnel or volunteers with initial primary teacher training certification. Some held university qualifications. Few lecturing positions were localised as Table 6.28 indicates.

Table 6.28
Localisation Rate of Lecturers.

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>7</td>
</tr>
<tr>
<td>1975</td>
<td>16</td>
</tr>
<tr>
<td>1984</td>
<td>44</td>
</tr>
</tbody>
</table>

Source: Department of Education (1985:21)

Br Leach believed that colleges had the obligation to provide structures for eventual localisation, and it was an obligation on expatriate lecturers to provide a curriculum, which new national lecturers could implement. Given the 1970's, when Tyler, Bloom
and Popham had significant influence in curriculum development (Stenhouse, 1975:52-69) and given the contextual realities of PNG teachers' colleges, Br Leach's curriculum was a quality innovation that met a timely need in teacher education. Print explains why the Tyler model would be appropriate for PNG in the 1970's and early 1980's.

By providing a recipe-type approach, those models (rational) have simplified what is a confusing, daunting task to many prospective curriculum developers. Given the pressures that teachers and curriculum developers work under, a rational model provides a straight forward, time efficient approach to meeting the curriculum task (Print, 1987:25).

Though the colleges had some co-ordination by the Division of Teacher Education, each college in the 1970s, in reality developed its own curriculum and had little contact with other colleges (Arp, 1977). The initiative of Br Leach and his staff in developing such an organised and professional curriculum was appreciated by other Principals and the Division. The individual colleges expressed a need for the sharing of expertise and increased communication, while specifically wanting to develop a two year curriculum which would provide a structure for comparability, while identifying minimum standards of attainment for students (Department of Education, 1977).

With financial assistance from the Australian Government, twenty workshops facilitated by the Division were conducted between 1977 and 1980. These workshops had representatives from each of the teachers' colleges. In 1978, the workshops produced the first national course objectives which are considered "essential for consistent development of training courses across all colleges" (Department of Education, 1985:60).

It is appropriate to examine the national objectives in the context of the 1990's. Interview data from staff acknowledged the usefulness of the National Objectives. On initial questioning, few respondents wanted to change much (with the exception of the Basic Skills Program). Much effort had been expended into the development of Course Outlines based on National Objectives, and there was little motivation to change too quickly.
"They're a great help when you are starting for the first time" (New Lecturer).

There were exceptions to this. Recently transferred experienced staff, who had not contributed to the Course Outlines of their new college found some outlines difficult to follow and proceeded to make their own, sometimes unofficially.

Both experienced and new lecturers found the Course Outlines from other colleges helpful which assisted them in the generation of their own. A number of lecturers felt that there was too much emphasis on assessment, so much so, that students would not do things, if marks were not allocated to them.

**Composition And Use Of Course Outlines**

The following instruction from the Assistant Secretary, Teacher Education is printed on the first page of all National Objectives subject books.

"The format for course outlines to the college Academic Advisory Committee must include the following:

<table>
<thead>
<tr>
<th>Time</th>
<th>Objective</th>
<th>Content</th>
<th>Teaching Methods of Strategies</th>
<th>Assessment</th>
<th>Reference</th>
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</table>

(Ilagi, E C 1–7–1, March, 1986)

The structure is identical with the components of Tyler's rational model of curriculum process (Print, 1987:22). A cartoon, ironically in an official government publication (Department of Education, 1985:63) illustrating the teacher education process in PNG (figure 6.7) typifies the agriculture – botany paradigm of curriculum evaluation, which Lawton labelled the "classical" model (Lawton, 1983:100). It complements the "classical" (Tyler) model of curriculum development (Stenhouse, 1975:99–100). This official strategy was followed quite closely by the majority of inexperienced lecturers either by choice or by mandate, as one lecturer lamented:

This program is very limiting. I teach what I am shown. The senior lecturer is very strict (New Lecturer).
Some experienced, generally expatriate lecturers, depending on the subject, said that they operated in a reverse manner. They planned their course, mainly concentrating on content matter first, having their own (often unwritten) objectives as a basis for its selection and then developed teaching strategies for each individual lecture and finally "roughly" matched the program with the National Objectives. This process was labelled by one Principal as "trivial" pursuits. The point being made was that the demands of the objectives did not overly influence lecturers in their course construction.

These data are consistent with research which indicated that student teachers followed the (Tyler) model when they were required to do so, while the experienced teachers "reported that they did not use the model at all because they believed that it took much time, was unnecessary, or was implicitly rather than explicitly in their informal planning" (Clark and Peterson, 1986:265).
On further questioning concerning this issue, it appeared that the more experienced lecturers had a more holistic approach to their own learning and teaching, demonstrated a broader understanding and deeper knowledge of their teaching subject, and had a more realistic appreciation of their students. It was these lecturers too, who were more liberal in their use and interpretation of Course Outlines i.e. what was actually in the Course Outlines was not necessarily mirrored in the lecture. Most of these lecturers did prepare a specific lecture plan, albeit short, for lectures. Their confidence in themselves as educators, also promoted an independence that was not always sanctioned by authorities.

I am not going to get involved in fights or paper warfare. I am flexible and I encourage my associate to be likewise. We teach more or less what is in the course outline... I think! But we change where it is appropriate, you know students' interest, or if its more relevant. Now I'm not going to the Academic Advisory Committee to get an OK. I do what I think is educational and don't publicise it. That way, I'm happy and the boss (principal) is happy (Senior Lecturer).

A disturbing trend that manifested itself was that many lecturers, did not in general prepare individual lecture plans. One possible explanation for this phenomenon is this. A number of Course Outlines are written in such a way that every lecture has its own annotated section in the Course Outline. What is in the Course Outline, is considered sufficient as a plan, and in fact is substituted for individual lecture preparation. This is a questionable assumption. It also may be a partial explanation for the concerns in teaching quality that will be discussed later. There is evidence to suggest that community school teachers do not prepare individual lessons and rely on the details in the daily-yearly program as sole preparation (Otto, 1989; Pearse, 1990). The majority of lecturers are former community school teachers, and there maybe some relationship between the practices of teachers and the practices of the teacher educators.

In assessing the curriculum taught in community teachers' colleges, McNamara (1989) argued that the narrow emphasis on achieving of a behavioral objective promoted a formalistic style of teaching.
... because curriculum are based on the achievement of a large number of behavioral objectives, there is a concentration on content at the expense of process, with the result that students tend to have a very formal perception of teaching (McNamara, 1989:32).

The ironical point of the above contention is that there appears to be very little "content knowledge" in the teachers' colleges curriculum, and what little there is, with the exception of Education Studies, Health and Christian Education has a level of difficulty probably not exceeding grade 6. The reason for this is documented.

Over the last five years, the more realistic colleges have got back to teaching primary school methods and have not tried to continue with secondary content (Penias and Quatermaine, 1981:11)

Though such a practice may have been quite appropriate in the 1970s and early 1980s, it is questionable now as the research indicates "... student teachers show evident weakness in their understanding of the content of subjects" (Avalos, 1989:104; see also McNamara, 1989:32; Pearse, 1990; Otto, 1989; Ross, 1989:67). Students do not have sufficient background knowledge to teach with understanding. This problem was identified by lecturers

Teaching methods generally used here are chalk and talk or simulated lessons - in a word spoonfeeding. Students are being trained not educated. We are happy if they can perform satisfactorily in a classroom, but we fail to use a methodology that might allow them to see beyond this. I'd be surprised if the majority would ever read book in their spare time (Education Lecturer)

Much of the content of the curriculum in the teachers' colleges is the methodology of teaching subjects, which focuses primarily on a "doing" assuming that an "understanding" will occur through participation.

Methods-like activities, pupil centred lessons, learning by doing and discovery are not only taught as school room approaches, but encouraged as principles in the colleges also (Penias and Quatermaine, 1981).

This is certainly context learning, though what might be more appropriate is "principles of teaching" learning (cf Avalos, 1985) so that general teaching methods may be seen as transferable across subject boundaries.
So much time is spent on reinventing the wheel in each course. Everybody
seems to feel that it is a totally different way to teach community life or
expressive arts or science. If the teaching skills part were handed to the
education department and the other departments would then be freer to
concentrate on the curriculum background then, maybe we'd start to break from
the technician model of teaching students, teaching exactly what they need to
teach, rather than broadening their perspectives (Deputy Principal).

This concentration on technical rationality (Schon, 1983:21) has assisted in the
development of a characteristic teaching style, that has muted attention to pupil
learning.

There were obvious weaknesses in subject content and it was noted that the
student teachers were constrained by the way the curriculum is structured ... student teaching tended to focus on the individual parts rather than the substance
of the lesson as students attempted to complete the prescribed teaching content ...
rather than focus on the learning needs of the children (McNamara, 1989:32).

It is suggested that many lecturers have interpreted or have interpreted for them, the
National Objectives in Teachers' Colleges in such a way as to promote a rigidity of
teaching, that has been observed by the recent research. Lawton (1983:23) believes
there is considerable evidence to link the behavioral objectives model to an
"extremely narrow concept of education concerned with job training and conformity
rather than improving the quality of human life. This is illustrated in an observation
made by Avalos. She noted that throughout PNG, student teachers, irrespective of
the college in which they were trained, exhibited a similar teaching style, complying
to patterns learnt at the colleges. In only one case in her research was there evidence
of a student attempting an innovative approach, which suggested that the student was
exhibiting a genuine concern to get pupils to understand the lesson. The irony of
this situation was in the comments recorded by the lecturer observer. Avalos suggests
that those comments may partially explain the lack of initiative among student
teachers.

This student displayed that she truly loves teaching. The lesson she taught
convinced me that she is going to be a hardworking teacher. Considering her
performance she truly displayed:  
- imagination  
- resourcefulness  
- confidence  
- maturity  
- and good classroom leadership.

Sadly, however, one cannot see specific teaching skills applied in the lessons. Could this be because she is a first year student; but it should not be taken as an excuse. The only conclusion I can draw is the skills lack drilling at the college level (Avalos, 1989:80–81).

Avalos argues that such an observation has its basis in the policies operating in the colleges. It has been official Teacher Education policy since 1977 that "technical competence can best be acquired through a careful step by step or component skills approach" (Department of Education, 1989:25). Consequently,

Despite the appearance of a good lesson, this student is judged adversely by someone who knows what colleges are required to do, and would no doubt also be judged in the same way as a beginning teacher by an inspector who looked only for evidence of the accepted form of teaching skills. (Avalos, 1989:81).

Such an observation illustrates that even if lecturers have been exposed to university education and wish to provide alternative perspectives, that their ability to promote change might be muted or indeed smothered by policies and structures operating within the colleges.

These latter observations are not inconsistent with the initial assertion that the National Objectives and the Tyler model may have been an appropriate initiative in the 1970s. But the context of the 1990s is very different from the 70s. Staff are far better educated and desire to innovate. Students likewise, in contrast to the 70s are better educated, and general educational infrastructure is much improved. It is suggested that the curriculum issue for teacher education is one of appropriateness to changing context. The Division of Teacher Education has expended much energy in "improving" and refining the National Objectives. This assumes that the circumstances that originally affirmed their appropriateness remained constant. They have not. This is a difficulty inherent in maintaining a Tyler model.
Thus, many so called curriculum developers define their task as simply improving the efficiency of existing programs rather than seeking to justify them or to revise them by a consideration of basic principles (Lawton, 1983:19).

What is called for now is a new curriculum model that actively involves lecturers in the intelligent analysis of their own situation (cf Lawton, 1983:24–39), a move recommended by McNamara (1989:27) if professionally self reliant teachers are to graduate from the colleges. "The present National Objectives should be re-examined in the light of the longer course, revised structures, and the philosophy of teacher education presented in this report" (McNamara, 1989:103). In terms of Beeby's stage theory, the lecturing staff seem now to be moving toward the Stage of Meaning, while the curriculum they are using is firmly rooted in the Stage of Formalism. The Division of Teacher Education's implicit rationale for its own existence and its monitoring structures appear to have its basis in Beeby's Stage of Formalism and any liberalisation especially toward a National Institute of Teacher Education (NITE) as envisaged by McNamara (1985:54–57) may be seen as quite threatening. This is evidenced by the Division's negative response to the National Education Board (NEB) concerning McNamara's vision of the 'Institute' (NEB Submission, PB 2.1.5 : 31.10.89). An NEB sub committee authorised to investigate the issues involved in the establishment of NITE made the following response to the Division's submission. "The comments attached to the submission seem to dwell on aspects to retain the status quo", (Knight, Dai, Siaguru, 66.22.08 : 24.10.89) and observed that the Task Force had been in fact commissioned by the Department of Education in order to among other things "critically review the findings of the Teacher Education Research Project ... in order to develop a policy for teacher education" and "to critically examine current policies and aims of teacher education in order to identify changes ..." (Secretary's Memorandum : October, 1988).

The need for a change in curriculum, it is suggested has an even more basic rationale. There is a fundamental philosophical dichotomy operating in the curriculum in PNG Teacher Education. PNG's official Philosophy of Education (Matane, 1986) is clearly rooted in a Christian humanistic tradition. The church
agency teachers' colleges espouse such a philosophy, but the curriculum they use and the way they use it, has its basis in the behavioral model (Avalos, 1989:109; McNamara, 1989:32) Lawton maintains that the behaviourist view of human beings and the behavioral objectives model of curriculum "are philosophically and psychologically unsound and anti-humanistic" (Lawton, 1983:23). Avalos noted this same phenomenon and believed it to be a partial explanation for deficiencies in the quality of student teaching.

The training theory implicit in the college's programs ... seem to embody a contradiction between publicly accepted aims for education which are of a holistic nature ... (while there is) a behaviouristic or skills approach to teaching and learning (Avalos, 1989:109-110).

The results of this section of the research, as well as the data from other research (Avalos, 1989; McNamara, 1989; Meyer, 1989) strongly indicate that lecturers in colleges and teachers in schools are following a recipe, formula approach to curriculum design and teaching. While this may have been appropriate and may have been a positive influence in the prior development of increased quality in PNG education, it is inappropriate for the 1990's. McNamara has called for a new type of teacher, one who is committed to the development of the whole child, and is capable of critical thinking. If this is to be achieved, the curriculum operating in teachers' colleges needs to be revolutionised as to reflect the Matane philosophy and the Task Force's vision (McNamara, 1989:103).

The Task Force considers that the current teacher education program ... is not producing graduates who have the professional and social skills needed to diagnose the learning needs of their pupils in the context of the communities and the school facilities they will encounter (McNamara's emphasis) (McNamara, 1989:5).

(iv) THE STYLE OF TEACHING IN THE COLLEGES

Quality of College Teaching

One issue that generated much interest, concern and genuine self-criticism among lecturing staff was the quality of the teaching in the colleges. Lecturers' qualification
have been substantially enhanced (Ross, 1987). There was considerable evidence in all colleges of lecturer dedication and professionalism. Some staff were very innovative but all staff interviewed, commented on their concern about the quality of teaching in colleges. A very common description by staff in all colleges was that staff in general "spoon-fed" students. Lecturers believed that this process was inappropriate but commented that the students' lack of knowledge and skills, their lack of initiative, the quantity of content to be taught, and their own limited time were factors, which forced this process on to them. It was suggested by a Division officer that students preferred teaching in "small parts" and wanted notes and worksheets. This is probably true. There is certainly evidence that they resisted more independent processes.

Some lecturers commented that although the college encouraged more dynamic teaching styles in students, the socialising effect of the classroom overcame any college intervention. It was also noted, that while being encouraged to be more vital, child-centred and interesting, the students saw a very different model in operation by the college staff.

The college often gives them more innovative methods, but the influence of classroom teachers overpowers the college influence. Students imitate and copy the classroom teacher to survive small problems. They lack motivation and probably cannot see beyond the immediate... Yet lecturers give such boring lectures. What we lecturers offer is not an alternative and hence the classroom teacher is seen as more helpful. We lecturers would be failed in motivation, variety and relevance. We teach but I feel that the students see little relevance in it. Our teaching leaves a lot to be desired. Every lecturer should be a good model for student learning (Education Lecturer).

Such a comment should not be interpreted that good teaching does not go on at colleges and that good teachers were rare; on the contrary, only perceptive lecturers are capable of recognising the dissonance between their educational beliefs and prevalent practices in the colleges.

This observation that "spoonfeeding" teaching was a common occurrence throughout the colleges provoked strong disagreement from an inspector from the Division of Teacher Educator, who later documented a list of varied teaching strategies she had
observed in the colleges (Department of Education, 1989:13). These observations are not disputed. It is agreed that good teaching does occur in colleges; but it is also evident that "spoonfeeding" teaching is prevalent in all colleges and is accepted as a necessary evil. Some staff had attempted to change their instructional style but with only limited success, since it was claimed that students were not capable of operating in a more independent mode.

Look at the ability of our students. We can give them independent exercises but a large number are unable to understand; that is why we spoonfeed. I have set independent work and then check up later. I am not happy with the results. We have to spoonfeed to get them through otherwise they won't get through (very experienced Education Lecturer).

Perry (1970) has argued that students would be incapable of such a mode, without prior exposure to structures that would deliberately promote its acquisition.

A Division officer noted that it was expected that college teaching might be enhanced, when recently graduated lecturers became more experienced.

In the past three or four years, in the training of new lecturers, tertiary methods of lecturing have been emphasised, so that new staff have really been trained in using new methods in the classroom (Division Officer).

The research literature suggests that the focusing on instructional technique alone, without considering a variety of important contextual influences, will result in superficial change (cf Hodgson, 1984; Ramsden, 1984). Indeed, it is the content of what is taught that gives rise to the lecturer's choice about what strategies might be appropriate to promote students' understanding of that content. One Division Officer suggested that lecturers own perceptions of lecturing might be a possible explanation for the strategies adopted by them.

Is it because they feel, that if they don't Five the students more assignments etc that when it comes to examinations, many students will not pass and then they seen this as reflecting on them? Is this a lack of confidence in the lecturers themselves? (Division Officer).

This may be the case. If it is, it indicates a misconception between the promotion of student learning and assessment. Such a misconception, it could be argued is fostered, albeit unwittingly by the Division of Teacher Education's official Handbook
for assessment of preservice students in community teachers' colleges (Department of Education, 1986). On close examination of this assessment document, nowhere is the word "learning" printed. "Relearning" is mentioned once, but only in the context of retesting. There is considerable emphasis on assessment and very little on teaching experiences that might promote learning. Learning in practice appears to be equated with assessment results, as has been clearly established in the discussion on basic skills. It is also evidenced by the desire of the Division to introduce terminal national examinations in the colleges (Markis, 1988).

The main reason, it is argued that lecturers seem to indulge in this very structured form of teaching comes from the demands of the very structured National Objectives and their accompanying course outlines that have evolved. It is agreed that students have limited ability and general education, but these difficulties are not being addressed by the curriculum in terms of an understanding the students' underlying problems, only in their manifestations. This is the issue identified by McNamara, in his recommendations for a new direction in curriculum in teacher education.

Such new programs will promote a qualitative shift in teaching behaviour from one which is preoccupied with set procedures and steps to a more wholistic approach which provides a learning environment to promote learning for meaning (McNamara, 1989:6).

Formalistic processes are indirectly fostered by the teacher education inspection system, which given its two inspectors can only monitor the colleges by focussing on set procedures and administrative duties. Some understanding of the pressure that the Division of Teacher Education may have experienced is recorded in the national enquiries into the perceived decline in the standards of education since the country gained independence (Roakeina, 1977; Kenehe, 1981). While acknowledging the difficulties colleges have had to face in preparing teachers, both reports lamented that incompetent teachers were graduating from the colleges.

Given their limited staff, the Division of Teacher Education, it seems to this researcher, has attempted to address the monitoring of standards in the colleges basically through a mechanistic process focussing on the maintenance of course outlines, administrative procedures and national examinations. What Ross (1989:62)
commented upon with regard to community school inspection reports, could well apply to the Division of Teacher Education. They provide little indication of strengths and weaknesses and tended to be highly stereotyped. However it appears that this may be partially addressed.

For future directions, the Rating Conference suggested that more emphasis be placed on the Supervisor (Inspector) as a helper and that the Reports should include information on how well the students are learning from the lecturers concerned. (Department of Education, 1989:11).

Such a move is a step in the right direction, but the concept of having an inspector for tertiary institutions seems incongruous. Moreover, such a change of focus may only be superficial if the inspector and inspected lack an appreciation of the complexities one needs to consider in the teaching/learning process (Hounsell, 1988).

The data to date in PNG indicate that this has been the case (Ross, 1989:62).

Issues as assessment, teaching strategies in the Stenhouse sense (1975:24), recognition of students' learning problem and the connection between assigned tasks and learning probability are all interrelated experiences that incorporate the notion of teaching. Inspection processes tends to minimise an appreciation of these complexities and focus on the more manageable behaviours related to direct instruction and administration. As a result, these tend to be valued by the observed. Moreover, a curriculum based on over a thousand behavioral objectives tends to emphasise outcomes while ignoring these very real yet subtle processes. "... because curriculum is based on the achievement of a large number of behavioral objectives, there is a concentration on content at the expense of process, with the result that students tend to have a very formal perception of teaching" (McNamara, 1989:32).

The above observation is an appropriate description of lecturing staff. The quality of teaching in the colleges will not improve if there is an emphasis on technique devoid of an appreciation of context. Hopefully, BEd T. students are developing holistic views of teaching. However, the demands of course outlines and the inspectorial experiences may promote a dissonance between lecturers' understanding of the processes that promote student learning and the forces that permit eligibility for promotion.
The problems explored in the teacher education community in Papua New Guinea could be explained in terms of personality clashes, differing ideological perspectives, centralism versus devolution as well as 'political' power intrigues. In some ways all these hypothetical explanations have their slice of the truth. However, it is argued that the basis of these problems in contemporary PNG is an inability by the Teacher Education Division to fully recognise that teacher education is ready for dramatic change. In terms of Beeby's Hypothesis of Educational Stages, the curriculum and structures are geared to the stage of Formalism, while many within the colleges are more than ready to initiate change towards stage of Meaning. The present teacher education system was a very necessary and appropriate stage in the development of the education system. It has promoted change and development in the quality of teachers and education in general. Its achievements are many and it has assisted in a major way in the development of a national education system that would be envied by other developing countries.

However with increased general education and professional training of both lecturers (Ross, 1987) and teachers (Ross, 1988), the old structures are now impeding the growth of quality in education. This formalistic approach is no longer appropriate. If further teacher education development is to occur, then this formerly successful approach must be phased out and new programs be developed which would promote "the self reliant independent professional (who) is more likely to cope adequately with the learning needs of children" (McNamara, 1989:26). The recent research (Myer, 1989; Ross, 1989; McNamara 1989) calls upon teachers to accept more responsibility for approaches adopted in the classroom, and to better cater for the needs of children. Preservice teacher educators have a pivotal role in this aim. However, if the structures that they are operating in do not promote a self reliant independent professional among themselves, it is hard to see that they can give to student teachers what they lack themselves.
CHAPTER SEVEN

REVIEW AND SYNTHESIS

1. PURPOSE OF THE STUDY

The thesis has centred upon the development, implementation and evaluation of the Bachelor of Education (Tertiary) program at the University of Papua New Guinea. This program has an explicit mandate to improve the quality of new teacher college lecturers and thereby improve educational standards in PNG's community schools.

The program has its rationale in cognitive development theory, research on approaches to learning and the literature concerning adult and teacher development especially in the Melanesian context. In terms of the inquiry approach, the curriculum that developed is the independent variable. The dependent variable is the level of cognitive development as measured by deep approaches to learning. Consequently, the intervention curriculum had two major expectations:

* to improve the level of cognitive development of potential teacher educators;
* to improve the quality of potential teacher educators.

The following became two research questions.

1. Does the experience of the special curriculum promote greater cognitive development than increased general education at the University?

2. What is the perceived impact of the Bachelor of Education (Tertiary) students in the teachers' colleges?

In order to develop and plan a curriculum intervention the following question needed to be investigated.

3. What factors influence the learning of Papua New Guinea teachers undertaking higher education?
In exploring question two, it became apparent that an understanding of the context in which the BEd T. students were to teach was necessary, hence a fourth research question developed.

4. What are the contextual factors that influence college lecturers' teaching and students' learning?

A summary of answers to these questions are provided in this chapter.

The theoretical bases of the study were described and summarised in Chapter Two. A key conceptual premise for the BEd T. Program is that teacher development is a form of adult development and the promotion of quality teacher educators is a function of higher stages of development. Such development in this study occurs in a Melanesian context which needs to be accounted for in the generation of processes that might better promote authentic cognitive complexity (Chapter Three).

2. DESIGN OF THE STUDY

No one research methodology was considered appropriate for a research such as this. The research was characterised by an ethnographic approach because the theoretical position required descriptions and interpretations of how inservice teachers experienced their learning; of how college lecturers and students experienced their college environment as well as what shaped their views; and of how they tackled their decision making and attempted to change. It sought to ascertain the progress of associate lecturers in the colleges as well as to identify the contextual factors that affect education in the teachers' colleges.

Consequently, the research that has been reported in this thesis is multi disciplinary in scope and employed structures from the following perspectives:

- ethnographic approaches;
- illuminative evaluation approach;
- case study approach;
- quasi experimental approach.
Ethnographic Approach

In teaching the teachers of teachers in the Melanesian context a preconceived "cook-book" research design was not practically possible since there was an initial lack of clarity about knowing what to do and what to look for. Curriculum issues, identification of problems and the articulation of difficulties emerged over time during initial fieldwork. Design modification occurred frequently as a result of the manifestation of previously unacknowledged phenomena, or in response to the needs of the participants or because of the nature of the preliminary findings.

Illuminative Evaluation Approach

The methodology for most of the research was based on illuminative evaluation, since the study was primarily focussing on description and interpretation in contrast to only measurement and prediction. The problems defined what methods were used and many methods were used as were demanded by the many contexts. Such processes permitted a variety of perspectives focussing on a common problem to be articulated. There were three stages in illuminative evaluation. Initial observation of the world of the learner at UPNG and the lecturers and students in the teachers' colleges; delineation of significant issues for more sustained and intensive inquiry; identification of general principles underlying the foci of inquiry concerning factors that influence learning at UPNG and the lecturers and students in the teachers' colleges.

Case Study Approach

A case study was chosen to focus upon issues in the research question four. It consisted of:

* a contextual analysis of identified significant factors that influenced teaching and learning in colleges;
* a content analysis of observational and documentary data which delineated significant issues in colleges;
* an analysis of the development of independent colleges which are dependent upon a central authority.
Quasi Experimental Approach

Incorporating an empirical research component in what is essentially research embedded in the ethnographic tradition is not an inconsistency. Quantification is used when it is deemed appropriate and when it assisted to illuminate the study's findings as a whole. The study had a broader mandate than to explore the question: "Does the curriculum work?" (Gagne, 1967:29). A major research question was to explore the growth of students towards more cognitive complexity. The SPQ, along with ethnographic structures attempted to do this. The methodology was applied in Question Two.

3. THE QUESTIONS ANSWERED

The first research question was:

WHAT FACTORS INFLUENCE THE LEARNING OF PAPUA NEW GUINEA TEACHERS UNDERTAKING HIGHER EDUCATION?

The single most significant factor to influence learning is the students' own misconceived expectations of learning compared with the processes experienced at university. Students are asked at university to undertake learning tasks which make demands on them that are so different from their prior learning experiences. The problem is not only the sheer quantity of often conceptually complex material to be understood. It is more fundamental and it involves a type of personal academic culture shock. Students' personal beliefs and presumptions about learning are challenged and are found to be inadequate. Their meaning of learning changes, as their perspectives of academic life are transformed (Mezirow, 1981). Students are forced to accept a more independent mode, not only in their own self discipline and personal organisation in order to succeed at university, but more importantly in their own epistemological stance.

Learning for most students had been primarily understood as the accumulation of knowledge transmitted from an authority. This conceptualisation possibly has its genesis in traditional Melanesian epistemological perspectives that view knowledge as a finite commodity that is to be faithfully transmitted from those in the know to the uninitiated (Chapter Three). Such expectations have been reinforced by the very structured reproductive learning and teaching modes that teachers themselves had experienced and
probably presently promote in their classrooms (Meyer, 1989) or lecture rooms (McLaughlin, 1988c).

Consequently, they are relatively unprepared for study structures that incorporate critical reflectivity and independent enquiry. A common theme from the data was not that teachers lacked motivation to study but initially lacked the metacognitive skills and personal organisation skills associated with meaningful study. Moreover, lecturers often failed to incorporate in their courses the necessary interim structures that would promote increased metacognition and personal independence. Clearly, the teacher students at UPNG are operating at Perry's (1981) stage of dualism and need clear structures as well as challenge in a supportive climate to gain these learning skills and acquire more independent learning modes.

This then highlights the importance of the lecturer and the way courses are planned. Good lecturers are identified as knowledgeable and fair, and who present lectures in a logical and stimulating manner. They have the talent to explain by relating difficult concepts to the students' experiences and conceptual structures. In addition, lecturers are valued who have the ability to stimulate thought and provoke and promote discussion, particularly in tutorial sessions. Students want lecturers who are approachable and understand their academic limitations. They appreciate honest criticism, challenge and rigour from a lecturer who is perceived to be genuinely interested in students and assists in their efforts to achieve. Such lecturers also appear to have an understanding of, and a sensitivity towards PNG culture, customs and psychology. What assists students to develop a more critical, reflective and more independent perspective and mode in learning is the learning experiences and structures lecturers provide in their courses. Though not wanting spoonfeeding, students identify the need for guidance, information, feedback and structure in attempting new learning experiences. Initially at least, the journey toward independence seems to require some degree of dependence on mentors, dedicated to the promotion of the students' intellectual independence. That is, courses should deliberately incorporate metacognitive activities in their design. Students also acknowledged a preference for courses that had a practical or research component in them or had context as perceived to be relevant to their role of educator. Tutorials were identified as a favoured structure for learning, for they may give the opportunity for
clarification and exploration, though at times the tutor is said to dominate and revert to lecturing. Group work was identified as a favoured learning structure.

The results of the Learning Style Inventory indicated a very strong preference from the sample for divergent learning. Such learners prefer a social/collaborative learning context that is concrete and which they find relevant and personally meaningful. In problem solving they are inclined to organise sets of variables into holistic patterns first, rather than to analyse each part individually. The emphasis of this orientation is on adaptation by observation rather than by direct active experimentation.

These data are very tentative and should be cautiously interpreted. Further research is recommended in order to ascertain if the preference for divergent learning is identified in a larger sample. Moreover, it should be investigated if such is a preference for teachers only or a characteristic of the general population.

A very significant influence affecting learning at UPNG involves studying in English. The findings of the cloze reading test (Table 6.16) indicated that only approximately 25% of the sample could read at grade 10 level independently, while the readability of required texts at UPNG are at grade 13 level and above. Interview data from students as well as their journal entries suggested that their problems with reading are not so much concerned with English as a language code but their own deficiency in previous background knowledge that permits and promotes an intelligent assimilation of new information and experiences. Looking up words in the dictionary does not assist the students' learning because new definitions do not impinge on prior understanding. Other data (Table 6.15) tended to confirm this finding, since few teachers prior to coming to university read widely or often.

Another language related problem that was identified in the findings, concerned the notion of concept acquisition. The meaning of individual words in text or lecture may or may not cause problems to students. The ideas or concepts often embedded in text or lectures are foreign. It is not a matter of understanding a cluster of individual words but their underpinning concepts. Students at times seemed not to understand the reality that the language symbols represented. No matter how many times the dictionary was resorted to, definitions did not help much in providing understanding when meaning was
embedded in alien concepts. The difficulty lay not so much in language, but in the complexity of the concepts expressed.

Another factor influencing learning in many students is the apparent misunderstanding of the nature and importance of originality. Many students believed that authors should use their own original ideas in their writings. "I feel that any writer who decides to write a new book ... should write down only their new ideas. In this way they will be expanding the knowledge in that particular subject, instead of repeating ideas from previous writers" (student's journal). Such a perspective may have its basis in the traditional Melanesian perspective of knowledge as an inspirational epistemology. Originality then is equated with direct inspiration. It appeared that students did not initially appreciate that originality could be generated from an analysis and synthesis of many previously articulated views. The rational challenging of established views was considered culturally inappropriate (Chapter Three).

Essay or Assignment Writing was a problematic task for students at UPNG and elsewhere (Hounsell, 1984). Part of the problem is related to the misunderstanding concerning originality above. Consequently, essays can incorporate long blocks of direct or almost direct transcriptions of some authority. Appeals to established authority validates the assertion rather than an examination of the content itself. Initially, students' work appeared to lack a logical structure and was characteristically repetitious and convoluted in development. Initial writing appeared to mirror the thought processes of the vernaculars and the negotiating procedures of village debate.

The second research question was:

**DOES THE EXPERIENCE OF THE SPECIAL CURRICULUM PROMOTE GREATER COGNITIVE DEVELOPMENT THAN INCREASED GENERAL EDUCATION AT UNIVERSITY?**

The results (Table 6.24) indicated that the BEd T. group had significantly (at 5% level) greater utilisation of deeper approaches to learning than the BEd L group. Students who regularly approach learning employing deep strategies function cognitively at higher stages of development (Biggs, 1987b:5; Laurillard, 1987:205).
Consequently, in this case the results indicate that the special curriculum did promote significantly greater cognitive development in the BEd T. group who was exposed to the intervention curriculum, compared to the BEd I. group which undertook general education at the university.

Statistical analysis (ANCOVA) also applied to the grade point average scores of the BEd T. and BEd I. groups (Table 6.23) using February SPQ scores as covariates indicated that the BEd T. students performed academically significantly better (at 1% level) than their BEd I. colleagues.

Consequently, there appeared in this study to be a direct relationship between the acquisition of deep learning approaches and the achievement of high grades, as is postulated by Biggs (1987a:6).

The results (Tables 6.20 and 6.21) also reveal an inconsistency in the stated theoretical rationale of SPQ. Biggs (1987b:12) asserts that it is difficult to reconcile the simultaneous employment of surface and deep approaches for the same academic task. Yet the data demonstrate that this sample of PNG students from both the control and experimental groups, utilised a combination of surface and deep approaches for the same learning task simultaneously. The reason for this phenomenon is not conclusive, but data derived from interviews and journal entries suggest that PNG students approach a learning task with the intention to understand and so employ deep learning approaches. However, the difficulty in placing the meaning of new or technical vocabulary into their own personal knowledge framework as well as a lack of conceptual equivalence between the complex ideas embedded in text and the students' own personal conceptual structures, force them to resort to surface strategies or rote learning in order to academically survive. Given this situation, it seems understandable that students whose oral culture has recently adopted a version of the Western education tradition (McNamara, 1989:36), could utilise a combination of both approaches simultaneously.

The third research question was:

*WHAT IS THE PERCEIVED IMPACT OF THE BEd T. STUDENTS IN THE TEACHERS' COLLEGES?*
The results indicated that supervisors, principals and other informed college personnel believed that BEd T. students prepared thoroughly their work, employed meaningful strategies for teaching and were very conscious of how their teaching might influence student learning. The data also indicated that students displayed a thoughtful and reflective approach to their work. They appeared to be able to realistically self evaluate their own teaching and its impact, as well as to display commendable initiative and self reliance. A caveat is placed upon these data. Many lecturers may have a narrow view of what an effective teacher educator is, and so make judgements about BEd T. students' progress from these restrictive parameters. Positive ratings are made then, according to conservative criteria.

Another finding that must be cautiously interpreted concerns the belief that BEd T. students are "good" at subject content (Table 6.25), in spite of their substantial lack of university education in subject specialisation in year one. The reason for this may be the paucity of actual content in the teacher education curriculum itself; or it maybe because many lecturers have a relatively limited perspective of what constitutes minimum competency for a teacher educator.

To summarise then, the findings have given cautionary and tentative conclusions. Principals and supervisors indicate that almost all BEd T. students are making a considerable positive impact in the teachers' colleges in the areas college personnel consider important. This is pleasing as well as problematic, since an uncritical socialisation in the college "status quo" values and structures is a situation that could impede significant quality change which McNamara (1989) suggests should occur in teacher educators. Lecturers' perceptions of needs and associate lecturers competencies may reflect a narrower perspective than what is reflected in more objective research (Meyer, 1989). This is the major cautionary message from what may be seen initially as a clear indication of the BEd T. students' positive impact in the colleges.
The fourth research question was:

**WHAT ARE THE CONTEXTUAL FACTORS WITHIN THE TEACHERS' COLLEGES THAT MIGHT INFLUENCE TERTIARY TEACHING AND STUDENT LEARNING?**

The data indicate that many lecturers believed that their teaching could be described as "spoonfeeding" but such processes are forced upon them because of the relatively poor academic ability (particularly in basic English language communication and Mathematics) of applicants to teachers' colleges. Students were described as lacking in initiative, creativity and basic content knowledge. Their teaching was described as mechanical, and being deficient in understanding. These opinions have been confirmed by subsequent observational research (Avalos, 1989; Otto, 1989; Pearse, 1990). It was consistently reported, that students because of their immaturity, lacked responsibility for their personal and academic lives. As a result, the teachers colleges continued to utilise high school structures in teaching, administration and discipline, though in varying degrees.

As a result of the above perception, the curriculum and the teaching of it, have developed so as to address this situation. The curriculum for teachers' colleges is a series of National Objectives numbering approximately 1,134, generally expressed in behavioral terms. The curriculum clearly reflects the Tylerian rational model, particularly in the generation of course outlines which can number between 40–120 pages. Some are written in such a way that every lecture has its own annotated section and this is considered sufficient as a lecture plan. The stereotype teaching in the colleges may have this practice as a contributing factor.

A more serious concern is the fragmentary nature of the curriculum and its relationships to the observation that students and lecturers seem to be involved in the doing of many minor, trivial and boring tasks. Indeed, such may be necessary, since with the exception of Education Studies and Religious Education, the content level of the curriculum does not in general exceed grade six. A curriculum evolved from a narrow interpretation of the objectives model does explain a focus on fragmentary learning and the neglect of the promotion of holistic understanding. It also explains the formalistic style of teaching.
acknowledged by lecturers to be so prevalent in the teachers' colleges, an observation also confirmed by McNamara (1989:32).

A major portion of the teachers' colleges' curriculum is based on teaching primary school methods with the result that students develop more as technicians while their own teaching and learning display evident weaknesses in their understanding of subject content. Lecturers believed many of the courses they teach "required minimum brain power ... and are not intellectually stimulating" and are not promoting the general cognitive ability of students. McNamara (1989:47–50) arrived at similar conclusions.

A clear implication from these data is that there is a fundamental philosophical dichotomy operating in the curriculum. PNG's official Philosophy of Education (Matane, 1986) has its basis in the Christian humanistic tradition as does the Church agency colleges, yet the curriculum model that is explicit in the National Objectives is diametrically opposed, both philosophically and psychologically to such a tradition (Joyce, 1975; Lawton, 1983). This observation was also made by Avalos (1989, 109–110).

The data suggest that even though new graduate lecturers from university may be knowledgeable, dedicated and creative, the curriculum operating in the colleges may impede teaching for meaning. The research on the Basic Skills program and its examination confirm this. Lecturers disagreed with the implicit behaviourist conceptual basis of the program. They were forced to teach in a way contrary to their beliefs and so promoted a rote response from students. Examinations were perceived to be both invalid and unreliable. Some students were perceived to be terminated from colleges unjustly. There was a strong and pervasive belief held by most involved in Basic Skills that the program was not achieving its goals. Students were believed not to be acquiring an increased understanding of basis skills in English or Mathematics and "standards" were perceived neither to be identified nor monitored. These lecturers' perceptions have been subsequently confirmed by objective measures (Yeoman, 1988).

The findings also strongly suggest that the current Basic Skills Program and their national examinations have their basis in a political dimension. National inquiries (Roakeina, 1977; Kenehe, 1981) asserted that unsuitable teachers were graduating from
colleges. National examinations were perceived as structures to maintain and monitor standards in the independent Church agency colleges, since there was a common opinion held in the NDOE that the independence of the colleges had contributed to a lack of uniformity of standards (Markis, 1987:10). Objective data have found that this opinion has no substance (Avalos, 1989:10; Ross, 1989:18). The basis of this educational problem is one of centralism versus devolution in colleges' administration and as such has a strong political dimension. This hypothetical finding was accepted and incorporated in McNamara's report (1989:54). Such a factor has had a clear influence on the way lecturers educate and their students learn.

Lecturers from all colleges commonly described the type of teaching in the colleges as "spoonfeeding". The findings indicate that the main reason lecturers indulge in this very structured form of teaching comes from the demands of curriculum and accompanying assessment. It is clear that students have limited ability and general education, but these issues are not being addressed by the present curriculum in terms of understanding the students' learning problems but only in their manifestation (cf McNamara, 1989:6). Learning is perceived to have occurred if behaviour is observed that indicate the achievement of an objective. Consequently, the focus is on the more easily monitored behaviour not on the underlying but more important cognitive structures. This may be the basis for spoonfeeding teaching. This is reinforced though the current assessment practices and by the inspectorial system.

The findings imply that a misconception exists among many lecturers concerning factors about the promotion of student learning and assessment. Official policy on assessment (Department of Education, 1986) fails to mention the word "learning". The implicit rationale seems to indicate that learning is to be equated with assessment results. This emphasis on product promotes a teaching structure that reflects this modus operandi. Because the focus is on assessment, there is little encouragement given to the teaching/learning experiences that might promote genuine understanding.

Formalistic processes may be indirectly fostered by the teacher education inspection system. Given their limited staff, the Division of Teacher Education, it seems has attempted to address the monitoring of standards basically through a mechanistic process focussing on the maintenance of course outlines and administrative procedures.
Interview data from lecturers who had recently completed study at UPNG or overseas indicated that their experiences of the rigidity of course outline demands and the inspectorial processes at times promoted a dissonance between their understanding of processes that stimulated student learning and the forces that permitted eligibility for promotion.

An important implication from the findings of this research can be expressed in terms of an hypothesis. AIDAB (1989:vii) has suggested that in spite of seventeen years of increased education of lecturers, there has been little change in the colleges in terms of quality student learning. It is hypothesised that the basis of many of the issues in contemporary PNG education is an inability by the Teacher Education Division to fully recognise that teacher education is ready for dramatic change. In terms of Beeby's hypothesis of Educational Stages, the present curriculum and structures are geared to the stage of Formalism, while many within the colleges are more than ready to initiate change towards stage of Meaning.

With increased general education and professional training of both lecturers (Ross, 1987) and teachers (Ross, 1988), these bureaucratic structures are now impeding the growth of quality in education. If further teacher education progress is to occur new programs need to be developed which would promote "the self reliant independent professional (who) is more likely to cope adequately with the learning needs of children" (McNamara, 1989:26). The recent research reports (Meyer, 1989; Ross, 1989; McNamara, 1989) call upon teachers to accept more responsibility for approaches adopted in the classroom, and to better cater for the needs of children. Preservice teacher educators have a pivotal role in this aim. However if the structures operating in the teachers' colleges do not promote a self reliant independent professional it is hard to see that they can give to student teachers what they lack themselves.

4. LIMITATIONS OF THE STUDY

Although the curriculum intervention appears to have promoted more complex cognitive processes among the BEd T. students, a cautious interpretation is necessary. The researcher was both the implementor and evaluator and this sharing of roles may have influenced results albeit unconsciously. An effort was made to offset this limitation by
employing many data sources so as to have a wide variety of information which might indicate inconsistencies or detect biases.

An associated limitation is that the researcher may have been "too close" to the study, in that there may be a difficulty of not being able to see the wood for the trees. This was at least partially addressed by discussing the progress of the study with informed "critical friends", both within the University of Papua New Guinea at the Ministry of Education's Research and Evaluation Unit.

The sample of subjects (N=6; N=5), while adequate for initial study is not sufficiently large to explore the characteristics of students in their internship year in a comprehensive manner. A replication of the quasi experimental design (N=10; N=30) using new cohorts of BEd I. and BEd T. students would need to be conducted to ascertain if the 1989 results are consistent with different groups of students.

Concerning the Learning Style Inventory, the sample likewise was small (N=30) and subjects had relatively homogeneous socio-economic, educational and professional backgrounds. This information serves to emphasise that the generalising ability of these LSI results is not possible beyond a UPNG setting.

One limitation of the study concerns the SPQ. This is inherent in any self report instrument, namely that the respondent can make responses giving answers that are thought desired. An effort was made to address this limitation by not informing the respondents that they were part of any research project. In addition, GPA scores were correlated with SPQ results so as to ascertain if there was a relationship between deep learning and better results.

Another limitation concerned the Associate Lecturer Characteristics Inventory. A number of the criteria that O'Toole developed had multi dimensional foci and so failed to differentiate adequately enough between individual characteristics. In addition, the criteria of characteristics that could identify an effective beginning lecturer were generated almost exclusively from the teachers' college community. Results from other studies (Avalos, 1989; McNamara, 1989) indicate that this source in general held a limited and narrow perspective of quality (Quartermaine, 1987) and as such, their criteria
uncritically used, could promote socialisation into "status quo" values and habits of actions.

A possible limitation concerns the case study section of the research. The political dimension of the study is openly acknowledged. Some Division of Teacher Education officers have described aspects of this part of the research as biased (though not directly to the researcher). Indeed, it has been implied that the current investigation in teacher education including this study has generated a number of problems rather than identify them. The strategy of triangulating results was used throughout the research. The present study was a vanguard in the Teacher Education Research Project, a Division sponsored initiative. Subsequent study conducted by other researchers could have either confirmed or denied the results of the initial fieldwork. There has been no challenge to this research by fellow academics or researchers. Moreover, it has been unanimously supported at the Combined Principals' Conference (1988).

With the exception of the case study section of this thesis, it should not be difficult to replicate this research. Concerning the case study, the combination of external and internal influences have drastically altered the consciousness of college personnel, so that issues identified by this research are explicitly acknowledged and are now common property.

5. CONCLUSION
The general hypothesis of this thesis is that teacher development is a form of adult development and that the promotion of an effective teacher educator is a function of higher stages of development. It can be concluded that this hypothesis is able to be sustained in the Papua New Guinea higher education context but with an important caveat. Cognitive development and adult learning theory have their bases in western conceptualisations of knowledge and learning. Traditionally, Papua New Guineans conceptualise knowledge and learning quite differently. The generation of processes to promote increased cognitive complexity should not be the uncritical application of structures implicit from the (western) research literature. An understanding of the Melanesian psychological dimension permits an articulation of a Melanesian learning profile that becomes the basis of initial curriculum intervention. Consequently, it was not a matter of uncritically accepting cognitive development and adult learning theories.
and then applying them to PNG. The reality of the PNG situation has been established with reference to student learning at UPNG. Western theories then were analysed from this perspective in order to establish a base line from which insight may be gained from a sociology, an epistemology, or a psychology, indigenous to Papua New Guineans and evolving with them. Hence, a contribution of this study is the generation of theory, based on the PNG reality as well as the bridging of the theory – practice gap with an in–depth study of Melanesian teachers undertaking learning in higher education.

The research established that an intervention curriculum aimed at the promotion of more complex cognitive structures appeared to be successful. Teaching strategies that incorporated significant role taking experience, careful and continuous guided reflection, a balance between real experience and discussion, reflection and teaching within a context of personal support and challenge appeared to assist the PNG teachers to alter their former perspectives concerning learning and adopt a more reflective and deeper approach.

The study also concluded that the participation in the education process at university will not in itself guarantee the promotion of higher stages of development. The initial biggest difficulty of students studying at UPNG is the incongruence between their own beliefs about teaching and learning and those advocated at university. Traditionally, PNG epistemology describes learning as essentially a transferal of knowledge which is based on inspiration, while western epistemology is characterised by a generation of knowledge though critical enquiry. In practice, because such conceptualisations are so diametrically different, student often suffer a kind of academic culture shock during their initial months at UPNG. As a consequence, students either acquire or develop the metacognitive skills to promote complex thinking or resort to tried survival tactics or a possible combination of both. The reality of the PNG situation regarding this should be acknowledged in the design of university courses and their teaching. Associated with this is the conclusion that learning problems in English at UPNG are not essentially language code problems but conceptual ones. Remediation and further development in English need to reflect this in their rationale.

It is also concluded that while the experiences at university (from a special curriculum) may have promoted higher stages of development in teacher educators, there may not
be a corresponding enhancement of quality in the workforce of the teachers' colleges if the academic and bureaucratic structures within colleges reflect lower stages of development. Consequently, if promotion of quality in teacher education is to be deliberate rather than haphazard, there needs to be an increased congruence particularly from a philosophical and psychological perspective between the education program of potential teacher educators and the milieu in which they educate.
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APPENDIX A:

THE QUESTIONNAIRE

STUDENT OPINIONS ABOUT TEACHING AND LEARNING IN THE UNIVERSITY

The purpose of this questionnaire is to find out some of the problems of teaching and learning at UPNG so that teachers and students can work more effectively together. We would like to know what you, the students, think about conditions at the University.

Please read the questions carefully and give thoughtful and honest answers. You do not have to put your name on the questionnaire so you can really tell the truth as you see it. If you think there are other things which are important, and which have been left out here, please tell me about them.

PLEASE RETURN THIS TO DENIS MCLAUGHLIN IN THE EDUCATION OFFICE.

FIRSTLY some details about yourself (those factors could influence how you feel about things).

a. Age: _______________________

b. Sex: M or F ____________

c. Province: ______________________

d. How many years have you been teaching? ________________
Section A: **THE LEARNING SITUATION**

**Question 1:** (a) Here is a list of teaching procedures. To show how you feel about each one, put a tick beside them in the appropriate column.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Like</th>
<th>Very Much</th>
<th>Strongly Like</th>
<th>Much Like</th>
<th>Uncertain</th>
<th>Dislike</th>
<th>Strongly Dislike</th>
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<tbody>
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<td>Lecturer</td>
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<td>Large tutorials</td>
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<td>Small tutorials, guided by tutor</td>
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<td>Small tutorials, run by students</td>
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<td>Teaching Activities</td>
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<td>Practical Activities</td>
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<td>Small, Project-Type practicals</td>
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</table>

(b) What should tutorials be used for. Place a tick in the column which shows how much you like each statement here.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Like</th>
<th>Very Much</th>
<th>Strongly Like</th>
<th>Much Like</th>
<th>Uncertain</th>
<th>Dislike</th>
<th>Strongly Dislike</th>
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<tbody>
<tr>
<td>Discuss difficulties</td>
<td></td>
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<td>Gain confidence &amp; skill in speaking</td>
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<td>Exchange of ideas among students &amp; teachers</td>
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<td>Learn new information</td>
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<td>For assessment</td>
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</table>
Question 2: (a) Think of the best taught course you have ever done. Now try and say, briefly, why it was so good.

(b) Think of the worst taught course you have ever done. Now try to say why it was so bad.

(c) What are some other things that make a course good?
   i. 

   ii. 

(d) What are some other things that make a course bad?
   i. 

   ii. 

Question 3: (a) What is the most important quality of a good teacher?

(b) What makes some lecturers poor teachers?
Question 4: Think about how courses are assessed. Place a tick in the appropriate column which would show your opinion.

<table>
<thead>
<tr>
<th></th>
<th>like</th>
<th>very</th>
<th>much</th>
<th>like</th>
<th>uncertain</th>
<th>dislike</th>
<th>dislike</th>
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<tr>
<td>Assignments</td>
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<td>Tutorials/Seminars</td>
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<td>Short tests</td>
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<td>Projects</td>
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<td>Practical work</td>
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<td>Assignments in drafts</td>
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<td>Others – list them</td>
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Section B: PROBLEMS OF STUDENTS

Question 5: Do you think any of the following are serious problems? Show how serious they are by placing a tick in the appropriate column beside each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>Serious</th>
<th>Uncertain</th>
<th>Serious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dormitory rooms too hot</td>
<td></td>
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<tr>
<td>Students drinking</td>
<td></td>
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<td></td>
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<tr>
<td>Disagreement between regional groups</td>
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<tr>
<td>Breakages in Halls of residence</td>
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<tr>
<td>Too much noise for study</td>
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<tr>
<td>Text books unavailable</td>
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<tr>
<td>Not enough sleep</td>
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<td>Not enough recreation facilities</td>
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<td>Not enough places to study</td>
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<td>Not enough text-book money</td>
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<td>Males &amp; Females living close together</td>
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<td>Too many recreational distraction</td>
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Question 6: (a) Do you find it difficult to approach course advisers, or lecturers: Yes or No.

(b) Do you think there should be more people to consult students at UPNG? Yes or No. Who?
(c) Where do you go to for help if you have a problem?


Question 7: What problems did you have when you first came to University?


Question 8: (a) Do you think that a better knowledge of English language would improve your results? Yes or No.

(b) What language do you usually speak most often? (Tick the appropriate answer).

(a) Tok Ples
(b) Tok Pisin
(c) English
(d) Other Name it

(c) How much English is used at home? (Please tick).

(a) Never
(b) Not Often
(c) Sometimes
(d) Often
(e) Very Often

(d) How often do you read the following material?

(1) Never
(2) Not Often
(3) Sometimes
(4) Often
(5) Very Often

( ) NOVELS
( ) BIBLE
( ) RELIGIOUS BOOKS
( ) NEWSPAPERS
( ) MAGAZINES
( ) SCHOOL BOOKS
( ) STUDY BOOKS
(a) What is the highest level of education reached by your father or guardian? (Please tick)

(a) NO SCHOOL
(b) COMMUNITY SCHOOL
(c) PROVINCIAL HIGH
(d) NATIONAL HIGH
(e) ANY OTHER: Specify .....................

Question 9: Many students do poorly because they do not attend many classes, and do not complete assignments, especially in the second half of each semester. Do you have any ideas why this happens?

________________________________________________________________________
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APPENDIX B:

READING PASSAGE.

INSTRUCTIONS: Please read the passage below and on the answer sheet provided, write down what you think is the most suitable word to be used in the empty space.

TEACHER PREPARATION.

The sort of curricula I have been talking about would require a different approach to teacher preparation since it is the actual process of teaching/learning that counts. In this process the personality of the [1] and the motivation of the students are [2] important. The relationship between the two is [3] counts and this is an inter-personal [4]. It depends on sympathy and insight on [5] part of the teacher and a willingness to [6] on the part of the student. Not [7] study has been done on the factors [8] determine what students want to do and [9] they want to do it. There [10] to be more study on student motivation [11] its implication for the various types and [12] of education.

If the teacher is going [13] be in a position to do his [14] properly, he needs to be a well [15] person himself. He is not in a [16] to help provide worthwhile learning opportunities for [17], so that they will gain knowledge and [18] through experiences, if he has little [19] and limited experience himself. So far as teacher [20] is concerned, reflection on, and thinking about [21] students are attempting to do and the [22] they are doing it are more likely to [23] helpful than following set methods.

This points to [24] important considerations in teacher preparation:

(1) raising rather than [25] the entrance requirements for those wishing to be [26].
(2) insisting on high-quality staff in the [27], the pressure to fill vacant college [28] with any “good” teachers will have to be [29].

One other important consideration is availability of [30] for teachers to improve themselves by further [31] and to bring themselves up to date [32] never ideas and approaches.

It may also be [33] to encourage large numbers of educated people to [34] the less well educated, particularly in a [35] of informal educational activities and programmes. Their [36] would need to be based on very [37] periods of thinking about their practice.

[38] can become a profession which, if properly [39] and developed will, through the service it [40], give people an opportunity to be [41], to be useful and productive members [42] Papua New Guinean society. Although this is easy to [43], it is not so easy to achieve. [44] the attempt must be made.

In [45] it is desirable that full time in-service [46] for teachers be offered in multi-purpose institutions; [47] need to mix during in-service training with others [48] will be working in a variety of [49], for the welfare of the community so [50] they may develop sympathy with, and understanding of and the overall needs of the community that is essential for teachers to have.
APPENDIX C:

LEARNING STYLES INVENTORY

This questionnaire is designed to find out your preferred learning style(s). Over the years you have probably developed learning 'habits' that help you benefit more from some experiences than from others. Since you are probably unaware of this, this questionnaire will help you pinpoint your learning preferences so that you are in a better position to select learning experiences that suit your style.

There is no time limit to this questionnaire. It will probably take you 20 - 30 minutes. The accuracy of the results depends on how honest you can be. There are no right or wrong answers. If you agree more than you disagree with a statement put a tick by it (V). If you disagree more than you agree put a cross by it (X). Be sure to mark each item with either a tick or cross.

1. I have strong beliefs about what is right and wrong, good and bad.
2. I often do things and forget the consequences.
3. I tend to solve problems using a step-by-step approach avoiding things that just come into my mind.
4. I believe that formal procedures and policies stop people being themselves.
5. I have a reputation for having a no-nonsense, saying what I believe style.
6. I often find that actions based on my first impressions are as sound as those based on careful thought and analysis.
7. I like to do the sort of work where I have time to really explore things thoroughly.
8. I regularly question people about their basic assumptions - what they really believe.
9. What matters most is whether something works in practice.
10. I actively seek out new experiences.
11. When I hear about a new idea or approach I immediately start working out how to apply it in practice.
12. I am keen on self discipline such as having a regular time to program my work.
13. I take pride in doing a thorough job.
14. I get on best with logical, analytical people and less well with spontaneous people, or people who say the first thing that comes into their mind.
15. I take care over the interpretation of information available to me and avoid jumping to conclusions.
16. I like to reach a decision carefully after weighing up my many alternatives.
17. I am attracted more to new, unusual ideas than to practical ones.
18. I don't like 'loose-ends' and prefer to fit things into understandable patterns.
19. I accept and stick to laid down procedures and policies so long as I regard them as an efficient way of getting the job done.
20. I like to relate my actions to a general principle, or rules.
21. In discussions I like to get straight to the point—no beating about the bush for me.
22. I prefer formal business-like relationships with people at work.
23. I really like the challenge of tackling something new and different.
25. I pay very careful attention to detail before coming to a conclusion.
26. I find it difficult to come up with quick off-the-top-of-the-head ideas.
27. I don't believe in wasting time by too much discussion.
28. I like to think things over for a day or so before I reach a conclusion.
29. I prefer to have as many sources of information as possible—the more data to think over the better.
30. "Funny" people who don't take things seriously enough usually get me cross.
31. I usually listen to the other person's point of view before putting my own forward.
32. I tend to be open about how I am really feeling.
33. In discussions I enjoy watching the "moves" of the other people in the discussion.
34. I prefer to respond to events on a spontaneous, flexible basis rather than plan things out in advance.
35. I tend to be attracted to techniques such as large plans, flow charts, programmes, planning etc.
36. It worries me if I have to rush a piece of work to meet a strict deadline.
37. I tend to judge people's ideas on their practical merits.
38. Quiet, thoughtful people tend to make me feel uneasy.
39. I often get cross by people who want to rush into things, without enough thought.
40. It is more important to enjoy the present moment than to think about the past or future.
41. I think that decisions based on a thorough analysis of all the information are sounder than those based on immediate feelings or first impressions.

42. I tend to be a perfectionist - I like getting things done very well.

43. In discussions I usually contribute with lots of "off-the-top-of-the-head ideas.

44. In meetings I put forward practical realistic ideas.

45. More often than not rules are there to be broken. I don't let rules stand in the way of getting things.

46. I prefer to stand back from a situation and consider all the different views.

47. I can often see inconsistencies and weaknesses in other people's arguments.

48. On balance I talk more than I listen.

49. I can often see better, more practical ways to get things done, than my colleagues.

50. I think written reports should be short, clear and to the point.

51. I believe that step by step logical thinking is very important.

52. I tend to discuss specific things with people rather than engaging in 'small talk' or personal things.

53. I like people who are realistic and business-like.

54. In discussions I get impatient with irrelevancies and things not on the point.

55. If I have an assignment to write I tend to produce a number of drafts before settling on the final version.

56. I am keen to try things out to see if they work in practice.

57. I am keen to reach answers through a logical approach.

58. I enjoy being the one that talks a lot.

59. In discussions I often find I am the realist; keeping people to the point and avoiding wasting time conversation.

60. I like to think of many alternatives before making up my mind.

61. In discussions with people I often find I am not emotional but objective.

62. In discussions I am more likely to be generally silent than to take the lead and do most of the talking.

63. I like to be able to see how the thing I am doing now fit into a larger pattern.

64. When things go wrong I am happy to forget it and 'put it down to experience'.

65. I tend to reject, off-the-top-off-the-head ideas as being impractical.
66. It is best to think things out thoroughly before you do them.
67. On balance I do the listening rather than the talking.
68. I tend to be tough on people who find it difficult to adopt a logical approach.
69. Most times I believe the end justifies the means.
70. I don't mind hurting people's feelings so long as the job gets done.
71. I find the formality of having specific objectives and plans irritates and annoys me.
72. I am usually the one who makes people happy in a group.
73. I do whatever is necessary to get the job done.
74. I quickly get bored with methodical, detailed work.
75. I am keen on exploring the basic assumptions, principles and theories underneath things and events.
76. I am always interested to find out what other people think.
77. I like meetings to be run on a business-like lines, sticking to laid down agenda, etc.
78. I avoid subjective or ambiguous topics - politics eg. Bougainville, Fiji.
79. I enjoy the drama and excitement of a crisis situation.
80. People often find me insensitive to their feelings.
LEARNING STYLES INVENTORY

SCORING

Your score one point for each item you ticked (✓). There are no points for items you crossed (x). Simply indicate on the lists below which items were ticked.

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APPENDIX D:

Name: ____________________________ Sex: ____________
Date: ____________ Date of Birth: ________________

STUDY PROCESS QUESTIONNAIRE

1. I chose my present courses largely because of the better professional opportunities when I graduate rather than out of their own interest to me.
2. I find that at times studying gives me a feeling of deep personal satisfaction.
3. I want top grades in most or all of my courses so that I will be more likely to be promoted.
4. I think browsing around is a waste of time, so I only study seriously what's handed out in class or in the course outlines.
5. While I am studying, I often think of real life situations to which the material that I am learning would be useful.
6. I summarize suggested readings and include these as part of my notes on a topic.
7. I am discouraged by a poor mark on a test and worry about how I will do on the next test.
8. While I realize that truth is forever changing as knowledge is increasing, I feel driven to discover what appears to me to be the truth at this time.
9. I have a strong desire to do my best in all my studies.
10. I learn some things by rote, going over and over them until I know them by heart.
11. In reading new material I often find that I am continually reminded of material I already know and see that old material in a new way now.
12. I try to work consistently throughout the term and review regularly when the exams are close.
13. Whether I like it or not, I can see that further education is for me a good way to get a well-paid job.
14. I feel that any topic can be very interesting once I put effort into it.
15. I would see myself as an ambitious person; I want to get to the top, in whatever I do.
16. I tend to choose subjects with a lot of factual content rather than theoretical kinds of subjects.
17. I find that I have to do enough work on a topic so that I can form my own point of view before I am satisfied.
18. I try to do all of my assignments as soon as possible after they are given out.
19. Even when I have studied hard for a test, I worry that I may not be able to do well in it.
20. I find that writing an assignment can at times grab my interest, so that I will continue with it and not go spinning or watch TV.
21. If it came to the point, I would be prepared to sacrifice my immediate popularity with my fellow students for success in my studies and subsequent career.
22. In studying I generally do what the lecturer says to do; it is unnecessary to do anything extra.

23. I try to relate what I have learned in one subject to that in another.

24. After a lecture I reread my notes to make sure they are readable and that I understand them.

25. Lecturers should not expect students to spend time studying material which everyone knows will not be examined.

26. I usually become increasingly interested in my work the more I do it.

27. One of the most important considerations in choosing a course is whether or not I will be able to get top marks in it.

28. I learn best from lecturers who work from carefully prepared notes and outline major points neatly on the blackboard.

29. I find most new topics interesting and often spend extra time trying to obtain more information about them.

30. I test myself on important topics until I understand them completely.

31. I do not really like having to spend years studying after leaving school, but feel that the end results will make it all worthwhile.

32. I believe strongly that my main aim in life is to discover what I believe are the best rules to live by and to act strictly in accordance with them.

33. I see getting high grades as a kind of game, and I want to be one of the winners; I like to be better than most others.

34. I find it best to accept the statements and ideas of my lecturers and question them only under special circumstances.

35. I spend my free time finding out more about interesting topics which I have discussed in different classes.

36. I make a point of looking at some of the suggested readings that go with the lectures.

37. I am at university mainly because I feel that I will be able to obtain promotion if I have these qualifications.

38. My studies have changed my views about such things as politics, my religion, and my philosophy of life.

39. I believe that society is based on competition and schools, colleges and universities should reflect this.

40. I am very aware that lecturers know a lot more than I do and so I concentrate on what they say is important, rather than rely on my own judgements and opinions.

41. I try to relate new material, as I am reading it, to what I already know on that topic.

42. I keep neat, well-organized notes for most subjects.
APPENDIX E:

ASSOCIATE LECTURER CHARACTERISTICS

INVENTORY

ASSOCIATE'S NAME: ________________________________

COLLEGE: ________________________________

LECTURER WHO IS RATING: ________________________________

DATE OF RATING: ________________________________

CONFIDENTIAL

(FOR RESEARCH PURPOSES ONLY)

INSTRUCTIONS FOR ASSOCIATE'S SUPERVISOR

These characteristics have been identified and prioritized by Sr. J. O'Toole (1988) after consultation with all lecturing staff.

It would assist in the development of future programs if you could consider the characteristics and then make a considered judgement about your Associate's progress. It might be helpful to discuss this in consultation with the Principal or deputies and other members of your department. You may give a copy of the inventory to informed members of your department to also fill in.

These data will NOT be used in the compiling a progress report of Associates but will help to develop general profiles to identify general strengths and weaknesses in the B.Ed(T) program.

RATING INTERPRETATION

0 = not enough evidence to make a valid rating
1 = has made no or little progress in acquiring this characteristic
2 = has made some gradual progress in acquiring this characteristic
3 = has made average progress in acquiring this characteristic
4 = has acquired this characteristic at a "good" level
5 = has acquired this characteristic at an "excellent" level
Please circle the appropriate rating.

1. Demonstrates competence in the content of one's teaching specialisation and the related ability to continually improve one's competence through use of reference resources.

2. Can impart knowledge effectively and simply; motivating students to learn; critically responding to needs of students; demonstrating a variety of teaching skills that promote student learning in one's specialisation.

3. Pride is shown in one's profession through ethical and moral behaviour; modelling for students through self discipline and punctuality.

4. Demonstrates Reliability and cooperation with other staff members.

5. Demonstrates planning, delivery and assessment of lectures according to the requirements of the syllabus.


7. Shows Care and enthusiasm for students' progress and development.

8. Has Openness to the philosophy of the employing agency.

9. Is eager to grow and learn;

10. Is open to criticism and tolerance of others.

11. Has a good knowledge of teaching areas of the community school and its correlation with lecturing in the teachers' college.

12. Has a good knowledge of learning and teaching theory, and applying it to the PNG.

13. Is Setting good professional standards; reading and studying in the area of one's professional competence.


15. Has good knowledge of teaching methods in teaching specialisation.

16. Looks objectively at college policy and implement it professionally; communicating effectively with authorities and staff regarding one's own duties.
17. Has a good knowledge of educational psychology at the tertiary level and its application to the PNG context.

18. Shares tasks and extra curricular activities.

19. Is a competent organiser.

20. Has an expectation of competence in students.

21. Has a realistic knowledge of self, of student strengths and weaknesses and ability to counsel students.

22. Extracts ideas from various sources for use in class: college-based research into teaching and learning.

23. Has a thorough grasp of the English language.

24. Knows the theory of component skills in the practicum.

25. Handles, uses and makes a variety of audio-visual aids using available resources.


27. Can transpose teaching materials into the PNG context.

28. Has a good knowledge of organizational procedures in college departments.
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Dependent Variable: 13 A11

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<th>Mean Square</th>
<th>Sequential F-ratio</th>
<th>Tail Prob.</th>
</tr>
</thead>
<tbody>
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TABLE OF TESTS ON CONTRASTS

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TABLE OF ADJUSTED MEANS FOR VARIABLE 13

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**TABLE OF ADJUSTED MEANS FOR VARIABLE 14**

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**TABLE OF TESTS ON CONTRASTS**

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**TABLE OF ADJUSTED MEANS FOR VARIABLE 18**

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**TABLE OF TESTS ON CONTRASTS**

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<th>TAIL-PROBABILITY</th>
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<tr>
<td>Error</td>
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</tbody>
</table>

**TABLE OF ADJUSTED MEANS FOR VARIABLE 19**

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>ADJUSTED MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>47.5194</td>
</tr>
<tr>
<td>2</td>
<td>47.34179</td>
</tr>
</tbody>
</table>
### Table of Tests on Contrasts

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Estimate</th>
<th>SUM-SQR</th>
<th>F-Ratio</th>
<th>Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cov(10)</td>
<td>0.1288857</td>
<td>282.7251</td>
<td>9.293216</td>
<td>0.000038</td>
</tr>
<tr>
<td>A1</td>
<td>2.627772</td>
<td>206.6251</td>
<td>6.791798</td>
<td>0.000076</td>
</tr>
</tbody>
</table>

### Table of Adjusted Means for Variable 20

<table>
<thead>
<tr>
<th>Factor A(2)</th>
<th>LEVEL 1</th>
<th>LEVEL 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55.61112</td>
<td>60.86666</td>
</tr>
</tbody>
</table>

### Table of Tests on Contrasts

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Estimate</th>
<th>SUM-SQR</th>
<th>F-Ratio</th>
<th>Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cov(11)</td>
<td>0.3065324</td>
<td>234.6965</td>
<td>9.469037</td>
<td>0.000076</td>
</tr>
<tr>
<td>A1</td>
<td>1.040725</td>
<td>32.18059</td>
<td>1.298354</td>
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</table>

### Table of Adjusted Means for Variable 21

<table>
<thead>
<tr>
<th>Factor A(2)</th>
<th>LEVEL 1</th>
<th>LEVEL 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>51.90462</td>
<td>53.9861</td>
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### Table of Tests on Contrasts

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Estimate</th>
<th>SUM-SQR</th>
<th>F-Ratio</th>
<th>Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cov(12)</td>
<td>0.3387224</td>
<td>345.3759</td>
<td>11.79449</td>
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<tr>
<td>A1</td>
<td>3.662306</td>
<td>400.6267</td>
<td>5.008808</td>
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</tbody>
</table>

### Table of Adjusted Means for Variable 22

<table>
<thead>
<tr>
<th>Factor A(2)</th>
<th>LEVEL 1</th>
<th>LEVEL 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>107.5173</td>
<td>114.848</td>
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</tbody>
</table>