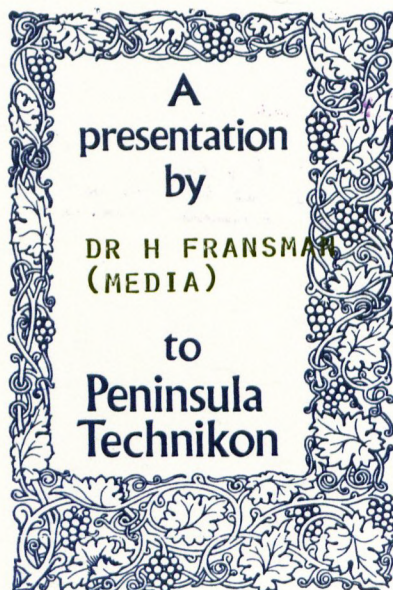



THE RELATION BETWEEN INDEPENDENT LEARNING AND
LECTURING SKILLS WITH REFERENCE TO STUDENT
ACHIEVEMENT IN ECONOMICS

HILTON JOHN FRANSMAN



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MARCH 1982

**THE RELATION BETWEEN
INDEPENDENT LEARNING
AND LECTURING SKILLS WITH
REFERENCE TO STUDENT
ACHIEVEMENT IN ECONOMICS**

by

HILTON JOHN FRANSMAN

submitted in accordance with the requirements

for the degree of

DOCTOR OF EDUCATION

in the subject

PSYCHOLOGY OF EDUCATION

at the

UNIVERSITY OF SOUTH AFRICA

PROMOTER: PROF S M MELLET

MARCH 1993

ACKNOWLEDGEMENTS

While a study at this level is largely possible through a concerted effort by the candidate, there is a tribute to be paid to certain people without whom the timeous completion of the thesis would have been impossible.

My sincere gratitude is extended to a fine promoter, prof Sam Mellet, of the Department of Psychology of Education for his professional guidance and liberal support. The skills I have developed are mainly attributable to him as mentor at the time of my masters and doctoral studies.

Great appreciation is expressed to the staff and students from those technikons which have participated in the empirical investigation.

My friend, Douglas Gelderbloem, is saluted for his intense interest in my academic progress, and his invaluable assistance with the finishing touches to the study.

My ex-principal, former colleague and long-time friend, Mr. Len Janari, is thanked sincerely for his time and unselfish effort to conduct the editorial scrutiny of the text.

The financial assistance of the Centre for Science Development towards this research is hereby acknowledged. Opinions expressed in this thesis and conclusions arrived at, are those of the author and not necessarily to be attributed to the Centre for Science Development.

Financial assistance provided by the South African Association for Research and Development in Higher Education is hereby acknowledged. Opinions expressed or conclusions drawn in this thesis are those of the author.

Other persons acknowledged in this study are:

- * Mrs Y Muller
- * Ms N Gelderbloem
- * Mr T Blows
- * Mr D King

Lastly, my appreciation to Yolande, Marlin, Stuart and Leallyn for their moral support and understanding throughout the study.

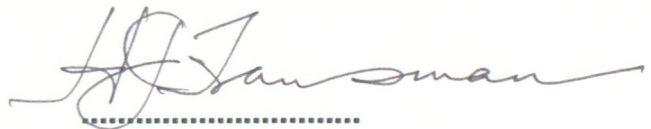
Hilton J Fransman

Cape Town, March 1993

"I declare that

**'THE RELATION BETWEEN INDEPENDENT LEARNING AND LECTURING
SKILLS WITH REFERENCE TO STUDENT ACHIEVEMENT IN
ECONOMICS'**

**is my own work and that all the sources that I have used or quoted have
been indicated and acknowledged by means of complete references".**

A handwritten signature in black ink, reading 'H J Fransman', with a dotted line underneath it.

H J FRANSMAN

THE RELATION BETWEEN INDEPENDENT LEARNING AND LECTURING SKILLS WITH REFERENCE TO STUDENT ACHIEVEMENT IN ECONOMICS

by MILTON JOHN FRANKMAN

Degree: Doctor of Education

Subject: Psychology of Education

Promoter: Paul S. M. Mallet

SUMMARY

The study attempted to find the relation between independent learning

The significance of this research is encapsulated in the following verse:

achievement in Economics at Wollaton CE.

**"I want those already wise to become the wiser
and become leaders by exploring the depths of
meaning in these nuggets of truth" (Proverbs
1:5, Living Bible).** All students in the classroom are highly

unhappy, therefore a logical and reasonable course of learning would be
a "self-regulating" or "self-directed" type.

The research survey concerned that of the nature and extent

independent learning, while lecturing skills were discussed in the
context of styles and effectiveness of learning and teaching and the
researcher.

THE RELATION BETWEEN INDEPENDENT LEARNING AND LECTURING SKILLS WITH REFERENCE TO STUDENT ACHIEVEMENT IN ECONOMICS

by HILTON JOHN FRANSMAN

Degree: Doctor of Education

Subject: Psychology of Education

Promoter: Prof S M Mellet

SUMMARY

The study attempted to find the relation between independent learning and lecturing skills and their relative contribution to student achievement in Economics at technikons.

South African tertiary educational institutions have been facing increasing student numbers which place enormous strain on available resources. To accommodate all students in the classroom is highly unlikely, therefore a logical and reasonable mode of learning would be a "self-regulating" or "autonomous" type.

The literature survey concentrated on the nature and value of independent learning, while lecturing skills have been discussed on the basis of styles and effectiveness of lecturing and students' expectations thereof.

The nature of Economics has been reflected upon on the basis of four key concepts, together with their implications for learning. A competency-based model of Economics has been suggested, with special emphasis on economic literacy.

A questionnaire, based on the literature survey, covering the areas of independent learning, lecturing skills and the nature of Economics has been compiled and completed by 645 technikon students.

A factor analysis has identified three factors, namely an independent learning ability, lecturing skills and the nature of Economics. High reliability coefficients were obtained for each of the three factors.

Further statistical analyses revealed that:

- achievement in Economics correlated significantly with an independent learning ability, lecturing skills and the nature of Economics, respectively;
- an independent learning ability correlated significantly with lecturing skills and the nature of Economics;
- the nature of Economics correlated significantly with lecturing skills;
- the Afrikaans-speaking students achieved significantly better results than their English counterparts in Economics;
- second- and third-year students achieved significantly better results than first-year Economics students.

The conclusion drawn from the findings of the literature survey and empirical investigation is that an independent learning ability, lecturing skills and the nature of Economics contribute to achievement in Economics.

The relation between independent learning and lecturing skills, with reference to achievement in Economics has explained why the majority of good independent learners also appreciate effective and meaningful lectures, thereby emphasising the important role of Economics lecturers in the process of inculcating in students an independent learning ability.

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CHAPTER ONE

INTRODUCTION, STATEMENT OF PROBLEM, PURPOSE OF STUDY, AND METHOD OF INVESTIGATION

1.1 Introduction

1.1.1 Awareness of the problem

When reference is made to the concept "learning", it is usually conceptualised in quantitative terms, that is, the "more" or "less" material that people are able to absorb. Therefore, the assumption is that most people perceive "being better at learning" as purely quantitative, a perspective which Saljo (1979:444) describes as "natural and self-evident to many".

An alternative perspective on the study of learning would be the students' approach to learning and the degree of success which a student would have as a consequence of a particular approach. Fransson (in Entwistle & Ramsden, 1983:115) found after extensive research into student learning over many years that if students adopt a deep approach to learning, that is, pursuing the meaning orientation, they do so because they show an intense interest in the learning material. Intuitively, it could be gathered that much of this "intense interest" is brought about by the fact that such students would do more than expected of them in terms of extra reading.

A view held by Percy and Ramsden (1980:12) is that much learning takes place through a "process of formulating problems, solving them and testing the solutions". At the same time the student participates in the process which is conducive for the development of an "autonomous frame of mind" (Percy & Ramsden, 1980:12).

Carl Rogers, a great believer in freedom in learning, advocates that the learner "chooses his own directions, helps to discover his own learning resources, formulates his own problems, decides his own course of action, and lives with the consequences of his choices" (Entwistle, 1976:14).

It is clear that the student can only acquire this "autonomous frame of mind", adopt "deep approaches to learning", or "discover his/her own resources in learning" if "independent" or "autonomous learning" is accomplished. Sufficient research evidence exists that autonomous learning is possible especially when "teaching is poor" (Entwistle & Ramsden, 1983:190).

The general perception is prevalent that a direct relationship should occur between what is taught and learnt, but Hounsell (in Entwistle & Tait, 1990:170) contests this "direct relationship". Hounsell maintains that much of what students learn is gained through other efforts like reading text-books, reading background

material, and studying journal articles. In addition, assignments are completed and all these efforts, intuitively, should contribute to students' learning performance and achievement eventually.

Judging purely on the basis of numbers, approximately 4520 students have enrolled at eleven residential technikons in 1991 for the subject Economics, while a total of 1713 technikon students are studying economics by "correspondence" (figures obtained directly from the technikons).

Of the "residential" students studying Economics, only 8% pursue it to their third-year, while only 3% of the "correspondence" students do Economics as a third course. The first-year group for both "residential" and "correspondence" students comprise almost 80% in each case (figures obtained directly from the technikons). Possibly, many reasons could be cited for the sharp decline in numbers from first- to third year-level, but based on many years of teaching the subject, the researcher observed that there is a progressive increase in the level of complexity of the learning material from first to third-year level.

Part of the complexity of the subject could possibly be ascribed to the fact that the teaching of the subject has not received the necessary attention in terms of facilitating student learning. Burkhardt (1976:89) makes

the assertion that "although economists have thought and written about economics, they have not thought and written about the teaching of economics".

Furthermore, the complexity of the subject could lie in the area of student perceptions or misconceptions in terms of the true nature of Economics. Jeffreys (in Atkinson, 1985:18) describes Economics as "a deductive science orientated towards a determinate reality specific to a fixed problem, that is, the scarcity of resources".

Lee and Entwistle (in Lee, 1980:34) wish to recognise Economics "as an empirical rather than abstract science whose rules and propositions are independent of experience in the phenomenal world".

Therefore, Economics being a science with its own laws and principles, would necessitate a particular logic and deductive reasoning within the confines of a given situation.

Two scenarios present themselves in this study, namely that the "residential" students have to utilise some of their own time outside lectures to learn, while the "correspondence" students rely entirely on the study material made available to them without contact with the lecturer. Hence, the concept "independent learning" will manifest itself in greater measure hopefully with the

latter group of students, while the former group will rely more on the lecturing ability and skills of lecturers.

At no stage this study wishes to compare the Economics achievement of residential and distance education students. One of the prime objectives is to determine the significance and value of independent learning for all students, because it cannot be assumed that all correspondence students are highly able independent learners, nor are all residential technikon students weak independent learners.

The concept "independent learning" has evoked much discussion in South African tertiary education because it has become an accepted fact that the lecturer cannot teach everything to a student. Relevant material must be consulted by the student outside classroom hours in the case of students receiving tuition. Therefore, a comparative study between the performance of residential and correspondence will serve no purpose.

This study wishes to explore whether "independent learning" ("autonomous learning") makes any significant contribution in relation to classroom lecturing skills, to achievement in Economics of technikon students.

1.1.2 Brief definition of key concepts

1.1.2.1 Independent learning

Percy and Ramsden (1980:4) describe independent learning as that "in which students can be seen to be negotiating the goals and content of their studies and the nature of their assessment".

Gibbs (1986:39) states that independence in learning is facilitated when "self-evaluation is basic and evaluation by others is of secondary importance".

The brief definitions above are indicative of the type of discipline that accompanies the phenomenon of independent or autonomous learning, and the special emphasis that is placed on course objectives, content, learning experiences of the student, assessment and evaluation. Together with these attributes, Hatch and Richards (1965:5) emphasise the attitude to learning as being of prime importance "if the student wishes to develop towards a stage of self-reliance".

To be able to describe the concept "independent learning" it would require a description of the concept "learning". Learning is one of the most complicated phenomena to define, because definitions of learning have stemmed from the psychological mindset of people. The definition of

learning has shifted from the HOW MUCH to THE HOW of learning (Saljo, 1979:444).

The difficulty with describing independent learning is the fact that "independence" has not been defined adequately in an academic context (Dressel & Thompson, 1973:4). For many academics it has come to mean independent of classes, independent of other students, or independent of staff. However, the main thrust of independent learning is that students must become capable of self-directed study. It is a process of learning which requires a high level of motivation, curiosity, a sense of self-sufficiency, the ability to think critically and creatively, to be aware of resources, and the ability to use them (Dressel & Thompson, 1973:7).

Gruber (in Hatch & Richards, 1965:1) states that "self-directed study is concerned with all the methods of higher education designed to increase the responsibility for his own education".

Independent learning is used in this study as the antithesis of classroom learning, where students have the opportunity of direct contact with lecturers. Classroom learning by students is, therefore, a function of the teaching skills of the lecturer. With independent learning the student is both lecturer and student unto himself.

Although some preliminary findings indicated that learning performance did not differ much between self-directed study and conventional learning programmes, it became evident that the student's affective abilities play an important role in self-directed study. The student is forced to discover for him/herself and to orientate him/herself with the learning material. Self-directed study aspires to develop critical and independent intellectual abilities, and to transform thinking of the student in a favourable direction.

For the purposes of the proposed research a distinction must be made between "learning" and "study". "Study" would entail a great measure of skills necessary to select, learn and consolidate the relevant learning material for an examination. "Study" involves techniques necessary to structure material in such a way so that it is easily accessible during an examination. Svensson (in Marton, Hounsell & Entwistle, 1984:67) emphasises that "skill in learning means to be deep, holistic, and complete in approach and understanding".

Svensson emphasises further that "study" is accompanied by a good measure of stress, while "learning requires a relative absence of stress and a confidence in one's own thinking".

"Independent study" puts the student in a situation which requires him/her to display understanding of given material in preparation of an examination. Specific study skills are necessary to organise material effectively so that examination demands are met. Normally, the examination does not demand all of what was learned, nor will the examination be able to cater for this wide understanding of any learner.

Independent study would require all the abilities a student should have for independent learning, except that the latter does take place under more relaxed conditions without an examination necessarily as an end in itself.

1.1.2.2 Lecturing skills

As this study wishes to place the focus on independent student learning, on the one hand, it is imperative to take into consideration the student who receives tuition through the lecturing skills of the lecturer, on the other hand. According to Brown and Atkins (1988:19) the skill of lecturing requires "explaining, presenting information, generating interest and preparing for lectures". Lecturing requires a great measure of skill if learner participation hopes to be ensured and constant stimulation of the senses maintained.

Fiedler and Gillo (1974:673) agree to the particular skill which contribute to lecturing effectiveness by emphasising the importance of variables such as student abilities, learning objectives and the competence of the lecturer. Furthermore, the skill of lecturing lies in the stimulation of intellectual growth within students.

While a more detailed description of "lecturing skills" and styles will be elaborated on in Chapter 3, it is important to specify that lecturing is the most economical method of teaching. Its effectiveness with students depends a lot on the manner in which the lecture is conducted. It is the only non-electronic method whereby many students can be reached through a single lecturer.

1.1.2.3 Economics

Jeffreys (in Atkinson, 1985:18) describes Economics as "characteristic of a deductive science oriented towards a determinate reality specific to a fixed problem, that is, the scarcity of resources". According to Jeffreys, Economics is a "determinate deductive science which has a discipline structure formed by logic and shaped by a determinate reality".

This reality is the scarcity of resources which has to satisfy the needs of millions of people. It is, therefore, clear that not all needs can be satisfied, and that choices

will have to be made. The chapter on the nature of Economics will manifest an elaboration of these choices.

Lee and Entwistle (in Lee, 1980:34) say Economics must be recognised "as an empirical rather than abstract science whose rules and propositions are independent of experience in the phenomenal world". By definition, Lee and Entwistle imply that Economics is practised on the basis of what is possible in terms of experience, but also which is possible in terms of the subject's own laws and principles.

Economics does not only involve the satisfaction of needs and wants through scarce resources. Decisions play an important role and, therefore, governments and bodies concerned influence the manner in which resources are made available in the process of the satisfaction of needs. Chisholm and McCarty (1981:18) indicate that Economics also shows a strong relationship with politics, because political decisions play a major role in the channeling and distribution of resources. Hence, the term "political economy" holds affinity with Economics to a large degree.

1.2 The importance of independent learning

The rapidly increasing student population in South Africa places great strain on physical facilities and finances in education today. One possible solution to this problem would seem to lie in the province of independent learning,

distance learning or some form of self-regulating learning. Research done by Adey and Kilpert (1990:224) has shown that the marginal costs per student in Southern African higher education can be greatly reduced if an element of distance education is incorporated into programmes of "contact" educational institutions like universities and technikons.

While the economic and financial benefits of some form of independent or individual learning seem evident, it is still not clear what the relative contribution is of independent learning to total student learning performance, as opposed to learning through the classroom skills of the lecturer.

Recent research by Entwistle and Tait (1990:170) showed that examination performance by students in higher education correlated most closely with the use of class time and task orientation. "Task orientation" refers to what is actually expected of students, whereas "class time" refers to the avoidance of digressions and labouring the obvious.

Hounsell (in Entwistle & Tait, 1990:170) is concerned about this "direct relationship", because firstly, the correlation ($r=0,30$) is very low, and secondly, much of what students learn is gained through other efforts like reading text-books, doing background reading, studying journal articles, completing assignments which involve a

measure of research activity, and incidental learning by observation outside the classroom. If students' overall learning and examination performance are brought about by direct means ($r=0,30$), the question arises whether independent learning does not make a considerable contribution to learning performance, and if it does, to which extent. Another question which arises is the manner in which the student learning performance will manifest itself through independent learning efforts. Therefore, the proposed direct relationship between teaching and learning is rather indirect, because students do study in their own time, and also the supposedly "direct relationship" reflects badly in terms of correlations.

The importance of independent learning, independent study and individual learning lies in the student's "pursuit of academic competence in as autonomous a manner as he/she is able to exercise at any particular time" (Dressel & Thompson, 1973:1). In keeping with realities, it is regretted that the South African school system lends itself to a substantial proportion of time spent on classroom tuition, especially in primary and secondary education, with the student "not showing evidence of capability in self-directed learning, but merely the amassing of facts" (Dressel & Thompson, 1973:2). However, students in tertiary education are expected to cope with less classroom tuition and more independent learning.

1.3 Analysis and statement of the problem

The problem arises from research by Entwistle and Tait (1990:170) when they pose the question of the relative contribution of independent learning through background reading, reading specified text-books and completing assignments of various kinds, all of which form part of the broader academic environment which affect learning probably as much as, if not more than, the classroom skills of the lecturer.

Student learning performance is further inhibited if learning material is conveyed in the classroom in a manner which demotivates the student. Entwistle (in Marton, Hounsell & Entwistle, 1984:13) is critical of university teachers, because it is assumed that anyone with a good degree will automatically be able to impart knowledge to others in an effective manner.

Entwistle and Ramsden (1983:187) are of the opinion that independent learning, as opposed to classroom tuition, does create the opportunity for the student to follow a possible deep approach to reading articles or books, thereby making an active attempt to understand the author's meaning. In the process the student tries to explain the evidence in relation to the conclusion, and to relate the ideas to his/her previous knowledge and experience.

Svensson (in Marton, Hounsell & Entwistle, 1984:67) is in agreement with the findings of Entwistle and Ramsden, because a student will only be "skilled in learning" if a deep, holistic and a completeness in approach and understanding is followed.

It is evident that more opportunity for independent learning would foster "more accomplished learning" which is particularly necessary "when the teaching is poor and there is freedom in learning" (Entwistle & Ramsden, 1983:190). The intention is not to be over-critical of lecturers in higher education, and therefore to find justification for independent learning, but rather to probe the perceptions and beliefs of those students pursuing independent learning who total roughly 31% of all technikon students (Department of National Education, NATED: 02/15, 1990), as well as those students attending residential institutions.

Dressel and Thompson (1973:7) define independent learning as "curiosity, motivation, a sense of self-sufficiency, the ability to think critically and creatively, awareness of resources, and some ability to use them". If these characteristics are true for independent learning, the question arises whether students learning through the classroom skills of the lecturer do experience these traits. On the other hand, students engaged in independent learning will have to display these characteristics, otherwise learning performance could suffer.

Students in a classroom situation have the benefit of contact with colleagues and lecturers. However, independent learning does not deny the student "the communal aspect of learning, teaching and scholarship" or the "stimulation of a joint group venture" (Dressel & Thompson, 1973:10). If there is common ground between the two categories of students, the question still remains whether, according to Entwistle and Tait (1990:170), independent learning does not make an equal, or greater, contribution to student learning performance than learning through classroom skills of the lecturer.

The proposed research wishes to focus on the problem whether an independent learning ability in relation to the lecturing skills of the lecturer makes an equal or bigger contribution to student achievement in Economics.

1.4 Delimitation of the problem

The main problem centres around the equal or greater contribution that an independent learning ability, in relation to the lecturing skills of the Economics lecturer could make to overall student achievement in Economics.

The following hypotheses emerge from the problem statement:

- * Achievement in Economics is influenced by an independent learning ability, lecturing skills and the

nature of Economics.

- * There is a positive correlation between an independent learning ability, lecturing skills and the nature of Economics.
- * Language preference and year of study influence achievement in Economics.
- * Students experience an independent learning ability, lecturing skills and the nature of Economics differently, depending on year of study.

1.5 Purpose of the study

The purpose of this study is embedded in the objectives which are of a twofold nature:

1.5.1 Literature survey

An in-depth study will be made of the nature, the value and requirements of the term "independent learning", as well concepts which could be assimilated with independent learning, such as "autonomous learning", and "self-directed learning".

The concept "independent learning" will also be contextualised, its value will be discussed in relation to learning in general, as well as in distance education.

A full chapter will be devoted to teaching styles, highlighting the importance of lecturing effectiveness, and discussing the nature and purpose of lecturing. Lecturing, as form of teaching, will be evaluated in terms of certain criteria and teaching and learning styles will be matched.

An outline will be given of the nature of the subject Economics by explaining four key concepts. Approaches to acquiring Economics literacy and education will be discussed. Methods of promoting learning in Economics will be described and a possible structure for a competency-based approach to the subject suggested.

1.5.2 The empirical investigation

Suitable and valid constructs which have their origin in the literature will be developed for the purpose of inclusion in the measuring instrument - the questionnaire.

The questionnaire will comprise three sections:

- * Constructs with reference to the independent learning ability of students.
- * Constructs with reference to classroom skills of lecturer.
- * Constructs with reference to the nature of Economics.

Students learning independently and those studying at a residential technikon will complete the questionnaire.

The following objectives will comprise the empirical investigation:

- * To determine the extent to which achievement in Economics is influenced by an independent learning ability, lecturing skills and the nature of Economics.
- * To determine possible correlations between independent learning, lecturing skills and the nature of the subject Economics.
- * To determine to which extent there is a relationship between an independent learning ability, lecturing skills and the nature of Economics, respectively, and achievement in Economics.
- * To determine whether significant differences occur between an independent learning ability, lecturing skills and Economics should year of study and language preference be used as dividers.
- * To establish the extent to which students in different years of study experience an independent learning ability, lecturing skills and the nature of Economics.

The following types of statistical analyses (factor, item and analysis of variance will be conducted in order to give effect to the five objectives as stated above.

These objectives will be accomplished by means of the following statistical techniques:

1.5.2.1 Factor Analysis

The purpose of the factor analysis will be to determine any particular underlying structure or extract common factors between variables.

The following analyses should be completed:

- A correlation matrix of the item.
- Determine the factors with the highest eigenvalues (preferably those greater than 1).
- The factor analysis could initially be a principal components analysis, followed by an oblique rotation (promax). The oblique rotation is done to achieve a purer factor output in case there are variables which show high loadings on more than one axis.

1.5.2.2 Item Analysis

The questionnaire consists of 81 items with an additional 5 items focusing on biographical data. These 81 items cover 3 major areas, namely, independent learning ability, lecturing skills and the value of lectures to students, and thirdly, the nature of Economics.

The number of items in the first area is 27, the second field consists of 25 items, and the third area covers 29 items.

In respect of each of the three fields in the questionnaire, the Alpha-Cronbach reliability index, the dominant response, mean and standard deviation will be calculated for each item, in relation to the total for the field (or dimension).

The purpose of the item analysis is to determine whether each item makes a significant contribution to the dimension in which it finds itself. Where items do not correlate significantly with the correlation of that particular dimension, such item will be discarded.

1.5.2.2 Research group

The correlations of each item will also be compared to the correlations calculated for each dimension in order to establish whether an item does not belong to another dimension, other than the one for which it was originally intended.

1.5.2.3 Analysis of Variance (ANOVA)

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The purpose of this type of analysis will be to determine mutual relationships between the three major dimensions in the questionnaire. Through F- and t-tests the degree of significance will be determined either to accept or reject any hypothesis.

Appropriate statistical techniques such as correlation analysis, factor analysis and analysis of variance will be effected to analyse data. Where practicable, these statistics will be compared to overall learning performance of the respondents.

Recommendations, based on the findings, will be made either to accept or reject the hypothesis that an independent learning ability influences learning probably as much as, if not more than, the classroom skills of the lecturer.

1.6 Research group

The study will be confined to two groups of students doing the same subject, Economics, for their National Diploma qualification. One group of students attends a residential technikon, and the other group studies by "correspondence" at another technikon.

The main focus will be to discover to which extent these students make use of independent learning in the subject Economics, and how independent learning influences achievement in the subject.

1.7 Modus Operandi

After the preamble to this study has been enunciated in **Chapter 1**, the rest of the study will unfold itself in the following manner:

In **Chapter 2** more attention is given to the concept "independent learning ability" of students in higher education. Reference will also be made to the purpose of independent learning and why it is necessary, even in a classroom learning situation. Studies undertaken in this regard will also be reflected upon.

Chapter 3 will be devoted to the role played by lecturing skills of the lecturer in the classroom. Different teaching styles and strategies will be discussed and matched with the learning styles of students.

An integral part of the study are the classroom skills of the lecturer, their effect on student learning and the demands made on the student. The elements comprising effective teaching and how students perceive these will be reflected upon from the literature.

Chapter 4 will outline the value of a knowledge of the subject Economics, in a more academic sense, as well as the nature and the conceptual framework in which the subject is embedded. The value of an Economics education and

approaches how to achieve this will be gleaned from the literature, and a competency-based approach to the learning of Economics will be dealt with.

Chapter 5 covers the empirical investigation, its planning, execution and statistical manipulations. Constructs will be developed out of the literature survey and used in the questionnaire which will be tested for validity and reliability. Data will be assimilated, analysed and interpreted.

Chapter 6 reflects on the entire study in terms of its findings and conclusions which emanate from the literature survey and the empirical investigation. Based on this, recommendations will be made, implications will be discussed, and areas for possible future research identified.

CHAPTER TWO

INDEPENDENT LEARNING:

ITS PLACE IN THE TEACHING-LEARNING RELATIONSHIP

2.1 Introduction

The manner in which students learn is determined, to a large extent, by the manner in which they will be examined (Entwistle & Ramsden, 1983:171; Thomas & Bain, 1984:229). Therefore, opportunities for pure retrieval of learning material by students should be avoided by lecturers, in the sense that students are not evaluated by methods which elicit rote learning. Independent learning seems to be a mode which could, if properly applied, facilitate discovery in learning as well as being intellectually challenging, which is only possible if "appropriate experiences are cultivated" (Baard, 1991:31).

A major question is: what is the ultimate aim of teaching and learning and how could that aim be achieved? Possibly another question is: could independent learning be useful in achieving that aim? If the aim is to develop learners who "accept responsibility for their learning", "increasing people's readiness to learn" (Wright, 1987:3), "increase initiative, thought, and independent judgment" (Sutton, 1987:121), "fostering independent learning" (Feletti, Saunders, Smith & Engel, 1984:70), it would seem that a teaching-learning model be put into practice distinct from

the stereotypical "teach and reproduce what was taught" model. Reproducing styles of learning have to be seen in the context of related aspects such as methods of assessment and teaching methods, following research evidence by Entwistle and Ramsden (1983:171) and Thomas and Bain (1984:229), in terms of which certain techniques of assessing student performance result in rote learning.

Although independent study and learning have not been defined adequately in an academic context, Dressel and Thompson (1973:4) hold the view that the most important aspect of this process is that the student "becomes capable of self-directed study".

An exposition of the above-mentioned aspects should have practical value for lecturers and students in higher education, based on the insights that educational research can provide, although no panacea is promised for lecturers and students. Entwistle (1977:226) is rather explicit when he states that "there is a growing recognition that psychological and educational research can improve practice, but not in the direct way that advances in physics contribute to engineering. It has an indirect effect".

This chapter wishes to place the focus on the concept "independent learning" and other synonymous or related concepts within the context of the teaching-learning

phenomenon. In addition to outlining the concept "independent learning", this chapter will also concentrate on the value of independent learning, the contextual factors in independent learning, and independent learning in relation to cognitive styles and distance learning.

2.2 The concept: independent learning

2.2.1 Introduction

"Independent learning" has become a catchphrase in Britain's Open University, especially since a 1984 report recommending that courses be designed and taught so that students can become progressively independent as learners. Although the phrase means many things to different people, it also provides an opportunity to appraise teaching and learning approaches (Morgan, 1985:34).

The concept 'independent learning' is understood by different people in different ways. The Lancaster School of Independent Studies view the concept "independent learning" as that "in which students can be seen to be negotiating the goals and content of their studies and the nature of their assessment" (Percy & Ramsden, 1980:4).

The Nuffield Group conceived 'independence' as "a means of promoting student motivation, of adjusting the pace of academic work to take account of student differences and of

developing better specific problem-solving techniques" (Percy & Ramsden, 1980:5).

According to Garrison (1987:309) much research has been done with independent learning and "deliberate adult self-planned learning projects" which has gained momentum since 1979. It is necessary to put the different connotations of "independent learning" in perspective and, therefore, an understanding of the concept, before analysis, is essential.

The common characteristics of the various terms stated above which pervade the definitions given by these writers are:

- * Learners accept responsibility for their own learning.
- * Learners interact with the learning material with rigour.
- * Reading is an essential activity of the learner.
- * Learners set learning objectives.
- * Learners develop a strong disciplinary base.
- * Learners develop an attitude of enquiry.
- * Curricula are structured in such a way to encourage independent learning.

According to Boud (1981:12) the question arises how independent learning could be facilitated if such a mode of learning seems to crystallise into some of the most

meaningful consequences for the student, although some uncertainty exists about the student's potential to cope with independent learning. He ascribes this uncertainty to a lack of empirical research into independent learning, although this area of learning featured more prominently during the eighties.

Although it would seem that independent learning is done in isolation, that is student and learning material only, interaction with others on the basis of ideas and experiences, according to Boud (1981:23) is not dispelled.

2.2.2 Understanding independent learning

Before analysing the concept "independent learning" it is essential to take a closer look at its nature and form. The novice scrutinizing this type of learning activity soon realizes that the field is plagued by a plethora of definitions. Hence, according to Garrison (1987:309) "the same act of learning can be variously described as self-directed learning, self-teaching, autodidactic activity, autonomous learning and individual learning".

Vukadinovic (1988:27) elaborates further on the concept when emphasising the two poles of education, namely teaching and learning. She is of the opinion that students must be taught to learn independently - according to their "own interests, objectives and knowledge and at their own

pace" - relevant information and to create a stimulating educational environment through self-instruction. Furthermore, Vukadinovic (1988:29) distinguishes between "self-directed learning" and "self-instruction" in terms of Unesco's Glossary of Educational Technology, which defines the former as 'a way of learning' and the latter as 'an instructional technique'.

Through their research, Palincsar and Brown (1986:771) followed a strategy with their students which promotes both comprehension of texts and comprehension monitoring in order to encourage independent learning. The strategy of "reciprocal teaching" was useful because of its interactive nature, as well as elevating students' levels of fluency in reading and their ability to decode the reading matter.

Without gainsay, the importance of reading and comprehension ability cannot be stressed sufficiently when students are engaged in independent learning. Students should not only possess the ability to read and comprehend, but should also be aware of metacognitive strategies "how to learn from text". In this regard, Shenkman (1986:112) developed a metacognitive strategy called the LETME APPROACH - Link, Extract, Transform, Monitor, Extend. LETME is a total approach to independent study which emphasises the process of linking the reader's schema with text content, extracting relevant information, transforming text, monitoring comprehension and learning, and studying

in depth.

"Independent learning", as 'way of learning', will not be fully understood unless it is identified from the learner's perspective in terms of patterns of learning as experienced by the learner. Taylor (1986:56) made a significant finding during her research which strongly suggested that students had undergone a "major reorientation of their perspective on learning, knowledge, authority and themselves". In the process, Taylor's research generated a conceptualisation of the process through which this kind of reorientation occurs, much of which was of a social, emotional and intellectual nature. According to Taylor (1986:68) the major propositions supported by the learners during the study were:

- * Self-directed learning and independent learning are to be found in a common pattern in the experience of learning (inherent order).
- * A major psychosocial reorientation is experienced.
- * Independent learning is mediated by meanings and interpretations of the learner.

The literature has revealed a plethora of synonyms and meanings for the concept "independent learning". Although much research has been conducted in terms of independent learning, all questions have not been answered.

The term "independent learning" (Herber & Nelson-Herber, 1987:584; Glynn, 1985:5; Wright, 1987:3) is essentially synonymous with terms such as "self-directed learning" (Griffin, 1985:4517; Burge & Frewin, 1985:4515), "selfstandige kennisverwerwing" (Van Schalkwyk, 1985:249), "individual learning" (Eisen & Yaakobi, 1986:284), and "autonomous learning" especially with reference to distance learning (Burge & Frewin, 1985:4516).

It is clear that teaching and proper guidance play a vital role in empowering students eventually to be independent learners, with due consideration given to the importance of reading and comprehension ability of students. Most researchers in the field of independent learning are in total agreement that a thorough reading ability is a prerequisite for independent learning. Herber and Nelson-Herber (1987:584) express strongly the idea that teachers and lecturers must not assume that once students "learn to read" they will be able to learn independently with minimal further instruction. The "learn to read" phase should then gradually proceed to the "read to learn" phase.

2.2.3 Analysis of the concept "independent learning"

For the purposes of analysing the concept "independent learning" it is imperative to probe the theoretical foundations of the concept, its underlying assumptions, and the role of lecturers in the process of independent

learning. The characteristics of students engaged in independent learning will be dealt with in a subsequent section.

The theoretical base which underpins the concept "independent learning" could be found, according to Griffin (1985:4517) in the elements, and their relationship with one another, comprising independent learning, although these elements do not purport to be exhaustive, though illustrative.

The elements which Griffin (1985:4517) outlines are the following:

- * Independent learners utilise resources, time and effort more effectively.
- * Independent learning is the precursor to life-long learning.
- * Independent learning will help learners to gain greater control over their destinies.
- * Issues such as freedom versus control, self versus group, internal experiences versus external knowledge sources become focal points.

Holmberg (1980:108) is in full agreement with these arguments put forward by Griffin, except that Holmberg uses "distance education" as one measure to achieve independent learning or learning autonomy with students, stating that distance learning is widely used "to alleviate

overburdening conventional schools and universities", and that it is "remarkably effective in supporting learning in the cognitive domain".

In order to gain greater understanding of what independent learning is it is essential to gain clarity about what "dependent learning" embraces. Posch (1986:47) elucidates the concept "dependent learning" as being characterised predominantly by the definition of the learning situation from "outside", by teachers or the institutions they represent. These teachers and institutions define aims and procedures and make evaluations. "Dependent learning" is, therefore, "environment-defined" because the learner is influenced by factors around him/her. Moreover, the institution and its representatives decide on "aims, objectives, content, methods, standards of quality, and organisational conditions" (Posch, 1986:47).

The Medical School of the University of Newcastle, New South Wales, Australia set out its objectives as to how students could learn. They wished to place the emphasis not only on content to be mastered by students, but also on the process of learning. The main thrust of this approach was centred on problem-solving (Marton, Hounsell & Entwistle, 1984:209). However, the faculty recognised that these students have to acquire a skill in learning which is deep, holistic and complete in approach and, therefore, set out the following objectives:

The student will be able and willing to:

- * recognise his/her assets and limitations;
- * identify what aspects of knowledge, understanding; skills and attitudes he/she needs to acquire;
- * locate the information and experiences he/she requires for this learning;
- * examine critically the evidence on which scientific information is based;
- * organise his/her learning activities in a pattern that will be both effective and efficient for him/her;
- * monitor his/her progress in the acquisition of new competence;
- * monitor his/her performance as a future physician;
- * evaluate his/her educational experiences.

With regard to the objectives for independent learning as envisaged by the Medical School of the University of Newcastle, Dressel and de Lisle (1969:67) propose that curricula should incorporate the following principles to give effect to independent study and learning:

- * The dimension of breadth: The student should become aware of different philosophies, implications, findings and techniques from as many scholarly disciplines as possible.
- * The dimension of depth: The student should develop a strong disciplinary base, to become aware of the

limits of its discoveries, to learn about methods of investigation and to do research (especially at a post-graduate level).

- * The dimension of freedom: The student should develop an attitude of free enquiry.
- * The dimension of responsibility: While the student has the freedom to choose, this dimension must always be accompanied by discipline.

While independent study and learning would ideally suit those students who "wish to reason things out", "who accept responsibility for their own learning and growth" (Hatch & Richards, 1965:58), it is clear that curricula should be structured in such a way to allow the "increased use of independent study" (Dressel & De Lisle, 1969:40).

According to Marton, et al. (1984:209) the main aim of the staff was to impress upon students that they should become self-reliant in their learning. The objective was two-pronged: on the one hand, identifying the skills required for independent learning; and on the other hand, abandoning lectures as method of teaching. The following statement is indicative of why students want to abandon lectures, following interviews that Entwistle had with them: "So often students are bored by uninspired teaching or disenchanted by badly taught material" (Marton, et al. 1984:209).

These students based their frustration upon the fact that too many people assume that lecturers with good qualifications will automatically be able to impart knowledge effectively to others. The deduction could be made from these statements that, should students possess the skills necessary for independent learning and these are accompanied by effective lecturing, students could benefit immensely. Where the quality of lecturing is poor the student should resort to independent learning in order to compensate for the deficiency in the transfer of information.

Judging by one of the skills required for independent learning, namely, to "examine critically the evidence on which scientific information is based", it is clear that a "deep-approach" to learning is essential. Fransson (in Entwistle & Ramsden, 1983:115) found in his research on student learning that "deep approaches are functionally related to interest in learning material".

2.3 Contexts for independent learning

Independent or autonomous learning will only take effect if executed within the context of certain factors being present. In terms of the available literature the following contextual factors were identified:

- reading ability;
- initiative on the part of the learner;

- the approach to learning;
- general interest in learning;
- attitude of the learner and self-discipline;
- assessment methods used to assess performance;
- anxiety level of learner;
- lecturers' perceptions of independent learning;
- the kind of knowledge.

A brief outline of each contextual factor will follow.

2.3.1 Reading ability

Herber and Nelson-Herber (1987:584) emphasise the importance of reading ability of the learner in independent learning, as well as the fact that "independence is developed by design and not by chance". Furthermore, Herber and Nelson-Herber (1987:585) emphasise that learners should transcend from "learning to read" to "reading to learn". A reading ability could be regarded as of primary importance for any student and when engaged in an independent learning exercise, the skill with which reading is done, becomes increasingly important. This skill and ability is non-negotiable if it is accepted that independent learning normally stems from printed matter.

2.3.2 The learner's initiative

It is evident that a measure of skill should be present in order to facilitate independent learning within the learner. For these skills to reveal themselves Atwood (1977:33) refers to "exploration tools" necessary to be an independent learner who "needs to know how to find answers, how to ask questions, and how to select appropriate research techniques and how to use them effectively".

Learning environments should not only be arranged in a manner whereby the learner responds to stimuli or questions, but should be a learning context which "promotes initiations by the learner" (Glynn, 1985:6). Responsive social contexts allow individuals not only to acquire specific skills but also generic knowledge how to learn.

Sutton (1987:121) advocates an educational environment that encourages the use of initiative, thought and independent judgment in learning. She supports this argument by stating that the work should be "of substantive complexity; there should be freedom from closeness of supervision, especially in an occupational context, as well as low routinization" (Sutton, 1987:122). The student's initiative plays a determinate part in the process of independent learning by virtue of decisions which have to be taken as to how problems will be solved, texts reconstructed for meaningful subsumption and logical and

sequential derivations made within the confines of a totally free and unsupervised learning domain.

2.3.3 Approaches to learning and the role of the affective domain.

Success with independent learning, notwithstanding lecturers' efforts, is directly linked with deep-approaches to learning, which in turn, is connected with "interest" in learning material. There is, therefore, a considerable role played by the affective domain of the person, namely his/her attitude towards learning. This "interest" in learning supports the student in the quest to probe learning material. Concomitant with this feeling of being "interested" in learning, Gibbs (1986:4) found in his research that students learn to trust their own learning; they are consistent in their efforts, and there is an intense desire to learn.

True learning is never directed at the grade to be achieved in an examination, but rather at exploring ways to determine the grounds of knowledge and to become acquainted with the method and its theoretical foundations. Gibbs (1986:3) states that "students have to become independent not only in their self-discipline and self-organisation in order to cope with studying but also, ultimately, in their epistemological stance".

Independent learning is essential on the part of students who wish to study successfully, but it is clear from the above that Gibbs attaches a great deal of positive attitudinal and psychological traits to its ultimate success. Having considered the basic differences between "study" and "learn" it is evident that a positive attitude in terms of self-discipline and self-organisation form important characteristics of the student who learns independently. It would seem that with these attributes present "independent study" is more easily facilitated.

In juxtaposition to the deep-approach to learning, surface approaches are normally generated by "threatening assessment conditions" (Entwistle & Ramsden, 1983:115). Independent learning cannot operate under these conditions, because of the presence of "anxiety, a lack of consistency, and a lack of trust in their own learning" (Gibbs, 1986:4).

According to Meyer and Parsons (1989:144) the surface approach to student learning is largely a reproducing orientation to learning. The reproducing orientation comprises a major sub-scale in the Approaches to Study Inventory of Entwistle and Ramsden (1983:137) in which memorisation of learning material, a general passive approach to a task, and no intention to extract meaning from the material, are prevalent.

2.3.4 Assessment conditions

Independent learning is not very amenable to those evaluation methods which prompt rote learning. Those evaluation methods which prompt rote learning should be avoided. For example, Watkins and Adams (in Thomas & Bain, 1984:229) found in their research that students who prepare for multiple-choice examinations tend to adopt a more superficial approach to learning, in comparison with those students who prepared for assignments. Independent learning requires from the student to apply an enquiring mind to studies and, therefore, the simple memorisation and subsequent regurgitation of facts will not suit this process of learning.

Research by Entwistle and Ramsden (1983:209) has shown that "threatening assessment conditions make surface approaches more likely". Such assessment conditions militate against the whole objective of independent learning. Campbell (in Hatch & Richards, 1965:7) states the correct choice of assessment method to enhance independent and meaningful learning as one of the ways to achieve success with independent learning. More meaningful learning is actualised through the use of methods of evaluation such as assignments and essays, as opposed to multiple-choice questions (Fransman, 1989:157).

2.3.5 Anxiety level

The possibility exists that anxiety could be heightened and cognitive performance lowered if lecturers and students view "independence" in learning wrongly. Whereas "study" is accompanied by a measure of stress in view of meeting the requirement of a pending examination or test, its purpose is better served if students "study" in a "learning" context. It is therefore logical to deduce that an anxious student is more prone to rote learning and forgetting because the notion of "study" has been imposed whereas the independent learner seems to be more relaxed, mainly because of the difference in requirements between "learning" and "studying".

Dressel and Thompson (1973:5) describe situations where "independence" is a misnomer:

- * In projects which are individualised but which do not allow independence.
- * Programmed learning which is highly structured.
- * Highly-structured reading lists for completion of assignments.
- * Close and constant supervision of educational experience.
- * Detailed specification laid out in advance curtails independence.

The implications of these misnomers are that well-meant intentions very often jeopardise the true thrust which independent learning has, thereby not positioning the student to achieve the learning objectives. Victor Schuck (in Hatch & Richards, 1965:68) postulates that "independence is a matter of degree rather than a set of absolutes". Therefore, no fixed formula exists for independent learning to be successful, nor is it applied by all individuals in the same manner. Certain students may be more positive in terms of attitude, while others have a bigger capacity in terms of cognitive performance.

Morgan (in Wright, 1987:1) relates independent learning to the idea of "personal development", a concept which McKenzie, O'Reilly and Stephenson (1985:188) categorise into "intellectual" and "social abilities". Intellectual abilities refer to the student's capacity to make critical, independent judgments, the ability to modify decisions as new information comes to light, to recognise and redefine problems, and the ability to synthesise with the view of finding appropriate solutions. Furthermore, McKenzie, O'Reilly and Stephenson (1985:188) describe "social abilities" as "clear communication and expression to participate in groups, to see other people's point of view, and to develop good working relationships". However, both attributes together form a useful combination and successful formula for independent learning to be worthwhile.

The importance of the affective domain in learning can never be underestimated. Similarly, the significant contribution of independent learning to the personal development of the student is of inestimable value, because of the enrichment that takes place. The cognitive and affective domains are, therefore, equally important for effective learning, provided that both domains, in tandem, are positively attuned for the task and function.

2.3.6 Perceptions of independent learning

With reference to the kind of knowledge it would seem that some knowledge is more easily obtainable and understandable than others. Zimmerman (1989:332) refers to 'declarative knowledge' which by nature is (a) sequential or hierarchical in structure, (b) it is organised and unambiguous and (c) it is unaffected by context conditions. As opposed to declarative knowledge, Zimmerman (1989:332) identifies 'procedural knowledge' which is organised around "conditions and actions".

The 'procedural knowledge' is highly sensitive to contextual conditions and it would require that the learner displays a cognitive skill which, by nature, would allow him/her to depict knowledge in the form of strategies or processes which match the task and facilitate performance. Whereas declarative knowledge emphasises how strategies are used, procedural knowledge emphasises when and why

strategies are used.

Declarative knowledge seems to give the student very little scope within which to manoeuvre in terms of the requirements of independent learning. Where lecturers expressly wish to inculcate independent learning, careful consideration should be given to the aspect of 'procedural knowledge' which is embedded in those contextual factors which will promote independent learning.

In conclusion, it could be stated that the contextual factors seem to suggest that the true thrust of independent learning will either be promoted or inhibited depending on the degree to which the contextual factor is mobilised, applied and adhered to, on the part of both student and lecturer. The mobilisation of the contextual factors will be manifested in either a "non-contiguous communication situation" or "a guided didactic conversation" (Holmberg, 1980:107,114), the former situation implying that "face-to-face" contact between lecturer and student is not ruled out totally, while the "guided didactic conversation" would normally be operative where distance is a factor.

2.4 The value of independent learning to learning in general

The value of independent learning is largely a function of the type of student in terms of being either 'syllb' or

'sylf', as described by Entwistle and Ramsden (1983:196), together with the style of and approach to learning in general. Other factors which play a vital role in determining the overall value of independent learning would seem to be the economic benefits attached to it (Adey & Kilpert, 1990:233), as well as the effectiveness of independent learning in response to the teaching strategy commensurate with it (Martin, 1984:159).

Entwistle and Ramsden (1983:196) distinguish between 'sylbs' and 'sylfs', the former being those students who blindly accept examinations and lectures without question and the latter being those students who, by contrast, reject, even abhor examinations, and actively dislike lectures. 'Sylb' is the acronym for "syllabus-bound" and 'sylf' for "syllabus-free".

The implications for the student who is a 'sylf' in terms of independent learning are that this type of student would not want to be dictated to by how a particular course of study should be executed - be it the manner in and the extent to which course material should be interpreted, elaborated upon and finally, presented. Normally, 'sylfs' detest formal examinations, and could therefore be described as students more amenable to and comfortable with independent learning. The converse is true for students who are 'sylbs'.

The studying and learning capabilities of students are largely a function of the style which the individual adopts, as opposed to the approach. Marton (in Entwistle and Ramsden, 1983:198) defines "style" as "more a characteristic of the individual". "Approach" is affected by the context of studying, or "a response to a situation". Therefore, independent study and independent learning can never be equated, because those students who are styled as 'sylfs' will not be influenced by the demands of an examination. Their approach will still extend beyond the confines of what is required, as opposed to the 'sylbs', whose approach will be determined by the demands inherent in particular situations.

Independent learning, although seemingly difficult to accomplish for many students, cannot affect learning adversely. Campbell (in Hatch & Richards, 1965:4) did considerable research in the field of self-directed study with students. He found that in none of the experiments on self-directed study were students placed at a disadvantage.

In his words: "This is economically quite important for if there is nothing to be lost in learning efficiency, self-direction could save a good deal of time and money" .

It could also be gathered from Campbell's research that independent learning fosters long-term benefits for the student. It leads to a greater sense of motivation to learn. Students seem to be able to cope better with problem-solving, improved decision-making and creativity. These attributes are essential if they wish to sustain a higher level of performance with intellectual work. The general complaint is that students are too reliant on "spoon-feeding" and that they prepare themselves solely and absolutely for the formal requirements, as outlined by the syllabus.

The increasing demand in South Africa for tertiary education, coupled with the increasing student numbers at tertiary educational institutions, will inevitably place great strain on physical facilities. Adey and Kilpert (1990:233) investigated the possibility of reducing marginal costs in higher education through a combination of contact and distance education as teaching strategies. They concluded that mass education lends itself perfectly to independent study or distance education. Both internal and international investigations showed that distance teaching was more cost effective than contact teaching.

From an economic point of view, independent learning would be justified in a new South Africa. Du Plessis (in Adey & Kilpert, 1990:233) made the very important distinction between contact and distance teaching following an

investigation that tertiary institutions are not so much characterized by the contact students have with lecturers, but by the "direct availability of study material and peers with whom problems can be discussed".

If independent study as teaching strategy is to reap any benefits, the availability of study material and the opportunity for students to study independently are prerequisites. In view of increasing student numbers the residential tertiary educational curriculum planners would seriously have to consider this strategy.

The direct relationship between teaching and learning and the ultimate student achievement would not only depend on personal characteristics like skills, attitude and motivation, but also on the extent to which students are able to manipulate, organise and utilise information through assignments, reading text-books and handling tutorials.

2.5 Independent learning and cognitive styles

Independent learning in relation to cognitive styles of the student holds affinity with those attributes which characterise the independent learner. Warner (1986:1-9), Jonassen (1985:271), Taylor (1986:56), Burge and Frewin (1985:4516) and Long (1987:333) more or less agree on those attributes which characterise independent learners.

These attributes could be summarised as follows:

- * The student has a belief in his own ability.
- * The student recognises that a reading ability forms an inherent part of independent learning.
- * Discipline and self-discipline are important.
- * Conceptual thinking and problem-solving are hallmarks of independent learning.
- * The learner must be able to exercise control over learning material.

The above attributes of the independent learner cover the broad range of domains in terms of the cognitive, affective and psycho-motor. The "student's belief in his/her own ability" (Warner, 1986:4) is an indication of the person's "self-concept", a factor subscribed to by Long (1987:333) for positive and effective learning to be able to take place. "Discipline and self-discipline" (Warner 1986:6) would ideally enable the independent learner to take "initiative and independence in learning" and also "accept responsibility for one's own learning" (Long, 1987:333), while the psycho-motor domain would manifest itself in an "internal locus of control" (Jonassen, 1985:271) and a measure of "creativity" (Long, 1987:333).

Seminal work done by Witken, Moore, Goodenough and Cox (1977:15) revealed that cognitive style does influence the learning style of the student, and that cognitive styles should be cast in process terms rather than content.

Basically, Witken, et al (1977:16) derived the concepts "field-dependent" and "field-independent" learners, the former implying that the perception is strongly dominated by the prevailing field, while the latter concept implies that "the person experiences items more or less independent from the surrounding field".

These findings led to the conclusion that students who engaged in independent learning were field independent and "were less influenced by others" while "practising more flexible reasoning patterns" (Jonassen, 1985:271).

Posch (1986:47) puts the cognitive style in relation to independent learning in a different context by emphasising that the learner does to some extent interact with his/her environment in order to:

- develop interests, problems, questions and aims;
- work towards their solution or realisation;
- control the working process and their results.

In the process, Posch (1986:46) identifies two types of influences: environment-defined and learner-defined. The environment-defined influences will result in a qualitatively different cognitive style adopted by the learner, because the learner is dependent upon the manner in which learning objectives, content and assessment procedures are defined by lecturers and institutions. This type of influence will give rise to the concept of

'dependent learning', as opposed to 'independent learning' which is largely "learner-defined" (Posch, 1986:46).

In more than one sense, the "field-dependent" concept corresponds with the "environment-defined" situation, whereas the "field-independent" learner in Witken's terms could be identified with the "learner-defined" situation as described by Posch.

The importance and relevance of a particular cognitive style in independent learning is characterised by a "field-independence" which manifests itself in the student's ability to "recognise areas of relative ignorance", to show initiative in setting themselves relevant questions" (Feletti, et al., 1984:72), "the student learns how to learn, which is more fundamental than learning what to learn" (Friedman, 1986:91), and "reflecting a concern for openness" (Brew, 1987:53).

Furthermore, the cognitive style in independent learning will manifest itself in the general skill which the learner acquires. These skills could be viewed from different perspectives, namely:

- * What is learnt in terms of knowledge.
- * The measure of success which the learner has with the independent learning system.
- * How the learners perceive independent learning.

Brew (1987:53) found that in terms of learning skill and content students conceptualised the learning process as an active one, that flexibility in approach was of cardinal importance, that looking for and creating structure, motivation, the appreciation of the relevance of a task, and positive attitudes and self-confidence are crucial for the independent learner's cognitive style.

Brew (1987:54) also found that the system of independent learning should be supported by the integration of theory with practice, and that students must be able to relate the learning material to their own situations.

From the student's perspective the system of independent learning was not merely to be provided with learning resources, nor to be able to "study alone" but to "become aware that there are choices about learning and some capacity for self-direction and self-assessment" (Brew, 1987:55).

While the process of independent learning would obviously veer in the direction of the learner determining the course and direction of the learning activity, implicit would be the kind of discipline which accompanies independent learning. In this regard Zimmerman (1989:329) refers to the concept "self-regulated learning" which is governed by three self-regulatory processes: self-observation, self-judgment and self-reaction. He believes that academic

self-efficacy is attainable through these processes "directed at acquiring information or skill that involve agency, purpose, and instrumentality perceptions by learners" (Zimmerman, 1989:329). He describes "self-efficacy as the "perceptions about one's capabilities to organise and implement actions necessary to attain designated performance of skill for specific tasks" (Zimmerman, 1989:329).

The literature has revealed that cognitive style plays a vital role in independent learning, with much emphasis being placed on the "self". The learner has to engage in independent learning with great introspection in order to meet the requirements in terms of self-judgment, self-observation, self-discipline and self-reaction. The cognitive style characteristic of and inherent in independent learning requires the student to channel most energy in the direction of initiative, enquiry, responsibility and control of the learning situation, with the ultimate objective being the acquisition of competency and the skilful performance of specific tasks.

2.6 Independent learning in distance education

Holmberg (1983:50) regards distance education as "a kind of mediated educational conversation" which is underpinned by a "pre-produced course" and organised "two-way communication between students and their tutors".

Furthermore, Holmberg (1985:1) considers distance education as covering "the various forms of study at all levels which are not under the continuous, immediate supervision of tutors".

Moore (1973:664) views distance education in terms of two separate activities which are executed apart from one another, that is, teaching behaviours and learning behaviours.

The separate execution of the learning and teaching behaviours in distance education gives rise to the facilitation of teaching and learning between student and tutor through different modes of communication - print, electronic, mechanical or audio-visual.

Garrison (1987:309) supports this argument by highlighting two issues, namely the independence of the learner and context of the activity, and the role of the facilitator and context of the activity of distance education. Garrison (1987:310) emphasises that distance education should be more intent on "developing the cognitive ability of the learner", rather than concentrating on the "external management of instructional events".

The development of the cognitive ability of the learner in distance education is a function of the quality of interaction and collaboration between learner and

facilitator, which Garrison (1987:311) defines as the "interdependent and transactional relationship".

Distance education is permeated with independent learning, and its success is dependent upon the quality of facilitating, the type of mediation through technology or other means, and the fact that distance education is meant to reach beyond the walls of the institution offering it.

Independent learning seems to be the mode of learning prevalent with the distance learner who could have decided on such a mode because of economic, temporal, psychological or geographic reasons (Garrison, 1987:312), and therefore, the ultimate goal is not to isolate the learner in learning context, but to "socially mediate the learning" and provide ultimate "learning autonomy" which is attainable on condition that learning competence is achieved (Garrison, 1987:311).

Keegan (1983:15) defines distance education more comprehensively by enlisting the following characteristics:

- Separation of teacher and student.
- Influence of an educational organisation.
- Use of technical media.
- Provision of two-way communication.
- Possibility of occasional seminars.
- Participation in the most industrialised form of education.

Keegan went beyond the pure physical characteristics and identified essential process characteristics such as two-way communication. He also highlights the importance of technical media without which distance education would not be possible.

On the question of communication, Holmberg (1980:107) reveals that the communication between tutors and students is more of "a non-contiguous" nature, that is, "face-to-face" contact is not excluded necessarily. Moreover, the communication is mostly characterised by the written word as the dominant form of expression.

In terms of the learning processes involved with distance learners, Cropley and Kahl (1983:27) emphasise that different learning processes would ensue, because of different psychological properties in learners, although Harper and Kember (1986:212) do not fully subscribe to this view. In terms of research done by Harper and Kember (1986:219) they found that the approaches to study of distance learners did not differ qualitatively from learners in a face-to-face setting. These findings emanated from the Approaches to Study Inventory (Entwistle & Ramsden, 1983) having been administered to 1095 students at two colleges of advanced education in Australia and Tasmania. However, it was found that the older, more mature students were less syllabus bound, and more intrinsically motivated. These students also favoured more

deep-level strategies of learning.

These findings are in agreement with those contextual factors which promote independent learning (see 2.3). More significantly, the Approaches to Study Inventory (Entwistle & Ramsden, 1983) is an internationally valid instrument in terms of student learning, whether administered to distance or face-to-face learners in higher education.

Three important issues have emerged from the literature with regard to the place of independent learning in distance education. Firstly, distance education is underpinned to a large degree by independent learning from the learner's side. Secondly, distance education is made possible by a technologically mediated communication, and thirdly, the tutor plays a facilitating, guiding role in an interdependent, transactional relationship with the student, in which is implicit the peculiar teaching strategy adopted by distance education tutors.

2.7 Summary

It is evident from the sources consulted that the concept "independent learning" could be interpreted in more than one way and, at the same time, be synonymous with related concepts. On the one hand, independent learning could be viewed as "a way of learning", characterised by very distinct features. On the other hand, independent learning

could also be viewed as "a way of instruction", in the form of "self-instruction" by the learner.

Moreover, it has become very clear that independent learning cannot be executed with success if the student does not possess sufficient reading skills, more specifically, the ability to "read to learn".

Repeatedly, the aspects of autonomy in learning and the freedom of choice featured prominently as important characteristics of independent learning. Concomitant with these features was the significant role played by the "self" in terms of judgment, reaction, control, observation and discipline. Without a balanced self-concept independent learning could never come to fruition.

Finally, independent learning should be placed in proper context in order to have the necessary effect with distance education which, by and large, calls for a field-independent learner and learner-defined situation.

2.8 Conclusion

The literature revealed that there was a distinction to be made between the concepts "independent study" and "independent learning". This distinction was to be found in the relatively stress-free process attached to "learning", compared to "study" in preparation for

examinations and tests which caused much stress and anxiety. Research also showed that stress and anxiety reach heightened levels with the under-prepared students (Naveh-Benjamin, McKeachie, & Yi-Guang, 1987:132).

While "meaningful or successful learning" does require the student to be intrinsically motivated and positive in attitude and demeanour, "study" makes its demands on students in terms of specific skills. The purpose with this chapter was not to encroach upon the province of study skills, but merely to concentrate on the concept "independent learning" in the teaching-learning relationship.

The concept "independence" did not imply that student learning took place without guidance from lecturers or consultation with peers. "Independence" referred rather to the quality of learning input made by the student after learning material was made available, although it must be conceded that the student is on his/her own to all intents and purposes.

The availability of stimulus measures to induce student learning is made possible by lecturers. The manner in which courses are conducted will determine the extent to which students learn independently or study independently, depending on the modes of assessment or levels of personal motivation.

Finally, the point must be stressed that if students wish to attain success in independent learning in the true sense of the word, tireless efforts must be made by lecturers to supplement, consolidate and attribute significance to learning material through measures such as background reading and other learning activities which are more amenable to conditions outside formal classroom sessions.

The following chapter will concentrate on the teaching strategies and styles of lecturers in the classroom, their effect on student learning and what teaching effectiveness embodies. Lecturing, as teaching method, together with the matching of teaching and learning styles, will also be discussed.

CHAPTER THREE

TEACHING STYLES AND LECTURING EFFECTIVENESS:

IMPLICATIONS FOR LEARNING

3.1 Introduction

In the previous chapter the focus was on the concept "independent learning", and an attempt was made to indicate the contextual factors which influence independent learning. The notion that independent learning is merely a type of learning "in the absence of the physical presence of the lecturer", was dispelled. The role played by independent learning as means to accommodate distance education also received attention.

This chapter endeavours to review teaching strategies and styles of lecturers which are commonly used in higher education, the effects of these teaching styles on learning and the possible matching of learning and teaching styles. The focus will also be placed on the purpose of lecturing, and the whole issue of teaching effectiveness. The purpose of this chapter is to discuss the value of effective lecturing for purposeful and meaningful learning.

3.2 Definition of terms

Before attempting to give an exposition in terms of the objective of this chapter, it would be appropriate to

define the following concepts in operational terms: teaching style, teaching effectiveness, teaching strategy, and learning style.

The point must be stressed that as far as possible, the term "lecturing" will be used in the sense that it is one of many teaching methods, while the term "teaching" is used to qualify "method" or "style" or "effectiveness". Furthermore, the tone of the text is such that "lecturing" and "teaching" are used synonymously to a large degree, with the emphasis being on teaching in higher education.

3.2.1 Teaching style

Galbraith and Sanders (1987:170) define teaching style as "an identifiable set of classroom behaviours associated with and carried out by the instructor. The chosen teaching style is the operational behaviour of the teacher's educational philosophy".

Teaching style is very strongly person-centred and is, therefore, recognizable with the person. The more stable the personality, the more predictable the style of teaching (Brown, Bakhtar & Youngman, 1984:99). They support this perception of teaching style because it is "a relatively stable orientation to the task of lecturing". In their extensive research on teaching styles they found that experience does not affect lecturing style, and is

therefore not an active variable shaping lecturing styles. Style of lecturing also holds strong affinity with the person's preference.

Although the teaching style of lecturers is a dominant or preferred one, it would seem difficult to modify it. Modification of the teaching style will essentially imply modification of the learning style. Another implication is that lecturers have dominant teaching methods.

Norton (1986:33) adds another dimension to style in that "style should not be confused with affectation" and it should not be covering up whatever "lacks substance". Furthermore, style should not only be linked to personality traits or eccentricities. It occurs very often that students are impressed with a lecturer's style from a visible point of view, often ignoring the lack of substance in presentation.

Research by Brown and Bakhtar (1988:132) identified five types of lecturing styles: oral lecturers, visual information givers, exemplary lecturer, the eclectic self-doubter and the amorphous talker. The oral lecturer was identified as a fairly confident, well-structured and orderly presenter of oral information. The visual information giver uses teaching aids predominantly; the exemplary lecturer presents well-structured material confidently and blends this with a wide variety of oral and

visual techniques of presentation. The eclectic self-doubter seems to be less confident and often deviates from the notes and objectives. Amorphous lecturers are vague about their objectives and do not adhere to the strategies of lecturing, although they appear to be confident. Of the five types of lecturing, the "exemplary" lecturer seemed to be the ideal, in which regard Guskey and Easton (1983:265) report that many common characteristics are showed by effective lecturers, but few personal characteristics.

The findings of Brown and Bakhtar were based on lecturers' perceptions of their own lecturing styles. Common factors emerged such as a liking by all lecturers for lecturing and the personal satisfaction gained. Some of the dislikes were uninterested students, lack of interaction and lecturing to large groups.

Two criteria are put forward by Norton (1986:34) according to which style can be judged. Firstly, the level of abstraction which is most appropriate and secondly, whether the particular definition of style is able to generate sufficient analysis as to what constitutes effective teaching style.

The level of abstraction is that level at which the lecturer will present information which is sufficiently within the grasp of students in terms of being

representative of reality. Too high a level of abstraction causes too little leeway in terms of concreteness, and vice versa. Therefore, the effective lecturer has to establish that balance between abstraction and concreteness, on the one hand, posing challenging learning objectives, while on the other hand, not underestimating students' ability.

In terms of levels of style, Norton (1986:34) identifies four levels, namely personality and character perspectives, communicator style and teaching style. While each style exudes different behaviours and perceptions, it would seem that teaching style is more transient by nature as opposed to personality and communicator styles. Class sizes, type of subject, and level of students in terms of motivation and knowledge are factors which influence teaching style, and supported by Brown and Bakhtar (1988:131) in their research.

In order to have greater understanding of the style of teaching it will require a greater understanding of the lecturer's preferences, beliefs and philosophy of teaching, where to distinguish between abstraction and concreteness, and unlike some research findings, the level of experience of lecturing, as well as student perceptions of their learning experiences in terms of a particular lecturing style.

3.2.2 Teaching Effectiveness

"Individuals doing research into the empirical determinants of teaching effectiveness are doomed to be searching through a haystack which simply contains no needle" (Lima, 1981:1057).

Lima makes the above statement in view of the fact that different teachers will exhibit different modes of teaching. It will be difficult to find the same style of teaching with two or more teachers, especially if it is considered that there is more than one effective style of teaching. Another major problem is that it would be difficult to isolate a set of criteria of teaching effectiveness which would have sufficient generalisability.

Lima (1981:1058-1059) indicates five reasons why teaching and lecturing styles will differ with people. Firstly different individuals possess different qualities for teaching. Some have more of a specific quality than others. Therefore, what works well for the one does not work very well for the other person.

Secondly, Lima (1981) outlines the basis of teaching effectiveness in terms of an economic - analytical approach where reference is made to an "effectiveness function". Individuals have different personality styles and will,

therefore, adopt different teaching styles.

On the analyses level there seems to be a difference of opinion as to what constitutes "effective teaching" (Norton, 1986:34) in terms of organising of content, giving form to content, pointing out relational concepts and ideas, emphasising necessary skills, and anticipating possible problems of students.

"Effectiveness" is a relative term. What is regarded as effective by one person might not be the case with another. Thirdly, the lecturer who emphasises lecturing and another who emphasises research, might probably adopt different teaching styles.

Judging by some of the requirements of teaching effectiveness nobody can just assume that lecturing is possible for any person, nor are all kinds of teaching "effective" teaching. Fourthly, the act of teaching is not a simplistic act, but part of a complex learning process which is interwoven with the human personality which is central to teaching.

Lastly, Lima (1981) attempts to relate teaching effectiveness to the rewards or weights placed on teaching by different institutions.

Therefore, according to Davies (1981:1) "it is necessary to consider the overall relationship between the learner, the teacher (sic) and the subject matter". Lecturing is also a socially challenging task which different equally effective lecturers will attempt to master and fulfil. Different teaching styles will prevail due to different endowments, differing perceptions of what constitutes good teaching, and different search paths or approaches to determine which of the available styles work for them.

3.2.3 Teaching strategy

The lecturer, in an attempt to convey information meaningfully to students, will make use of an appropriate method of teaching and, together with the necessary skills, transfer the learning material to the students. However, a predetermined plan to achieve the objectives of the lecture would have to be worked out.

With reference to student learning, Entwistle and Ramsden (1983:165) describe strategy as the path that is followed in terms of the demands made by the subject matter on students. Depending on the demands of the subject, students will then select the most appropriate strategy to achieve learning objectives. Dunkin (1983:67) refers to strategy as "sequences of moves" or "combination of moves".

The view held by Jacobs (1986:5) is that strategy refers to "the approach to learning material which is determined by the type of content".

For lecturers to achieve lecturing objectives they need to adopt proven strategies of lecturing, for example, moving from the "known to the unknown", the "general to the particular", or from the "whole to the part" or "part to the whole". Expressed differently, strategies could also mean to be "statements of similarities and differences of a concept", or it could be likened to "cause, procedure, reason, and rule" (Dunkin, 1983:67).

There is, therefore, a definite distinction to be made between "skill, method and strategy". "Skill" would refer to, for example, the quality of expressing oneself clearly in verbal terms; whereas "method" refers to an approach of teaching such as "case studies" or "lecturing".

3.2.4 Learning style

Davies (1981:3) views learning style as emanating from a particular approach to learning by students. He categorises four different approaches, namely, the preceptive, receptive, impulsive and reflective approach to learning. Jacobs (1986:5) defines learning style as "the learner's characteristics, study habits and attitudes". If, for example, the student is of the reflective type, the

style of learning would be characterised by the more independent type of learning. Such a student will be in a position to structure information and set learning objectives and will not be entirely dependent upon the lecturer for sequence, structure and objectives.

In many ways the manner in which students learn is closely related to their personality, "interwoven with affective, temperamental, and motivational structures as part of the total personality" (Entwistle & Ramsden, 1983:62). Initially it would seem that style refers to generalised habits, but does, in effect, develop around more profound personality trends. For that reason, Entwistle and Ramsden (1983:198) describe "style" as "being more a characteristic of the individual". Moreover, learning style could be labelled as a relatively stable and consistent phenomenon.

Although the content that students learn plays an important role, the process with which learning takes place is of greater significance. The effectiveness of the learning style is inherently person-centred and is not easily transferable. This is, therefore, one of the reasons why some students' learning style does not fuse very easily with some lecturers' lecturing style. This perception is supported by Galbraith and Sanders (1987:169) that learning style refers to the preferred way that individuals transform and assimilate information and how the learner constructs meaning out of stimuli. It is therefore clear

that students wish to adopt a style of learning through which they can attribute significance to the learning material, as advocated by Vrey (1979:30) in terms of the empirical-pedagogic criteria of significance attribution, experience and involvement.

Vrey (1979:32) elaborates on significance attribution as pedagogic (agogic) criterion in terms of the meaningfulness of the person's relationship with the self, others and the environment. In addition, the nature of the meaningfulness is a crucial factor, together with the interpretability of the relationship. Therefore, three key concepts manifest themselves in significance attribution, namely, meaningfulness, interpretation and relationship.

These concepts would imply that the student seeks meaning in the learning material with which he/she forms a relationship. It is only on this basis that the student is able to interpret such material. Out of this initial encounter with the learning material, new meanings might emerge.

The experience of the student with the learning material will depend largely on the quality of the meaning derived from the relationship. Vrey (1979:45) makes a broad distinction between "pleasant" and "unpleasant" experiences which degree of intensity exceeds pure memory or awareness.

The third criterion is that of involvement. By implication the student is drawn to the learning material to form an integral part of the intended relationship. Not only is it required from the student to display a willingness, but a purposeful intention to become involved with the learning material.

Witken, et al (1977:15) reviewed extensive literature and pursued experimental work which revealed that cognitive style does influence learning style. They found that some learners are "field-dependent" and others are "field-independent". These types of learners were discussed in chapter 2. A significant finding of this research was that the learning style of the lecturer influences the lecturing style.

Those lecturers who adopted a field-independent approach impose a tighter and more logical structure on teaching material. They also prefer more formal approaches to teaching. On the part of the students, the field-dependent students would seem to prefer this structure in teaching material. Although no clearcut empirical evidence is available, Witken, et al (1977:16) do contend that students prefer lecturers with the same learning style. However, what students prefer and what seems to be the most effective way of lecturing could be a contradiction in terms, although some measure of blending is necessary for learning and teaching to be effective.

3.3 The nature and purpose of lecturing

Lecturing is the activity that accompanies the presentation of a lecture whereby information is transferred by the lecturer to the student. How the lecture is compiled and the manner in which it is presented and received differs from person to person. What is of significance is that the lecture, if properly structured, entails a particular format which requires a particular style of presentation in order to promote learning. A few salient issues, namely, the manner in which lecturing is conducted, quality of lecturing, the importance of explaining, perspectives of lecturing, and the relativeness of the concept "lecturing" will be discussed in order to probe the true nature and purpose of lecturing.

3.3.1 Manner in which lecture is conducted

Research by Human (1991:100) has shown that the method of teaching does not play the predominant role in determining the quality of student learning, but the manner in which lecturing is conducted. Therefore, factors such as style of presentation and personality, audibility and interest play decisive roles.

Despite the criticism that exists about lecturing that it is a uni-directional method of presentation which causes students to be passive, lecturing can also elicit student

response and participation if all factors of effective lecturing are taken into account by the lecturer. The same principle would apply to other teaching methods, be it discussions, case studies, projects or individualised instruction.

Views about lecturing have varied and for more than six decades the value of lecturing has been reviewed, mainly concentrating on the effectiveness of lecturing in relation to other teaching methods, as well as on the views of students and lecturers themselves about effective lecturing (Brown & Atkins, 1988:11).

3.3.2 Quality of lecturing

The quality of lecturing contributes much to the nature of the method as the one with the highest utility frequency in higher education. The criticisms levelled at lecturing as method of presentation are justified in terms of lecturers who do not adhere to the requirements of compiling an acceptable lecture, of not presenting it with the enthusiasm which is necessary to elicit student learning, not complying with the skills required to handle the task of explaining which, according to Behr (1988:189) is one of the main functions of lecturing.

The view is held by many people that lecturing does not require any formal training and that it can be done by

anybody. While it is acknowledged that many good and effective lecturers did not receive any formal training before becoming lecturers, there are many who are ineffective because they lack the skills of lecturing, or they do not regard these skills as important.

3.3.3 The role of explaining in lecturing

One of the skills which lecturers need to have is the skill of explaining. Brown and Daines (1981:573) conducted a study to probe lecturers' views about the art of explaining. They found that lecturers have not been taught specifically how to explain, and many lecturers expressed scepticism at the possibility of being taught how to explain.

The study showed that the discipline played a significant role in what lecturers perceive as important when explaining. The years of experience of lecturing did not affect the results materially. Lecturers in science viewed the structural features of explanations as more important than their colleagues in the arts. Science lecturers also seemed more flexible in terms of teaching strategies. The study revealed the following as the most valuable components of explaining: clarity, interest, logical organisation, selection of appropriate content and student response.

The question arises what the nature of explaining is if explaining is regarded as the central activity of lecturing (Behr, 1988:189). Brown and Atkins (1988:19) contend that lecturing embodies three distinct skills: explaining, generating interest and presenting information.

It would appear that of the three skills the generating of interest could be separated from the other two skills for analytical purposes, in the sense that, while information is presented it could also be explained, or vice versa, while the generation of interest would be the factor which is borne out of the presentation. Should the lecture be dull owing to non-adherence to lecturing principles or a lack of lecturing skills, the lecture will be unable to generate interest.

The process of explaining is embedded in a particular typology of explaining which is threefold: descriptive, interpretative and reason-giving (Brown & Atkins, 1988:19) which approximate the WHAT, the HOW and the WHY.

Two issues arise from such a typology of explaining and these issues could be analysed against the background of the problem which the lecturer wishes to discuss, in which is incorporated the body of information to be conveyed, and the impact which the information will have on the students. The intensity of the impact will be largely attributable to the level of knowledge of the students.

However, all explanations are not always understood by students the first time, therefore points of departure of explaining have to be changed by the lecturer. At this juncture lecturing strategies become important in terms of approaching the problem from a "known to unknown" or "general to particular" basis or approaching the problem on a "content-free" basis (Gore, 1987:35). At this point the explanation focuses on HOW it is done, rather than WHAT, thereby concentrating momentarily on defining and redefining. Because the skill of lecturing expressly caters for an interpretative mode of explaining, there is no reason why the lecture cannot elicit the necessary participation from students.

It is, therefore, clear that the description of the lecture as a passive method is a misnomer. The interpretative mode of explaining also supports the work done by Human (1991:100) that the manner in which teaching methods are employed is what matters, and not the method itself. Student learning, as an outcome, is dependent upon the style of lecturing, personality of the lecturer, enthusiasm of all participants and the kind of understanding invoked by the lecturer, and not only the lecture per sé.

3.3.4 Perspectives of lecturing

Much research done with respect to lecturing as one of the main vehicles to relay information to students has shown

that two schools of thought about it have arisen. De Neve (1991:64) refers to the "teacher thinking perspective", on the one hand and "student evaluation of instruction", on the other hand.

The ideal would be to integrate what lecturers think about their lecturing with what students think about their lecturers' ability to transfer learning material. De Neve (1991:64) highlights this type of integration as an important strategy for teaching improvement.

Where lecturing is conducted through the lecture method it makes use of that method with the highest frequency in higher education. Four issues become imperative in the process of lecturing, namely, the presage, the context, the process and the product. As lecturing seems to be the ideal and most economical method whereby one lecturer can cater for a large number of students, these factors will have a varying impact, depending upon the numbers involved and the kind of instruction/learning environment.

According to De Neve (1991:66) lecturing is subject to a number of variables which relate to each of the following:

Presage: these are the characteristics of teachers and lecturers that may be examined for their effects on the teaching process. Teaching experience could play a vital role in this regard.

Context: these are the conditions to which the lecturer must adjust; the characteristics of the environment. Variables such as workload, subject knowledge and the lecturer's relationship with colleagues and students are some of the important considerations.

Process: this involves the actual classroom activities such as the lecturing which will be indicative of all the lecturer/student behaviours. Variables which are significant are the kinds of audio-visual aids used to enhance the lecturing, the students' quality of receptiveness and responsiveness, and the lecturers' ability and skill to convey the information effectively.

Product: this refers to the outcomes of teaching. These outcomes are determined by factors such as type of examination, lecture objectives, and the basis on which student performance is assessed.

While the nature and purpose of the lecture is embedded, primarily, in a process of explaining, providing information and generating interest, it has become abundantly clear that there are important variables to be recognised in this process, as identified by De Neve, namely, the presage, the context, the process and the product. These variables play a distinct and important role and could affect the quality and flow of the explanation if not recognised as an integral part of the

process of lecturing.

3.3.5 The relativeness of lecturing

The lecture is characterised by the language used to convey the content and is distinguished from being a "mindless conventional meaningless variable" (Dunkin, 1983:66) by four properties which, if adhered to, enhances their quality. These four properties are the following: substantive content, clarity, teaching strengths and student feedback.

Firstly, lectures are characterised by substantive content which is presented to students. This content is structured on the basis of principles, laws, theories, problems, solutions and facts and evidence suggests that student achievement varies with the amount of material to be covered in lectures. Generalisations, however, are hazardous because of insufficient evidence, although Entwistle and Ramsden (1983:125) did confirm through extensive empirical analysis that workload has a direct influence on student achievement, in that learning is of a superficial nature.

The second quality of lecturing is the clarity with which students experience the teaching, a finding supported by Brown and Daines (1981:574).

Where lectures have been vague, research has not yet established if vagueness is caused by a lack of knowledge of the content, or a result of a language impediment, the cause of which would be able to determine the solution. However, students tend to achieve at a higher level if they have experienced teaching that is high in clarity. They also tend to evaluate the lecturing more positively than students who experienced lecturing low in clarity.

Thirdly, individuals rely in different measure on particular teaching qualities in order to teach effectively.

Fourthly, Lima (1981) supports Dunkin (1983) when they emphasise the importance of feedback about teachers' strengths and weaknesses. Teaching skills can be improved if proper feedback is given to teachers. Therefore, good lecturing is also a learning process. Teaching effectiveness is affected by systems of evaluation of lecturing. It is important for lecturers to know what weights are placed on different parts of the lecturer's performance. The evaluation of lecturing does influence the lecturer's performance in terms of either lecturing, research or community work, especially if some added incentive should be attached to any of these functions.

From Lima's model it could be deduced that "teaching effectiveness" is a relative concept and it transcends

variable degrees of perception. The model's significance lies in the fact that it does propagate "feedback" to be an essential element to effect lecturing improvement. It would imply further that if an individual is open to feedback on lecturing performance, the likelihood is great that further lecturing improvement is possible.

3.4 Criteria of teaching effectiveness

Effective teaching is sometimes equated with successful teaching. However, effective teaching is concerned not only with success but with appropriate values (Brown & Atkins, 1988:5). The effectiveness of teaching styles is established by the consideration of numerous factors: how students perceive these teaching styles; the rating students give their lecturers; the quality of explanation within lecturing, and the extent to which the teaching/lecturing can elicit actual learning. Relevant research will be reviewed in terms of differences between more effective and less effective lecturing.

Some criteria of effective teaching put forward by Brown and Atkins (1988:5) are the following:

- motivation is increased;
- positive attitudes to learning are stimulated;
- achievement is improved;
- thinking is stimulated.

Cahn (1970:255) gives an indication, based on a 20 years perspective and first hand experience of college teaching, of what teaching should not be. This perspective attempts to advocate that teaching should not be:

- Limited to one mode, but the non-stereotypical should also be emphasised, that is, open-book tests, panel discussions and group work.
- Shifting from one teaching mode (process) to another without making sure that the students themselves will make this process shift.

The manner in which student performance is assessed has traditionally been essay-type questions which claim to have the highest utility frequency in tertiary education. Good teaching makes provision for the fact that students are fully conversant with what is required from them by the method of assessment and should a switch occur to, for example, open-book tests, these should not be unfamiliar to the students. Where unconventional assessment modes are utilised the measure of success with the mode will depend on the extent to which students are familiar with the method of assessment. The method of teaching and method of assessment should be in direct relationship, depending upon student understanding of both method of teaching and assessment.

Fiedler and Gillo (1974:673) do not specifically state to what teaching effectiveness could be ascribed, save to

indicate that four groups of variables exercise considerable influence.

These variables are the following:

- student characteristics such as their abilities;
- teaching methods such as lectures, discussions;
- teaching objectives in terms of subject-matter and intellectual growth of student;
- teacher characteristics such as competence, likes and dislikes and expectations.

From the criteria laid down by Brown and Atkins, on the one hand, and Fiedler and Gillo on the other hand, criteria for teaching effectiveness are based on those inherent characteristics which are found in both the affective and cognitive domains of the student and lecturer. A student who is motivated by the lecturer who, in turn, possesses all the necessary skills of lecturing cannot be but effective.

Lowman (in Jones, 1986:85) makes a very important statement which indicates that a balance must be maintained between "intellectual excitement" and "interpersonal rapport" when the lecturer is busy in the classroom.

He states this "balance" as absolutely necessary because lecturers could sometimes be too overwhelming in terms of conveying the academic and intellectual worth of the content at the expense of the "personal touch" with the

student. According to Lowman, teaching is not as effective if the technique does not reflect:-

- personal touch;
- individual integrity;
- authenticity.

Students rate the personal touch of the lecturer very highly as has been revealed in an empirical investigation by Hull and Hull (1988:494). Students showed a strong preference for a supportive lecture style, although they felt that a demanding style was also necessary. However, the warmth exuded and the sensitivity displayed to student needs were crucial for the promotion of effective student learning.

The evidence according to the literature is sufficient to suggest that lecturing effectiveness is a relative situation, but is also closely related to the extent to which lecturing makes an impact on students and student learning. There would seem to be a definite relationship between the effectiveness of a lecturer and the extent to which students perceive their learning to be positive and their performance commensurate with it. Erdle and Murray (1986:115) show conclusive empirical evidence to support this notion.

Erdle and Murray found that the pattern of correlation between classroom teaching behaviours and student ratings

of teaching effectiveness is quite similar in different content areas. Substantial differences were evident, however, in the frequency with which lecturers exhibited specific classroom teaching behaviours. Lecturing effectiveness is built on the positive contributions of both lecturer and student because lecturing effectiveness is not possible without the necessary receptiveness, responsiveness and cognitive ability of both parties.

In response to a variation in lecturing, in favour of discussions, Phoenix (1987:15) advocates strongly the participation of students in class. Her research shows that students rate the lecturers highly if the opportunity has been afforded in class for active participation, thereby implying that her study equated lecturing effectiveness with active participation of students. It would further imply a variation of the method in favour of discussions.

3.5 Lectures versus discussions

Lecturing is the most commonly used method of presentation in higher education, but for the purposes of highlighting its effectiveness it will be compared with the discussion method which is also used extensively. The comparison is also based on the difference in approach to the two methods.

Dunkin (1983:75) reviews the literature with regard to the lecturing method, in terms of comparing it with other accepted methods of teaching, student perceptions of the lecturing method, factors which contribute to lecturing effectiveness, as well as those factors which distinguish between more effective and less effective lectures.

Dunkin lays emphasis on the fairness and acceptability of the criteria to both methods according to which a comparison is drawn. Firstly, one method is not superior to another unless the particular learning objectives are stated explicitly. Secondly, certain learning objectives are better achieved through utilising a specific method of teaching. McKeachie (in Dunkin, 1983:65) stresses the 'Hawthorne effect' as one of the pitfalls of comparing methods. The 'Hawthorne effect' is caused by emotional reactions of staff and students involved with novel methods which cloud the genuine effects of the method. Methods, per sé, are only as effective as the manner in which they are utilised and their linearity with the learning objectives to be achieved.

Further research by Kulik and Kulik (in Dunkin, 1983:65) showed that lectures were neither more nor less effective than discussions for the attainment of higher level intellectual learning, such as problem-solving. However, discussions seemed to be more effective than lectures in promoting attitudinal changes. Therefore, the ultimate

goal to be achieved was a crucial factor in deciding upon a method of teaching.

Attempts to compare the lecture with other methods such as laboratory work, self-instruction, and audio-visual instruction did not produce sufficient evidence to favour one method over the other, according to Drake (1988:13). Careful consideration must be given to the conditions that will prevail in the teaching-learning situation. The rationale is that a teaching method can only be effective if it suits the conditions (Davies 1981:1). The deduction is that the lecture method is still very popular, although there are pitfalls when assessing the relative effectiveness of different teaching methods. According to Dunkin (1983:66) some of these pitfalls are the following:

- criteria of effectiveness must be fair to both methods;
- a given method of teaching may suit some students more than others;
- students' ability to learn independently could compensate for poor teaching methods, thereby disguising lecturers' inadequacies.

A crucial factor is that methods should be investigated in the particular context of the course. The course context is determined by a number of variables, such as students, lecturers, learning material, teaching method, learning environment, methods of assessment, and this context could

be perceived by students as being more amenable to independent learning rather than being lectured to. Therefore, comparisons between methods could be difficult because of bias, personalities and reactions of students and staff.

3.6 Matching teaching and learning styles

Charkins, O'Toole and Wetzel (1985:111) conducted extensive research into the link between teaching and learning styles in the subject Economics. The results of their research suggested that this link does affect learning and attitude. They found that the larger the divergence between teaching and learning style, the lower the gain in student achievement in the subject and the less positive the student's attitude towards the subject.

The link between teaching and learning style has implications for the lecturer. Students who are highly dependent on the lecturer would prefer to be given structured, logically sequenced information, as opposed to the independent learner who wishes to participate in the form, content and assessment conditions of the learning material.

Jacobs (1986:6) counters this argument of necessarily linking teaching to learning styles. He found that this link is not always beneficial and it is also difficult, if

not impossible, to obtain a meaningful correlation between teaching and learning styles. These arguments are based on the research evidence that there is no specific dimension of students who prefer unconditionally a specific teaching style. Jacobs (1986:7) showed in his research that most students seem to be able to adapt to a specific teaching style.

Empirical evidence produced by Galbraith and Sanders (1987:169) suggests that there is a definite relationship between lecturers' teaching and learning style, because lecturers tend to teach the way they learn.

The implications of this argument for student learning is that if the learning style of the lecturer does not correspond with the learning style of the student, the student is at a disadvantage. Furthermore, the student will be placed at a further disadvantage if lecturers prefer dominant teaching methods which correlate highly with their own learning preferences (Galbraith & Sanders, 1987:175), which would mean that the lecturer will eliminate a major party from the teaching-learning relationship - the student.

While Jacobs (1986:7) suggested that an ideal match between teaching and learning style was difficult to obtain, lecturers should become aware of different learning styles of students and their concomitant learning needs.

Lecturing styles should be flexible enough to accommodate particular learning styles.

However, a study done by Hunt (in Davies, 1971:3) suggested two matching formulae for lecturing and learning styles. Hunt's basic thesis was that students with a low conceptual level will profit more from highly structured lectures, and students with a high conceptual level will profit more from low structure, or in some cases, are less affected by variations in structure. Hunt also discovered that, while the conceptual level of students remained the same, the lecturer's ability to maintain a particular method was not consistent.

Although this analysis by Hunt shed more light on a most relevant situation in the lecture room, the study did not take into account differences in conceptual levels of lecturers. The identification of these differences is important in view of the notion that lecturers' methods are influenced by their own learning styles and their beliefs and philosophy of teaching.

A second model of matching teaching and learning style was proposed by Hill (in Davies, 1981:4). The model related to cognitive style mapping whereby students were assigned to particular teaching methods on the basis of their particular learning style. For example, students who showed a particular strength as an individual learner were

assigned to programmed texts (Benington, 1982:155). Lecturers were also assigned a method which was particularly suited for their teaching strengths. This approach ensured greater probability of student success.

Canfield (in Davies, 1981:4) adopted an instructional style inventory which was complementary to a learning style inventory. This matching procedure allowed students with strong listening ability to learn from audio tapes, and those who had a preference for direct experience were channelled into laboratory work.

If the lecturer is behaviourally oriented, the belief might exist that students learn best through stimulus-response activities. If the belief is of a humanist nature, the lecturer might stress a more heuristic approach (Bostrom, in Davies, 1981:2), thereby implying that lecturers' beliefs and philosophies of teaching do play a vital role in their whole approach to lecturing and student learning.

The matching of teaching and learning styles would seem to be a relevant and necessary process, considering the problems which lecturers experience, on the one hand, and students, on the other hand. Too often lecturers select those methods with which they feel comfortable, but which are perceived as ineffective by students. When lecturers select a particular method it is assumed that the selection of a method is based on the lecturer's style of learning,

belief and philosophy of teaching. This selection should be done with due consideration given to the student's learning style, belief and philosophy of what teaching and learning is about.

Lecturing must be planned judiciously and methods selected with circumspection and due consideration given to students' critical orientation and disposition, independence, creativity and thought to learning. Only then will students experience and involve themselves with meaningful learning.

3.7 Implications for learning

Lecturing styles, effective lecturing and learning styles have vast implications for student learning. If it is considered that a discrepancy or anomaly exists between lecturing and learning, there are a few pertinent issues which would contribute to closing this potential gap.

Successful learning is accomplished if the learning endeavours of students are accompanied by significance attribution, experience and involvement. The extent to which a student can relate meaningfully to subject matter, experience it and be involved with it, will be an indication of how successful the lecturer has conducted the lecture.

The literature has revealed explicitly that the lecturing style exerts considerable influence on the learning style. Successful learning performances would be possible because:-

- Objectives of lecturers were challenging, though realistic.
- The method suited the learning conditions of students.
- The method suited the objectives that were set.
- The assessment conditions were congruent with the lecturing style, subject matter and the learning position adopted by students.

Furthermore, those students who identified with a deep-level approach to learning, expect lecturers to allow them some leeway with regard to setting objectives and having an input with the decision about assessment conditions. The independent learner makes significantly different claims on the lecturing style, and also views effective lecturing in another light.

Surface approach students prefer well-structured lectures because they can prepare more easily for examinations, but according to Entwistle and Entwistle (1991:222) this situation creates a paradox. Students with a deep approach to learning are able to organise learning material intelligibly, the implication being that their lectures need not be well-structured, despite the fact that well-structured lectures would be a contributory factor for

effective and meaningful learning.

3.8 Conclusion

The purpose of this chapter was to highlight the implications of teaching styles on learning. Although lecturing has been found to be the most common form of teaching in higher education, there is sufficient evidence to believe that it has not been conducted effectively by many lecturers. This state of affairs is attributed to a lack of lecturing skills, including the art of explaining. Because basic skills of lecturing are often ignored, the method has been criticised. However, more attention should be given to the manner in which the method is conducted.

What has become abundantly clear during the course of this chapter is that the triangle - lecturer, student and subject matter - plays a decisive role in the level of effectiveness of lecturing.

Firstly, the lecturer, his person, approach, objectives and knowledge of how students learn are key determinants for lecturing effectiveness. Moreover, the lecturer must have an attitude which exudes confidence in students and which promotes a healthy relationship between lecturer and student. It was noticeable that most of the literature on the issue of lecturing stressed the importance of the affective and attitudinal factors in lecturing. The

knowledge component was regarded as important, but was doomed to failure if healthy attitudinal elements did not accompany it.

Secondly, the student had a significant role to play in terms of effective lecturing. They are the sounding board for what lecturers have to present. From the literature it was evident that the lecturing style had to fuse with the learning style in order to promote successful learning. Unfortunately, lecturers cannot always accommodate all learning styles. However, it was found that where the learning styles of lecturers corresponded with that of students, the students seemed to be in much better control of the learning material.

Thirdly, the subject matter exercised a measure of influence over the effectiveness of lecturing, especially with reference to the finer points of explaining. Empirical evidence suggests that science lecturers emphasise different elements of explaining, compared to their colleagues in arts. Subject area seems to play a significant role in lecturing styles.

While it is conceded that lecturers develop their own unique styles of lecturing which are linked to their own learning styles and preferences for certain methods, these styles would correspond with one or more styles as perceived by lecturers themselves (Brown, Bakhtar &

Youngman, 1984:95). . However, this does not mean that a lecturer adheres rigorously to a particular style as suggested in this research which indicated that years of experience did not form a very strong relationship with lecturing style.

In this chapter the researcher does not purport to have accounted for all the variables which might influence lecturing style and effectiveness, although it is debatable whether years of lecturing experience does not contribute to better lecturing. Through a concerted effort of teaching development and training of lecturers, who are committed, their repertoire of lecturing skills could be augmented.

However, it must be conceded that lecturers who start their careers with the necessary lecturing skills and build on these, are deemed to be the better lecturers with experience. What is necessary in order to illuminate a fairly puzzling finding in terms of the non-association between lecturing style and years of experience, is an analysis of and reflection upon the concept 'experience'.

In the following chapter the focus will be on the nature of the subject Economics with reference to higher education, how the subject could be taught, with due consideration given to student perceptions of the subject. The implications for student learning in the subject Economics

will also be reviewed on the basis of relevant empirical evidence gleaned from the available literature.

THE HISTORY AND DEVELOPMENT OF THE FIELD

4.1 Introduction

While the previous chapters have focused on the theoretical underpinnings of the field, this chapter provides a historical overview of the field and its development. The field has evolved over time, with significant contributions from various researchers and scholars. This section will explore the key milestones and figures in the history of the field, as well as the current state of research and practice.

The field has a long and rich history, with roots in the early 20th century. The initial focus was on the study of the mind and behavior, with a particular emphasis on the role of the environment in shaping human development. Over time, the field has expanded to include a wide range of topics, including the study of the brain, the development of language, and the role of social interactions in human behavior. Key figures in the field include Sigmund Freud, B.F. Skinner, and Jean Piaget, among others. Their work has laid the foundation for much of the research and practice in the field today.

In the early 20th century, the field was primarily concerned with the study of the mind and behavior. However, as the field grew, it began to incorporate a wider range of perspectives and theories. This led to the development of new subfields, such as cognitive psychology and developmental psychology. The field has also become increasingly interdisciplinary, with researchers from a variety of backgrounds contributing to the field. This has led to a more comprehensive understanding of human behavior and development.

CHAPTER FOUR
THE SUBJECT ECONOMICS,
ITS NATURE AND ECONOMICS EDUCATION

4.1 Introduction

While the previous chapter reflected on lecturing, lecturing styles and skills and how these could best be harnessed to provide for effective student learning, the current chapter will address the nature of the subject Economics and the implications this has for student learning.

In order to do this, a broad overview of the current status of the subject in tertiary education in South Africa will be touched upon, followed by different approaches to investigate economic phenomena. The effect of and implications for student learning of Economics, in terms of these approaches, will also be reflected upon. Suggestions will also be made as to how a more competency-based approach to the teaching of the subject could enhance student learning.

In outlining this chapter there is always the inherent danger of overemphasising Economics per sé at the expense of Economics education. This possibility does exist, because according to Burkhardt (1976:89) "much has been written about economics, but very little about the teaching

of economics". A logical deduction that could be drawn from Burkhardt's statement is that there is a paucity of literature on the teaching of Economics. The general impression gained, after having consulted the literature, is that most of the available sources seem to focus more on primary and secondary education.

Throughout this chapter, an attempt will be made to maintain a balance between the demands of the subject, on the one hand, and the value of Economics education for the tertiary Economics student and the broader citizenry, on the other. For this reason attention will be paid to "economics literacy" as one of the primary concerns of Economics education.

4.2 The nature of the subject Economics

4.2.1 A quantitative view

Two viewpoints come to light when the subject Economics is discussed in the South African context. Firstly, the lecturer-student ratio has an important bearing on the subject and how the subject is perceived by students, and the effect that the ratio has on student learning. Secondly, the subject per sé makes use of a definite and inherent terminology which, to many students, is experienced with great difficulty. Moreover, the perception of "difficulty" is compounded by the often

unsuccessful and inadequate transfer of economic information.

One source of "difficulty" has been found, according to Mohr (1990:70), in the under-supply of well-qualified lecturers. His research has shown that 38 062 Economics students were enrolled at South African universities during 1989 up to honours level, while only 215 lecturers (including 35 professors and 14 associate professors) serviced these students. One lecturer was accountable for 177 students.

The deduction could be made from the vast number of students doing the subject that it is extremely popular. Another deduction could be that Economics stretches across a wide array of social science disciplines for which it could act as prerequisite or major subject.

Although Mohr does not define explicitly what is meant by "well-qualified", pure conjecture could have it that the lecturers concerned have not risen sufficiently above the level of the students they teach, or that some training is lacking, or that they are not qualified to lecture to such big numbers of students.

In a similar study for Technikons done by the researcher, the enrolment figure for Economics at eleven South African technikons was 4 520 students during 1991. The first-year

group comprised 78,6%, the second-year group 13,2% and the remainder was in the third year of study. These students were serviced by 39 lecturers, of whom three possessed a Master's qualification. A national average per lecturer would approximate 116 students.

The Technikon RSA which is the distance teaching technikon had 1 393 students in their first year during 1991, 254 in the second year and only 66 in the third year. Four lecturers were responsible for these students, averaging 428 students per lecturer.

What seems to be of immediate concern is the relatively small number of students who proceed to their final year of study with Economics. Of the full-time residential technikon students only 8,2% managed to study the subject in their third year - roughly 371 students. Of the distance education students only 3,8% find themselves in the third year of study. The reasons for this state of affairs are not clear.

Focusing on the residential technikons, the figures also revealed that seven of the eleven technikons' student numbers per lecturer exceeded the national average of 116 students (based on 11 technikons). In one instance, the student numbers per lecturer exceeded that of the universities by approximately 12,4%.

It is abundantly clear that the lecturers responsible for the subject are facing big student numbers which do not always encourage effective lecturing and learning. Henderson (1980:25) believes that one of the main objectives of an Economics lecturer should be to "assist students to frame appropriate questions and seek out ways of establishing answers", and, in addition, undertake to "identify and clarify problems as appropriate and capable of investigation, classificatory languages, isolating and defining attributes of the real world and observe, categorize and compare".

The view held by Henderson seems to be the thrust of what Economics teaching and learning is about, but the reservation has to be expressed about the attainment of such goals under pressure of big student numbers.

One solution to the problem might be the training of more mentors and lecturers in the subject; alternatively, the offering of assistance to lecturers and students. A second possible solution to alleviate the problem could be if students are guided to become better independent learners, as was discussed in Chapter 2.

4.2.2 A qualitative view

The true nature of Economics stems from the fact that the human being is always confronted by a lack of resources to

satisfy his/her very needs. The problem seems to be aggravated by the desires which modern technology creates within people, giving rise to different levels of needs which yearn for satisfaction.

In his definition of what Economics is, Samuelson (1980:3) emphasises certain concepts which are indicative of the nature of the discipline: "transactions; scarce resources; earning; consumption; production; wealth; improve society".

In many parts of the world the anomaly exists that these concepts do not have the desired effect because the antithesis reveals itself. Without probing the manifold reasons why such a situation would arise, it would be appropriate in this chapter to concentrate on how student learning could be facilitated in Economics in order to elevate the level of Economics education.

The subject Economics, similar to many other disciplines, does comprise many principles and laws. In order to cultivate some form of Economics education through this approach, it is necessary that lecturers have the ability to expound on underlying principles and to indicate their effect on daily economic life.

Morris (1984:179) indicates that the analytical approach should develop and nurture within the student "an ability

to think", and "to develop basic economic [sic] logic". By being analytical, the student should be able to answer eventually questions in Economics which might occur.

A basic source of the learning problem seems to be a lack of understanding by students that the true nature of Economics is embedded in a conceptual framework. This framework is summarised by Jeffreys (in Atkinson, 1985:18) when he describes Economics as "a determinate deductive science, characterised by scarce resources. Scarcity of resources is a fixed problem to which is linked a determinate reality".

The human problem of relying on scarce resources for survival and social and psychological satisfaction necessitates that the person must make a choice. All needs cannot be satisfied simultaneously, therefore choices must be made by the human being, and always on the basis of what is available in the external environment.

Once the student comprehends the scarcity of resources as "fixed problem" and the concomitant "choice" to be exercised, a definite reference point would have been created from which other key and relevant concepts would manifest themselves.

Economics could be regarded as one of the important subjects that students can learn. There are several reasons why this is so:

- * We live in an economic world where major issues are fundamentally of an economic nature.
- * Effective decision-making and participation in a democratic society require of people to have at least a minimum level of competence in the subject.
- * The discipline also provides powerful tools of analysis that are applicable in many real-life situations.
- * Many personal and business decisions require some ability to use Economics in a meaningful way.

These are some of the reasons for promoting an economic education. Providing students of the discipline with basic economic knowledge and literacy, therefore, becomes one of the major challenges facing Economics lecturers.

4.3 Key concepts in Economics

The economist's approach is a distinctive approach, because the economist will always try to focus the consumer's attention on the real costs of a product or service under conditions of relative scarcity. This distinctive approach is borne out of a combination of opportunity cost analysis and marginal thinking, according to Jeffreys (in Atkinson, 1985:20). A brief outline of the four key concepts will

follow.

4.3.1 Opportunity cost

This concept could be illustrated with the example of people receiving water free of charge. Under normal circumstances the perception would be that no charge or payment is involved. In economic terms somebody will have to pay. In order to provide water free of charge, some other service will have to be foregone.

The essence of opportunity cost and the understanding of the concept are embedded in the "foregoing" of another service, product or benefit, alternatively "foregoing opportunities" (Samuelson, 1980:473). Samuelson also refers to "sacrifice". Jeffreys (in Atkinson, 1985:22) regards "opportunity cost" as a key concept in Economics. He states that opportunity cost has a central assumption whereby each act excludes other possible acts at any given moment of action, such as in a three-dimensional space where no two objects can occupy the same space at any given time.

Three implications of the concept "opportunity cost" for student learning become evident. Firstly, no good or service is free - there is somebody paying for it. Secondly, there is always another good or service at stake than the one offered "free". Thirdly, the issue of

alternatives arises, because one good or service has to be foregone in order to utilise another.

4.3.2 Rationality

The concept of opportunity cost gives rise to the problem of choice which has to be effected rationally. Jeffreys (in Atkinson, 1985:22) describes the choice to be made as a "choice of alternatives" to which is attached a cost. A rational choice would, normally, but not always, be the most efficient choice or alternative with the least cost.

The concept "rationality" if understood in its proper perspective, will allow students to make some sense of the real world. This concept will also enable students to create an order out of and impose some meaning on their experiences in the economic world. A further implication of this concept for the student is that it refers to "making a choice" with the necessary utility value accompanying such a choice that would satisfy a specific need.

4.3.3 The marginal concept

In paragraph 4.2.2 the point was stressed that Economics is a "science of the society" (Samuelson, 1980:456) and it concerns the satisfaction of human needs. The Economics student should be aware of how the marginal concept

influences the satisfaction of these needs.

The marginal concept holds affinity with the factors of production like capital, labour and land. These factors are used to produce so that people can consume. What is significant is the proportion in which these factors of production are utilised. Marginal thinking focuses on the effect of additional spending of factor inputs on output.

The marginal concept has a significant bearing on the profit maximising position, because more factor inputs do not necessarily mean greater profits. The Economics student has to understand that it could lead to a worse profit maximising position and smaller production capacities (Dornbusch & Fischer, 1978:342; Chisholm & McCarty, 1981:538). Of further significance is that the "marginal" concept transcends the "opportunity cost" and "rationality" concepts, in that, rational, as well as efficient, choices have to be made with regard to the proportions of factor inputs.

One of the best examples of the marginal concept for the student is the real-life one of hunger which needs to be satisfied. Food is consumed to still the hunger up to a point where saturation is reached. Should more food be eaten after this stage, a situation of disutility would actually present itself. The person could be worse off in terms of becoming sick if eating in excess of what is

actually required to still the hunger.

4.3.4 Efficiency

Chisholm and McCarty (1981:12) define efficiency "as the degree to which an economic system uses its resources to produce the maximum amount of wanted or needed goods". This would imply that, when a system is perfectly efficient, there is no waste.

The Economics student should realise that in the real world the supply and demand seldom equal each other, therefore shortages and oversupply do occur. A further significant factor is that the concept of "efficiency" relates to the other key concepts, for example, marginal decisions producing efficient results or the assessment of opportunity cost through relative efficiencies.

The student should also realise that these four key concepts in Economics display a fine interplay with one another, and that these concepts have a major impact on the ultimate objective of the discipline, namely the satisfaction of human needs.

At this stage of the argument the mechanisms, variables - endogenous and exogenous - and economic players such as government, industry, banks and the international markets do not really feature until a profound understanding is

gained of these key concepts and their relationship with one another. The key concepts will feature directly, or by implication, in each of the sub-disciplines such as government finance, international economics, banking or labour economics. This proves that opportunity cost, marginalism, efficiency and rationality are basic, fundamental and rudimentary to Economics education. Unless the student of Economics is brought into firm contact with these concepts, further learning of Economics could be discouraging for the student.

The evidence provided by the literature seems to indicate that the four key concepts in Economics do require a reasonable analytical ability from the student in terms of their philosophical disposition. However, these key concepts also have a descriptive connotation which would imply that lecturers should complement the analytical-philosophical exposition with the descriptive outline. The descriptive approach of economic phenomena is based on the "perceived relevance, usefulness or practicality" of the subject-matter for students (Morris, 1984:178).

4.4 Approaches to Economics education

4.4.1 The deductive logic approach

"Rationality and opportunity cost
are the key philosophical concepts

with the greatest power in defining the economic perspective. Marginality and efficiency are the key operational concepts with the greatest power in permitting perspective to function predicatively" (Jeffreys, in Atkinson, 1985:25).

Jeffreys bases his argument for the deductive logic approach on the importance of the key concepts "rationality" and "opportunity costs". While these two concepts form the philosophical basis for his perspective on the field of Economics, he uses "marginality" and "efficiency" as the operational constructs to give effect to better social and economic decisions.

Jeffreys (in Atkinson, 1985:25) expounds a profound philosophical perspective of the 'deductive logic' approach whereby the Economics student has to understand the implications of and the interrelationship between core concepts such as "opportunity cost, marginalism, rationality and efficiency".

Henderson (in Atkinson, 1985:34) argues that "rationality" is an assumption geared towards the building of predictive models. He argues further that rational economic decisions are useful to determine what economic policy ought to be, but it does not necessarily mean that it will lead to better social and economic decisions. The reason is that

personal actions of people trained in Economics sometimes contradict the intention of the rational decision. An example is the country with some of the best trained economists which suffers from bad economic policy.

Henderson acknowledges that "Economics as a subject has a formal analytical structure" (in Atkinson, 1985:37). Through the process of deductive logic certain assumptions are made which give rise to predictive models. These models, being abstractions of reality, are then subjected to empirical testing.

According to Chisholm and McCarty (1981:8) and Koutsoyiannis (1985:3) models are simplifications or abstractions of the real-world complexities which illustrate how principles operate within the economy. These models help people to visualise how the economy works and to predict future economic performance.

Students would need to have an understanding of Economics, in the sense of distinguishing between positive and normative texts, of distinguishing between empirical and predictive statements in order to reconcile assumptions with real world economic phenomena.

Fundamentally, Jeffreys and Henderson differ on the issue of what the objectives of an Economics education are. It appears that, from the two points of view, the

philosophical approach of "deductive logic" is juxtaposed with a more real-life practical view of 'deductive logic'.

The Economics student could experience serious problems if the basis for a particular assumption or postulate is not clearly defined. A fair amount of Economics theoretical underpinning is required to assess the assumption within the context of real-life Economics.

An example in the current South African economic life is the assumption that the economic recovery can be consumer-led. Consumption could play a vital role on condition that the base for goods and services is broadened. This can only happen through increased investment whereby production capacity is increased. With increased investment more jobs will be created, which in turn will provide earning and spending power for people. Part of the income could be channelled into savings which could be a stimulus for more investment.

Both arguments in terms of 'deductive logic' have great value, except that Jeffreys' view might be more difficult to understand initially because of its philosophical, but necessary, nature.

Economics students should have due regard for the 'formal analytical structure' (Henderson) which could put economic phenomena such as investment, balance of payments,

consumption and government spending into perspective.

Henderson (in Atkinson, 1985:39) criticizes Jeffreys on the basis of being too philosophical in approach. He views the aforementioned core concepts merely as "necessary spectacles" with which students can view the world through economic 'eyes'.

On the basis of these two viewpoints the deduction could be made that to be able to inject any economic education through a 'deductive logic' approach it is necessary to emphasise the philosophical aspects, but to relate these to the real-life situation. As example, the concepts 'rationality' would have a certain meaning in the economic sense, but it could also be conceptually possible to have the best economists in the world and have the worst economic policy. An understanding of economic behaviour would, therefore, not necessarily imply a synchronisation of personal actions and what ought to be happening in the real economic world. As a result of differences between personal actions and economic imperatives, different emphases might be placed on what the real objectives of an economic education should be.

Although deductive reasoning is a basic method of thinking through an economic theory or model, it does require from the student to make clearly defined assumptions (Eaton & Eaton, 1988:4). From these assumptions conclusions are

drawn which must satisfy the rules of logic. The problem that anyone faces with assumptions is that some of these could be regarded as fundamental truths or axioms, such as the "3-4-5 theorem" of Pythagoras. Other assumptions are debatable, especially in the context of normative Economics which deals with "what ought to be" (Chisholm & McCarty, 1981:9). In Economics, the normative approach does not only lend itself to the Economics function, but to the political function of what the ordinary citizen would expect from the system.

The question arises whether Economics students are always in a position to use the deductive logic approach optimally, or whether, in the event of any hindrance, the inductive logic approach should be harnessed.

4.4.2 Inductive reasoning

When an inductive logic approach is followed the elements of an economic model are identified following the departure from a broader base which includes much more descriptive content, factual information and historical background. Heilbroner (1985:29) argues that out of these facts, historical data and background information, co-ordinating concepts and economic principles would evolve. Once these principles have been laid down, the elements of an economic model will be identified, in terms of which the model is derived.

Lee (1980:34) views the inductive logic approach from the angle of "recognising that Economics is an empirical rather than an abstract science whose rules and propositions are independent of experience". If the empirical nature of the subject is recognised it is logical to deduce that the student must be subjected to the experience of economic phenomena in terms of these facts, historical data and background information.

To facilitate learning of Economics through the inductive approach, Henderson (1980:51) recommends that the student should be presented with interesting but not overtly technical subject matter. Preference should also be given to problems of a more topical nature. The student is given the opportunity to process information and gather materials which relate to some world problem. This process, in effect, means that the student will be familiarised with certain facts, historical data and background information and, generally, how things work.

Invariably, the inductive reasoning approach leads the student to describe concepts and principles which stem from the accumulation of facts, historical data and background information. In the process, the student should be able to identify and experience the relevant material applicable to a real-world economic problem (Maunder, in Atkinson, 1985:241).

Through inductive reasoning and a more descriptive-oriented approach to Economics, students should be capable of gaining a better understanding of economic issues rather than mastering intricate graphic or algebraic manipulations of economic phenomena.

The descriptive-cum-inductive approach to Economics does in no way exclude the skills of critical thought and an analytical ability. Morris (1984:179) explains that, while it is necessary for the student "to develop basic economic logic", this is only possible if the student has "the ability to think". By implication, the inductive approach to learning Economics is not an "easier" passage to economic knowledge, because an analytical mind has to be nurtured. In this regard, the lecturer plays an important role, because Siegel (1980:11) identified "significant connections between critical thought and the manner of teaching".

The inductive method of research into economic phenomena could be summarised as follows:

- * Facts from practice are acquired by means of observations, experience or statistical research.
- * These facts are classified and analysed.
- * A generalisation is made, or a particular theory is formulated.
- * The generalisation or theory is tested to

determine to what extent it coincides with reality.

4.4.3 Economic literacy

Different authors attach different meanings to the term 'economic literacy'. While Jeffreys (in Atkinson, 1985:39) views economic literacy as "understanding the nature and purpose of economics discourse", Henderson (in Atkinson, 1985:39) perceives the objective of economic literacy as "better understanding of the consequences, its strengths and weaknesses, in terms of choice, opportunity cost and rationality". Economic literacy could, therefore, be viewed as a substitute for, and improvement upon, economic understanding.

From the literature, it has become evident that 'economic literacy' is one, if not the most important, objective of Economics education. The question is what could be done to inculcate it in students, what should lecturers possess to achieve this objective and how could it be achieved.

The literary evidence seems to suggest that there are three ways in which economic literacy could be effected:

- a model building versus a literacy approach;
- a descriptive approach versus an analytical approach;
- inductive and deductive reasoning, as constituent parts of an Economics literacy approach, have already

been discussed in section 4.4.3.

4.4.3.1 Model building versus the literacy approach

Neoclassical and Keynesian Economics have a strong inclination toward model building, the development of techniques and the algebraic and graphic presentation of such models (Dornbusch & Fischer, 1978:12).

A typical example of technique mastery as opposed to the knowledge of the derivation and origin of such a technique is the demand and supply curve. While most students know that both curves have a definite slope and specific direction, for many it will be slightly more complicated to explain the reasons for the demand curve sloping from "top left" to "bottom right" (negative) and why the supply curve has a positive slope. It will be even more difficult for most Economics students to explain why a demand curve can also slope positively.

However, a preoccupation of students to understand and apply techniques and models could, effectively, render them illiterate. This kind of economic illiteracy could imply a failure to understand how actual economies are organised, lack of historical perspective on how economies have evolved and an ignorance with regard to certain developments in the economic area and the impact of these developments (Koutsoyiannis, 1985:44).

Buckles (1987:165) views an economically literate student as "one who understands the economic problem, how to approach the problem through economic systems, and how to use the results in the satisfaction or failure to satisfy social goals. Teaching students to do this is the heart of Economics education".

4.4.3.2 Descriptive versus an analytical approach

Heilbroner (1985:62) propagates the descriptive approach to Economics, in that the student can approach Economics from a more descriptive and factually oriented angle. With this approach historical data and developments within economies are of cardinal importance. Economic facts pertaining to the real-world situation form an integral part of the descriptive approach and it would seem that positive Economics, as defined by Eaton and Eaton (1988:14) reflects the same view.

The descriptive vs. the analytical approach can be illustrated with the example of MONOPOLIES as topic. The analytical approach will depart from, most probably, a graphic presentation of the short-term marginal costs, average cost, average revenue, marginal revenue and average total cost being reflected to depict the highest possible price by virtue of a sole-supplier position in relation to many buyers.

The descriptive approach could depart from linking up with a real-life example like that of the South African Breweries or Spoornet. Student experiences of these examples could assist the process of gaining clarity of what a monopoly is and how it operates. The objective of a monopoly will also become clearer.

On the question of how Economics literacy could be realised, several researchers have made a contribution in this regard. Kincheloe (1982:526) emphasised the development of critical thinking and the encouragement of diverse viewpoints when lecturing on the subject; Kourilsky (1985:69) refers to 'economic cognition' and 'economic reasoning' which implies that the subject Economics per sé be used to effect a thought process and thinking capacity within the student.

By virtue of the development of these cognitive skills in subject context the student will attain a level of subject literacy which could be used to convey economic information in a more understandable, coherent and logical format. These qualities are advantageous for the Economics student in view of the dilemma which students can face of having mastered techniques of the subject and being mechanistically sound, but not having acquired mastery of the subject language with which to explain the economic techniques and mechanisms, nor having the ability to bring these techniques in relation to real-life situations

(Heilbroner, 1985).

While economic literacy would, intuitively, primarily imply cognitive ability and skills, Schug (1982:8) stresses the importance of work experience in the economic world as a contributing factor to economic literacy, and Walstad (1980:42) points to the important role which attitude plays to effect economic understanding.

With due regard for the difficult task which lecturers will experience with the teaching of cognitive skills, attitude and giving students exposure to the economic world, these ideals cannot be ignored as irrelevant for the achievement of economic literacy. The second question concerns the requirements which lecturers must meet to be in a more favourable position to direct the student on the way to becoming more literate in the subject.

4.4.4 Summary

If the purpose of Economics lecturing is to provide greater Economics understanding and literacy, it is imperative to place equal emphasis in the lecturing of the subject on the 'descriptive', 'analytical', 'positive', 'normative' and the 'applied problem-solving' approaches to economics education. A clear understanding of these concepts would provide more substantial evidence of how students could approach the learning of Economics.

Siegel (1980:11) identified "significant connections between critical thought and the manner of teaching". If, as an example, an 'analytical approach' is followed by lecturers, the lecturing should epitomise what Siegel refers to as the "critical manner". Only through this kind of lecturing approach will the lecturer be able to inculcate critical thought and an analytical ability.

The domain of positive Economics covers the area of the real-world phenomena as they would manifest themselves in a particular economic model. Economic models are based on realistic assumptions which are intended to provide a measure of predictive validity. Eaton and Eaton (1988:14) stress the importance of evaluating a model by confronting its predictions with evidence from the real world. They cite the example of a map which is capable of giving an excellent outline and much detail of a specific city - the model reflecting the real-world phenomenon.

There is constant debate surrounding the accurate distinction between positive and normative economics. However, a distinction could be made on the following basis:

- positive Economics involves the facts of economic activity or positive answers to economic questions;
- normative Economics concerns questions of "what ought to be", that is, value judgments which cannot always be answered by objective facts alone.

According to Eaton and Eaton (1988:15) answers also depend on the commitment of people to values that fall essentially outside the scope of positive Economics.

In view of the different approaches which are found within the context of either deductive or inductive logic, it has become demonstrably clear that the course objectives will influence to a very large extent the approach the lecturer will follow. Based on supporting literary evidence, the lecturer's approach to the learning material will have a definite impact on student learning and how they approach the subject. Economic education is, therefore, typified accordingly.

4.5 The lecturer's role in promoting learning of Economics

Whitehead (1985:260) quotes Isaac Stern's dictum: "A good teacher is someone who shows you how to learn". Into this statement can be read that even if teachers or lecturers deliver a good lecture, it still does not imply that learning has taken place. According to Burkhardt (1976:43) effective learning of Economics is enhanced if students perceive the course not only as one which emphasises knowledge, but if opportunities arise for the development of positive values and attitudes in the subject. Extensive research done by Walstad and Soper (1982:42) has shown that students tend to develop a sophistication about their

attitude towards Economics as knowledge of the subject increases. There is, therefore, an interaction between "attitude" and "knowledge".

The increase in knowledge also tends to cause a shift in emphasis about solutions to problems in Economics (Walstad & Soper, 1982:42). This situation gives rise to the importance of the enthusiasm with which the subject matter is conveyed to the student. Lecturers would have, judging from the evidence in the literature, a dual responsibility towards students. The most important task is to be able to convey information in a clear, understandable way to students, and with the necessary empathy and enthusiasm.

When students embark on the study of Economics at tertiary education level, they tend to reason in terms of being able to solve a wide range of economic problems with limited knowledge. Students might be able to analyse and solve a few Economics problems which occur as a matter of course. In this regard Whitehead (1985:256) suggests that students should rather try to "understand much more clearly the limitations of theoretical predictions and to be much more tentative in their pronouncements".

It is possible to deduce from Whitehead's statement that pure content is not the gateway to being an Economics thinker, but rather to realise that economic theories have their limitations and that each theory might have

predictive power in particular contexts. Therefore, Whitehead argues for "a more tentative pronouncement".

The following are some of the strategies which lecturers can follow to secure better quality learning of the subject Economics:

4.5.1 The importance of knowledge of Economics

While Walstad and Soper (1982:52) stress the importance of knowledge of Economics for the student as being a prerequisite for developing a reasoning ability and problem-solving skills, Webb (1989:139) does not view the acquisition of problem-solving skills as a sole function of the knowledge of the subject. According to Webb (1989:139) the students will only be able to acquire these problem-solving skills if the lecturer "makes them aware of that line of thinking".

The approach by Webb to develop the problem-solving abilities of students could be illustrated not merely by lecturing to students a particular economic theory, but rather to enquire from students to think in terms of whether a theory is powerful or weak, whether it is operational, and whether the underlying assumptions are valid. In such a way students will "develop a healthy scepticism for the panaceas of different schools of thought" (Whitehead, 1985:256).

4.5.2 Teaching the economic way of thinking

Problems with the learning of Economics are exacerbated by students who are "not taught the economic way of thinking", according to Kourilsky (1985:69). This serious indictment by Kourilsky on the teaching of Economics has definite repercussions in terms of students' ability to "think about economic questions and issues, to apply basic logic with which to analyse economic problems and to be able to reason" (Morris, 1984:179).

4.5.3 An inductive teaching strategy

The teaching strategy has a major influence on the development of the aforementioned learning skills. If lecturers adopt an inductive strategy by posing real problems to students, using real-life examples, out of which the constituent concepts unfold themselves, then it is possible to devise a particular theory around these concepts. The student could then attempt to apply the theory to a particular situation (Morris, 1984:180). This strategy does not follow the deductive approach whereby the student is taught the concepts in the initial phases, which might be meaningless to many students.

The value of the inductive approach to student learning of Economics is that the student is given the opportunity to grapple with a particular economic problem at the outset,

based on certain given sources of information. Should any economic concept arise as a result of the heuristic exercise, such a concept would have much more meaning for the student. Furthermore, concepts and principles are not taught as such, but are derived from the experience of the student with the economic material. The memorisation of facts is automatically annihilated in such a strategy.

4.5.4 Lecturers' knowledge of Economics

Walstad (1984:298) suggests that lecturers should constantly improve their knowledge of Economics, because an improved knowledge can contribute to augmenting the students' cognitive skill and reasoning ability. An improved knowledge also opens up other perspectives from which to view certain economic phenomena and with which to substantiate arguments.

4.5.5 Student attitude

The issue of student attitude towards Economics puts the onus on the lecturer as well to observe this very important characteristic, according to Walstad (1984:298). Numerous studies have shown that the interest which the lecturer displays and the enthusiasm which he/she exudes, do influence the attitude and general inclination towards the subject for which that lecturer is responsible.

However, the lecturer could also influence attitudes of students towards Economics if they perceive certain economic facts to be of a discriminatory nature. For example, while the lecturer might convey information in his/her enthusiasm about discrepancies between developed and developing or under-developed countries, the disadvantaged South African student could perceive Economics as not serving their particular needs. Although students might be convinced of facts and supporting figures given, these should be presented with caution. The subject treatment should not assume, nor should students assume, that all economic development of developed countries is the result of the exploitation of underdeveloped countries.

4.5.6 Subject mastery

Walstad (1984) stresses subject mastery as another requirement for the lecturer. This subject mastery is illustrated by Henderson (1980:31) who recommends that 'a common core of economics understanding' is imperative for all economics lecturers.

The implication of subject mastery is that a great measure of proficiency and competency should be displayed in terms of dealing with the subject matter in terms of its logic, as well as the manner in which it is conveyed.

Subject mastery for the lecturer is an important contributing factor for experiencing success and developing an innate positive attitude towards Economics. The experience of success and the positive attitude of the lecturer are key elements in the formation of positive student perceptions of the subject.

4.6 A competency-based approach to Economics

4.6.1 Introduction

Before embarking upon an outline of dealing with a specific topic in Economics in a competency-based manner, it is essential to relate some of the key elements of a competency-based structure. According to Blank (1982:4) these essential elements are the following:

- * The prerequisite knowledge and skills of the student must be determined upon course entry.
- * The knowledge and skills for each relevant task (unit or module) must be clearly stipulated.
- * The student must attain task mastery (level of competence) before being allowed to do a following task. The level of competency is mutually agreed upon by both lecturer and student.
- * Each task is formulated as a clear, challenging and unambiguous learning objective, with its enabling objectives, where necessary.

- * Clear references are indicated in conjunction with which students can complete tasks.
- * The assessment of competency is done through written, oral and/or practical tests, depending upon the nature of the subject.

4.6.2 An example of a competency-based module in Economics

For the purposes of clarifying the process of competency-based education in relation to the subject Economics, a particular topic has been extracted from the Economics I syllabus at technikon level. If it is assumed that the prescribed book for the subject is Harvey, J. 1983: Modern Economics, New York: MacMillan, all the following page references will refer to this book.

It could be argued that the more theoretical subjects are not very amenable to a competency-based approach. For this reason, a seemingly theoretical topic such as "the nature of economics" is deliberately chosen to illustrate the aforementioned approach.

The following is a suggested outline to illustrate the competency-based approach:

TOPIC: The nature of the subject Economics

PREREQUISITE KNOWLEDGE/SKILLS: Tap the experiences of students with regard to hunger, thirst, shelter and how these could possibly be satisfied.

TASK: To introduce first-year students to the subject Economics and the field that it covers.

TERMINAL PERFORMANCE OBJECTIVE: The student will be able to identify the nature of Economics in terms of its origin, to compare Economics to other sciences and to illustrate the value of Economics to various interested parties like consumers, investors, government, etc.

In order for the student to achieve the ultimate learning objective, it is essential to break down the terminal performance objective into smaller, functional objectives, called enabling objectives.

ENABLING OBJECTIVES (EO):

The student will be able to:

EO1: examine the nature of Economics by:

- differentiating between wants and means;
- defining Economics;
- discussing the economic problem;

EO2: explain different approaches to studying Economics;

EO3: investigate different methodologies in Economics;

EO4: compare Economics to other social sciences;

EO5: determine the value of Economics to interested parties.

The enabling objectives reflect the ground that needs to be covered by students in order to gain clarity on what the nature of Economics is.

LEARNING STEPS:

EO1: Examine the nature of Economics

1. Read pages 3-4 in Harvey which describe the difference between wants and means of production.
2. Read pages 6-9 to define Economics formally.
3. Read pages 3-5 to discuss the economic problem.

EO2: Explain various approaches to Economics

1. Read pages 25-28 in Harvey and distinguish between macro and micro Economics.
2. Read page 11 in Harvey and differentiate between the positive and normative approach to Economics.
3. Read page 12-13 in Harvey and distinguish between analytical and descriptive Economics.
4. Read pages 11-15 to explain the difference between 'inductive' and 'deductive' logic.

EO3: Investigate economic methodologies

1. Read pages 9-15 in Harvey to compare theories with hypothesis.
2. Read pages 11-15 to examine the scientific method.
3. Identify the essential uses of economic theories by reading Harvey pages 9-15.

EO4: Compare economics to other sciences

1. Read pages 6-7 in Harvey to compare natural sciences to Economics.

EO5: Determine the value of Economics

1. Make a list of the importance of Economics to various parties like the individual, producer and the government by consulting Harvey pages 16-19.

4.6.3 Task mastery and the implications for Economics teaching

Mastery could be described as the measure of proficiency or competency attained when skills and knowledge have been learned. Because total mastery is not always possible immediately, Blank (1982:12) makes reference to "levels of minimum competence".

While the student proceeds through the various stages of the learning material, different levels of competence are attained, before reaching the stage of total mastery.

Theoretically, it is, therefore, possible to achieve a 30%, 50%, 75% and 100% level of competence. Viewed differently, a student could achieve 100% mastery at the 30% level of competence.

In essence, task mastery would make allowance for the more able student to proceed much quicker than the weaker student to a level of 100% mastery with a particular task. In competency-based education time is, therefore, a variable and the number of tasks the constant.

Eventually, all students should reach the same level of mastery, albeit at different times. In the conventional system of assessing student performance, all students are expected to perform academically at a given time, while levels of proficiency could differ dramatically.

Where levels of knowledge, skills and general competence differ between students and such students proceed to more advanced learning material, it could mean that those students who are in arrears in terms of knowledge and skills, will always be suffering from a backlog in knowledge and skills.

The implications of a competency-based approach to the teaching and learning of Economics are the following:

- * Tasks in Economics assigned to students should bear vocational relevance.

- * Tasks should seek to test the skills of argument, evaluation, analysis and problem-solving.
- * The student should be assessed in a manner which does not focus on the recall of Economic information.
- * The attainment of performance objectives should be measured in terms of appropriate criteria which describe the expected knowledge, skills and attitudes.

When the student has achieved total mastery of the task, there is no difference between the "level of competence" and the "level of achievement". However, a student who progresses at a slower pace, could have achieved a particular level of competence, although not total mastery. The lecturer will be expected to set the standard of performance and assess it accordingly at different stages of the student's progress.

In practical terms, all students will follow the same sequence of competencies (tasks) as prerequisite knowledge and skills for each successive task are important.

4.7 Implications for teaching and student learning

In the current South African educational context the preceding figures have shown clearly that class sizes of Economics students are a factor to contend with. It is very clear that lecturers in the subject should equip themselves for big-group teaching and make every attempt to

be as effective as possible.

For student learning to be meaningful in the context of large numbers students should acquire the ability to deal with economic problems and to analyse learning material in an independent way. As Economics requires a particular reasoning ability, it would be wise for the students to organise themselves in functional smaller groups.

In relation to the key concepts of opportunity cost, rationality, marginalism and efficiency the student should acquire a deep understanding through superimposing these concepts on real-life situations, reading widely about these and attempting to actualise their learning on colleagues and different situations (Fransman, 1989:97).

Economics has become a necessary instrument in the life of the student in order to become orientated in the world. Many decisions have to be taken on the basis of Economics and in terms of these decisions, Economics provides a tool for analysis.

4.8 Conclusion

In this chapter an attempt has been made to outline what the nature of Economics is, how the subject could be approached from a teaching-learning angle, and the value of a competency-based approach to student learning of

Economics.

From the literary evidence it could be gleaned that for student learning of Economics to be effective, the student has to recognise the importance and the merits of the two basic scientific approaches to learn the subject, namely the inductive and deductive approaches. These approaches have shown that the ultimate objective is exactly the same, namely the building of economic models, but the points of departure differ.

In the deductive logic approach the emphasis would appear to be more of an analytical and, perhaps, deeply philosophical nature, while the inductive reasoning approach seems to be of a descriptive and practical nature.

To develop a balanced view in terms of learning the subject, the student has to recognise the significance of economic phenomena and how these manifest themselves in terms of either positive or normative economics. The implications of these two concepts differ to the extent that positive Economics reveals what is current and factual in economic terms, while the normative approach has a distinctly more value-oriented dimension attached to it. Normative economic thinking stresses "what ought to be", often with a great deal of political thinking accompanying such thoughts.

The example of a competency-based approach has been based on the various interpretations of what the nature of Economics embraces. The outline of the competency-based approach in terms of the nature of the subject is generalisable and it could very easily be applied to other topics in Economics. The important condition is that such topics should be reformulated in terms of tasks (objectives).

The following chapter will be devoted to the empirical investigation. In addition to the literature survey, the empirical investigation will be based on data obtained from a questionnaire, the items of which found their origin in the literature.

An attempt will be made to produce in quantifiable terms, through suitable statistical analyses, a possible relationship between students' ability to learn independently, their learning in classroom context and their general performance in the subject Economics.

CHAPTER FIVE

EMPIRICAL INVESTIGATION: PLANNING, EXECUTION, STATISTICS AND INTERPRETATION

5.1 Introduction

This chapter will cover the measurement and statistical manipulation of data derived from the questionnaire which has been based on the preceding literature survey. An attempt will be made to quantify the qualitative information obtained in the areas of independent learning, classroom skills of the lecturer and the nature of the subject Economics.

Kerlinger (1975:426) describes measurement as the allocation of numbers according to certain rules. Measurement is, therefore, quantitative by nature and its intention is merely to obtain indicators of how students would perceive their own independent learning ability and their classroom learning in relation to their performance in the subject Economics.

The primary concern of the empirical education researcher is to explain a particular educational phenomenon which is supported by quantitative evidence. The outcome of the intended empirical investigation should illuminate an otherwise unexplained, but nevertheless, probable

relationship which might exist between students' independent learning ability and their learning performance in Economics at Technikons, as well as the relationship between independent learning and lecturing skills and their effect on achievement in the subject Economics.

5.2 General problem statement

The literature has suggested in substantial measure that a student's ability to learn independently is a definite asset in academic learning. It provides a sound basis for a deep approach to learning and it presupposes many virtues in the form of self-discipline and the will to succeed academically.

An ability to learn independently does not, in view of the literature, discount the learning that a student can master in the classroom. It also does not minimise the role that the lecturer plays in the classroom in providing the necessary guidance for the student.

The major thrust of the research is to establish what contribution independent learning makes to the learning performance of students in Economics, having due regard for the fact that students are obliged to do background reading, reading supporting academic texts and doing assignments - all outside of classroom teaching sessions. The research problem emanates from extensive work that was

done by Hounsell (in Entwistle and Tait, 1990:170), the gist of which was the contribution of learning done by the student outside classroom lectures to total learning performance.

5.3 Postulates

In order to investigate the previously stated problem in a logical way, the following presuppositions are postulated:

5.3.1 Achievement in Economics (AE) is influenced by each of the variables, independent learning ability (IL), lecturing skills (LS) and the nature of Economics (EC)

In the academic world Economics is regarded as one of the "more difficult" subjects. Many students struggle with the subject at tertiary level, because they did not do the subject at school level. Certain courses require Economics, although the subject might not be a prerequisite for the course.

The subject terminology is foreign to students, especially at first-year level. Students also find difficulty in relating the factual information to topical economic affairs and, therefore, the subject requires a concerted effort by students to achieve success.

These efforts would include extra reading and research in order to supplement lecture material. Additional learning by students is an essential part of the course, because lecturers cannot possibly cover all prescribed work during classroom sessions.

The importance of independent learning becomes more visible if a student wishes to perform well in the subject Economics. The ability to learn independently will ensure that a student consolidates lectures, and in such a way the student will also develop a much deeper understanding of and appreciation for the underlying nature of the subject Economics.

In conclusion, the ability to learn independently, the lecturing skills of the lecturer and the nature of Economics will mutually exercise a considerable positive influence on students' achievement in the subject.

5.3.2 There are mutual correlations between independent learning ability (IL), lecturing skills (LS) and the nature of Economics (EC)

Economics is a subject which lends itself adequately to independent learning. If independent learning is understood to mean the ability which students have to probe meaning in the learning material by way of reading additional material, doing assignments and researching

textbooks other than those prescribed, then students are in a position to explain economic phenomena in much greater depth than those who merely depend on lecture notes. However, the ability of the lecturer to encourage students to learn independently is an important factor.

Therefore, a close relationship exists between an ability to learn independently and lecturing skills, because the subject Economics could be absorbed in both ways by students, that is, through independent learning and lecturing. Effective and meaningful lecturing could support the process of independent learning, and likewise, an independent learning ability could compensate for deficiencies in lecturing skills.

5.3.3 There is a difference in the mean achievement in Economics between English and Afrikaans students

It is accepted that most of the prescribed and recommended textbooks in Economics are written in English. Furthermore, these books are imported, mostly from Britain and the United States of America.

South African students find the content problematic because most of the textbooks are not written for South African conditions. For the Afrikaans students the problem is so much greater, because they need to translate the information.

For many South African Economics students English is either a second or a third language and these students experience similar problems to those who are Afrikaans-speaking.

The language of instruction is of crucial importance to those students who are not fully bilingual. This problem is compounded by lecturers who are not fully bilingual. The English-speaking student who has a command of the language would be favoured in Economics as most of the business world is English, while the Afrikaans student could be placed at a disadvantage by lecturers who are predominantly English-speaking.

5.3.4 The year of study (first, second, third) influences the mean achievement of students in Economics

The newly matriculated student who enrolls for first-year Economics at the technikon normally experiences adaptational problems. The workload is more than that of secondary school and the pace faster. Students find it difficult to cope and subsequently many do not meet the required level of achievement.

Most students who encounter Economics for the first time have difficulty with the subject at technikon level. The reason for this is that many technikon business courses that include Economics as a subject, do not require from the student to enter the course with Economics.

These are some of the reasons why students' performance in the subject is affected adversely. According to a survey done by the researcher, as reported in chapter one, Economics classes are bigger than usual and lecturers cannot always pay individual attention to students.

Those students who pursue the subject to their final year of study would seem to do better by virtue of deeper insight and understanding of the content. They are also able to relate to the economic world in a more logical and proficient manner.

5.3.5 Students experience independent learning, lecturing skills and the nature of Economics differently, depending on year of study

Ideally, all Economics students wish to acquire an independent learning ability as this could act as catalyst for lectures, and vice versa. During the first year of study, students seem to rely more on the lecturing skills of the lecturer. As they advance to higher levels, however, students tend to develop greater independence with learning and are, therefore, less reliant on the lecturer.

In terms of students' experiences and perceptions of the nature of Economics, these could also differ because first-year students who do the subject for the first time, will not perceive the subject in the same way as other students

who have done it already.

5.4 Objectives of the empirical investigation

- * To determine the relationship between an independent learning ability (IL), lecturing skills (LS), the nature of Economics (EC) and achievement in Economics (AE).
- * To determine the relationship between the independent variables - an independent learning ability (IL), lecturing skills (LS) and the nature of Economics (EC).
- * To determine whether significant differences occur between the variables IL, LS, EC and AE should different years of study (first, second, third) and language preference be used as dividers.

These objectives will be accomplished in the following manner:

- * The variables independent learning ability (IL), lecturing skills (LS) and nature of Economics (EC) will be operationalised and measured by items in a questionnaire. There will also be items which cover achievement in Economics (AE), sex, language preference and year of study.
- * A factor analysis will be done to determine any particular underlying structure and extract common

factors between variables. The extraction of common factors will determine the construct validity of the questionnaire.

- * The relation between the variables will be determined by calculating the necessary correlation coefficients (an inter-correlation matrix).
- * With reference to differences between variables whereby language preference and year of study are used as dividers, hypotheses will be formulated and subjected to testing through analysis of variance.

5.5 Planning the empirical investigation

5.5.1 The research group

The research group will comprise first-, second- and third-year Economics students at two technikons. The sample will involve students from a residential technikon as well as a distance learning technikon. The total number of respondents will be 645 students.

The survey will not make a distinction between those students who receive classroom tuition and those who study through distance education. The distance learning students will be used as respondents to establish their perception of how independent learning contributes to their success in Economics. The residential technikon student will also be subjected to the same questionnaire, because they also have

to do independent study outside of classroom tuition.

Tables 5.1, 5.2 and 5.3 reflect the composition of the research group according to sex, language preference and year of study, respectively, at two different technikons.

TABLE 5.1: RESEARCH GROUP ACCORDING TO SEX (ECONOMICS STUDENTS)

SEX	TECHNIKON		TOTAL	%
	RESIDENTIAL	CORRESPONDENCE		
MALE	207	145	352	54,6
FEMALE	208	85	293	45,4
TOTAL	415	230	645	100

The ratio at the residential technikon between male and female was approximately 1:1, while the ratio at the correspondence technikon was 1,7:1.

At both types of technikons 54,6% males (N=352) participated in the study, while 45,4% (N=293) of the respondents were females. Of the 645 respondents, 415 students represented the residential institution (64,3%), while 230 students studied by correspondence (35,7%).

TABLE 5.2: RESEARCH GROUP ACCORDING TO LANGUAGE PREFERENCE

LANGUAGE	TECHNIKON		TOTAL	%
	RESIDENTIAL	CORRESPONDENCE		
ENGLISH	209	146	355	55,1
AFRIKAANS	206	84	290	44,9
TOTAL	415	230	645	100

Of the 645 respondents 55,1% (N=355) preferred their tuition in English, while the remainder, 44,9%, have Afrikaans as the dominant medium. The ratio of English- to Afrikaans-speaking students at the residential institution was approximately 1:1, while at the correspondence technikon the ratio between English- to Afrikaans-speaking students was 1,7:1.

Most of the printed texts in Economics are in English and the Afrikaans-speaking student does experience difficulty with translations from these texts. However, further data show better mean performances in Economics for Afrikaans than English-speaking students. This finding is elaborated upon in table 5.12.

TABLE 5.3: RESEARCH GROUP ACCORDING TO YEAR OF STUDY

TECHNIKON	YEAR OF STUDY			TOTAL
	1	2	3	
RESIDENTIAL	276	53	86	415
CORRESPONDENCE	130	60	40	230
TOTAL	406	113	126	645
%	62,95	17,52	19,53	100

The breakdown of students (according to year of study) at both technikons is reflected in table 5.3. At the residential technikon 66,5% (N=276) were first-year, 12,8% (N=53) were second-year, and 20,7% (N=86) were third-year students.

The correspondence technikon was represented by 56,5% (N=130) of first-year students, 26,1% (N=60) second-year, and 17,4% (N=40) third-year students.

The total sample of 645 students were comprised mostly of first-year students (62,95%), the second-year group formed 17,5% and the third-year students represented 19,5%.

From the data captured in table 5.3 a larger percentage of the residential technikon students pursued the subject Economics into their third year, compared to the correspondence technikon students, while the correspondence technikon had a greater percentage of second-year students than the residential technikon students that participated

in the survey.

Economics is a "filler course" for many students, therefore, the majority do it only at first-year level. Another reason for the reduction in numbers is that the level of complexity of the subject increases considerably from first- to third year. A possible explanation for the larger third-year number at the residential technikon is that students do receive tuition from lecturers. The chances of coping with the subject at that level would seem to be better for the residential student compared to the correspondence student.

5.5.2 Permission to execute the empirical investigation

Permission had been obtained from the different Directors of the schools at those technikons in which the questionnaire was administered. The conditions attached to the granting of permission were the following:

- * The researcher should administer the questionnaires in conjunction with directors and lecturers concerned.
- * No disruption of the normal academic programme will result.
- * All completed questionnaires will be treated confidentially and names of institutions and persons will not be divulged.

- * The information obtained must be interpreted in such a way without doing an injustice to the technikon, student or lecturer.

5.5.3 The questionnaire

The questionnaire has been chosen as research measuring instrument on the basis of its proven suitability for nomothetic research. The empirical investigation will comprise vast numbers of students whose perceptions will be transposed into quantifiable data. This data will be analysed statistically and interpreted accordingly upon which logical deductions will be made.

The questionnaire, as designed by the researcher, will be utilised to gather information about the variables independent learning ability (IL), lecturing skills (LS), the nature of Economics (EC), achievement in Economics (AE), year of study, language preference and sex.

5.5.3.1 Characteristics of a good questionnaire

The questionnaire which was compiled for this empirical investigation is of a structured nature. Students were expected to respond to predetermined statements on the basis of a four-point Likert scale. The response continuum made allowance for the following degrees of responses:

- * I agree wholeheartedly.

- * I agree to a large extent.
- * Actually I do not agree.
- * I totally disagree.

According to Best (1970:151) a questionnaire should comply with the following requirements:

- * The questionnaire must be concise and neat.
- * The instructions must be easy to follow.
- * The questionnaire must strive to obtain data which cannot be obtained otherwise.
- * All items must be of an objective nature.
- * The data gathered must be easy to analyse and quantify.
- * The items in the questionnaire must not imply a moral or ethical view.

Unless, according to Tuckman (1978:197), respondents are cooperative or absolutely honest in their response, the questionnaire might not produce the desired outcome. Respondents do not always respond in terms of how they feel, but rather how they ought to feel, or in terms of what the researcher wishes them to respond to.

The requirements of questionnaires as set out by Best and Tuckman were observed. Cognisance was taken of the content validity of items so that the range of items does cover the intended area of study.

5.5.3.2 The questionnaire format

The questionnaire consists of three areas, namely, an independent learning ability (IL), lecturing skills (LS) and the nature of the subject Economics (EC). The students' performance in their last Economics examination was requested as indication of the learning performance.

The following are the respective fields within the questionnaire:

(a) Independent learning ability (IL)

In this category the questionnaire attempts to elicit the honest responses of students in terms of their ability to learn without the physical presence of a lecturer. This category also consists of items which deal with the affective domain of the independent learner - self-discipline, attitudes, interest, initiative and own belief - as well as the development of an enquiring mind and a deep approach to learning.

(b) Lecturing skills (LS)

The items in this category relate to the general requirements of an effective lecture, and qualities of a good lecturer. The items also touch upon the expectations

that students would have of purposeful and effective lectures. The responses to these items will verify or refute these expectations.

(c) The nature of Economics (EC)

The items in this category attempt to clarify the attitude of Economics students to the subject, whether they have a thorough grasp of the fundamental issues underlying Economics, and whether they wish to pursue the subject at more advanced levels.

In addition, the students were required to respond to the following items which comprised the biographical data:

- * Performance in the last Economics examination. Due recognition is given that one examination result is not always the best indicator of the student's ability and that other factors should also be considered.
- * Students' language preference, gender, residential or correspondence technikon and year of study.

5.5.3.3 Composition of the items

Most of the items in the questionnaire have been stated in the first person to give the respondent the feeling of identifying with that item. Statements written in the

first person appear to be less clumsy.

As far as possible, each item attempted to convey only one idea. Items were stated in the affirmative, and in isolated cases, provision will be made for negative scoring. A characteristic of all the questionnaire items is that they are simple statements without phrases like "very well", or "very good" added to them. The respondent is, therefore, not influenced in his/her judgment when inserting the numerical value for each response.

This type of result would affect the nature and quality of possible findings which, in turn, could affect the definitiveness of the recommendations.

In chapter 2 the concept independent learning has been discussed. From the literature the following are some of the characteristics which typify independent learning:

- * The student has the ability to interact with the learning material.
- * Independent learning requires self-discipline.
- * The student makes an active attempt to examine information critically.
- * The independent learner has the ability to monitor his/her progress periodically.
- * Independent learning requires an attitude of enquiry from the student.

- * The independent learner has a strong belief in his/her own learning ability.

These were some of the outstanding features characterising independent learning. Consequently, 27 items have been developed around this concept for inclusion in the questionnaire.

Chapter 3 concentrated on the classroom skills of the lecturer and how students perceive effective lecturing.

The following are some of the over-arching characteristics around which items have been developed for inclusion in the questionnaire:

- * Lectures have clearly stated objectives.
- * Lectures should be well-structured and presented confidently.
- * The lecturer should have the ability to anticipate problems which students would have with the learning material.
- * Lectures must inspire students to improved learning performance and stimulate thinking and positive attitudes to learning.
- * Some lecturers have a preference for highly structured and logically sequenced lectures.
- * Lectures can elicit student response and participation and are not necessarily a uni-

directional method of teaching.

Altogether, 25 items have been developed for inclusion in the questionnaire to cover the area of classroom lecturing skills.

The third dimension of the questionnaire referred to the nature of the subject Economics and economics education, in general, which were discussed in chapter 4. The following were some of the characteristics around which items have been developed for inclusion in the questionnaire:

- * The subject Economics can assist to develop the student's reasoning ability.
- * Students develop a positive attitude towards the subject as their knowledge of it increases.
- * The enthusiasm of lecturers for Economics has a positive influence on students' enthusiasm for the subject.
- * By nature, Economics is a subject which is concerned with the fixed human problem of scarcity and the making of rational choices.
- * Economics is understood by many people in terms of models based on certain assumptions.
- * Many Economics students have the desire to master techniques and models in order to solve economic problems.

* Many Economics students prefer to make use of descriptive material in order to study economic phenomena.

Consequently, 29 items have been developed for inclusion in the questionnaire to cover the dimension of Economics, its nature and Economics education.

5.5.3.4 Choice of response mode and measurement scale

The response continuum selected for this specific questionnaire was a four-point Likert scale, ranging from "I agree wholeheartedly", to "I agree to a large extent", to "actually I do not agree" to "I totally disagree".

These responses were represented by the following numerical values:

I agree wholeheartedly = 1

I agree to a large extent = 2

Actually I do not agree = 3

I totally disagree = 4

The response continuum as stated in the previous paragraph is only applicable to the first 81 items. The biographical data are excluded from the four-point scale. The first reason for choosing a four-point scale was to avoid the normal central tendency which is experienced when respondents are subjected to an uneven-numbered continuum.

The second reason was the ability of a four-point scale to converge much quicker in terms of a positive or negative response.

Central tendency of responses to items could stem from some indecision on the part of respondents. If this tendency comprises a major part of the questionnaire, the overall result could also be one which lacks any particular direction.

5.5.3.5 Statistical techniques

The following analyses should be completed:

(a) Factor analysis

A correlation matrix of the items will be obtained. Subsequently, factors with eigenvalues greater than one will be extracted. The factor analysis will initially be a principal components analysis, followed by an oblique rotation which is done to merely achieve a purer factor output in case there are variables which show high loadings on more than one factor.

(b) Item Analysis

The questionnaire consists of 81 items. These 81 items cover three major areas, namely, independent learning ability of students, lecturing skills and

the nature of the subject Economics.

The number of items in the first area is 27, the second field consists of 25 items, and the third area covers 29 items, although the item analysis might reveal a different grouping of items within each of these dimensions.

In respect of each of the three expected fields in the questionnaire (IL, LS and EC), the Alpha-Cronbach reliability index, the dominant response, mean and standard deviation will be calculated for each item, in relation to the total for the field (or dimension).

The purpose of the item analysis is to determine whether each item makes a significant contribution to the dimension in which it finds itself. Where items do not correlate significantly with the total of that particular dimension, such items will be discarded.

(c) Analysis of variance

Analysis of variance will be done with the assistance of the SAS-programme to determine:

- * Mutual relationships between the three dimensions in the questionnaire.
- * Mutual relationships between the three dimensions and the dependent variable, achievement in Economics.

- * Differences between variables if dividers such as language preference and year of study are used.

Through F- and t-tests the degree of significance will be determined to either accept or reject any hypothesis (see paragraph 5.6).

5.5.3.6 Preliminary evaluation of questionnaire

To ensure that each item intends to measure what it is suppose to measure, the questionnaire was subjected to an initial scrutiny session by 54 Economics students. These students were able to detect any duplications among items, as well as pointing out terms which had to be replaced with more understandable words. In the process, the draft questionnaire was reduced by five items.

5.6 Hypotheses

5.6.1 Hypothesis 1: The null hypothesis is that there is no significant correlation between the achievement of students in Economics (AE) and the independent variables of independent learning ability (IL) of students, lecturing skills of lecturers (LS) and the nature of Economics (EC), respectively.

Rationale: From the literature it has become evident that no meaningful research was done in terms of establishing whether the independent learning ability of students in relation to lecturing skills make a bigger contribution to the achievement of students in the subject, and whether the nature of Economics has any significant influence on the achievement of the students.

5.6.2 Hypothesis 2: The null hypothesis is that there is no significant correlation between the independent learning ability of students (IL), lecturing skills (LS) and the nature of Economics (EC) mutually.

Rationale: Those students who study by correspondence will depend entirely on their independent learning ability to achieve success in Economics. Those students who attend lectures at a residential technikon rely mostly on what is offered in the classroom. However, it is required of the residential technikon student to display some independent learning ability with the completion of assignments and doing background reading and research. It is therefore possible that the nature of independent learning and lecturing skills might manifest themselves differently with regard to Economics.

5.6.3 Hypothesis 3: The null hypothesis is that there is no significant difference between the mean Economics achievement score of English students and the mean

Economics achievement score of Afrikaans students.

Rationale: The literature emphasised the importance of the students' language ability, especially the ability to read. By nature, Economics is regarded as one of the more difficult subjects in the technikon. A further complicating factor is that the majority of Economics textbooks are written in English. The possibility, therefore, exists that the mean achievement in Economics between English and Afrikaans students might differ.

5.6.4 Hypothesis 4: The null hypothesis is that there is no significant correlation between the mean achievement in Economics and the year of study (first, second, third).

Rationale: Most students in tertiary education experience academic problems in their first year. A contributory factor is the change from the school system to the technikon where students are expected to handle a bigger workload on their own. Some students do not have a background knowledge of Economics and therefore experience problems. There is, therefore, the possibility that meaningful differences occur between the achievement in Economics of first-, second- and third-year students.

5.6.5 Hypothesis 5: The null hypothesis is that there is no significant difference between the first-, second- and third-year Economics students in respect of an independent

learning ability, lecturing skills and the nature of Economics.

Rationale: The school system has been criticised in the past for spoonfeeding the pupils. When these students enrol for their first year at the technikon many of them expect the same treatment.

It is, therefore, expected that the first-year student will not have developed the same independent learning abilities as the second- and third-year student, who in turn will be less reliant on purposeful and effective lectures.

By the time a student studies Economics in the third year, it would be assumed that the nature of the subject is embedded, as this information is dealt with at a first-year level. The students' understanding of the subject, together with the measure of literacy required, will not crystallise unless the fundamental issues that epitomise the subject have been dealt with adequately. The possibility, therefore, exists that there might be meaningful differences between first-, second- and third-year students with regard to their perceptions of an independent learning ability (IL), lecturing skills (LS) and the nature of Economics (EC).

5.7 The empirical investigation

5.7.1 Administering and completion of questionnaires

After the purpose of the empirical investigation was explained in detail to heads of department of Economics and Directors at the two technikons, permission was granted to administer the questionnaire to students. The researcher, in conjunction with lecturers, was personally responsible for administering the questionnaire at the residential technikon. At the correspondence technikon the particular head of department distributed the questionnaires to the students. Completed questionnaires were returned to the correspondence technikon which, in turn, returned the questionnaires to the researcher.

Students seemed to be very positive towards the survey. Instructions were clearly spelt out and the students complied with the requirements. All questionnaires at the residential technikon were duly returned and checked for required detail. At the correspondence technikon 230 questionnaires were duly completed and returned.

5.7.2 Checking of questionnaires and capturing of data

The questionnaire was completed by first-, second- and third-year Economics students. A total of 645 questionnaires were completed and checked.

The data were captured and saved on an ASCII file. Each respondent was responsible for 86 responses, of which the first 81 responses referred to the student's perceptions of

independent learning, classroom skills of the lecturer and the nature of the subject Economics. The rest of the responses was of a biographical nature.

From the ASCII file the data were transferred to the SAS package (Statistical Applications Software: Aronson, 1990) which was utilised for the statistical analyses of the data.

5.7.3 Statistical analyses and interpretation of data

5.7.3.1 Introduction

The statistical analyses of data encapsulates descriptive, inferential and advanced statistics. The descriptive statistics gave an account of the research group according to sex, year of study and language preference at two different technikons. This type of statistic also included means and standard deviations of each item in the questionnaire. The inferential statistics would include correlation analysis and analysis of variance. Factor analysis would resort under advanced statistics.

5.7.3.2 First factor analysis

Following the analysis of the research group in tables 5.1, 5.2 and 5.3, a principal components analysis was performed on the first 81 items. The purpose of the principal

component analysis is to determine to which extent the first 81 items in the questionnaire will group as anticipated. As there could be as many factors as variables initially, it is statistically prudent to use some criterion with which to minimise the number of factors.

Factor analysis is one of the most common statistical means available with which to effect data reduction so that a more meaningful interpretation of the data is possible. This interpretation is dependent upon the degree to which an underlying pattern of relationships exists such that the variables may be rearranged into smaller factors or components.

The correlation matrix is used as basic input to the factor analysis of which the first step has been a principal components analysis. In table 5.4 a new set of composite variables (principal components) emerge. These variables are orthogonal (uncorrelated) to each other, although the researcher has anticipated some underlying structure within the first 81 items of the questionnaire.

The eigenvalue is a significant statistic, because it indicates the relative importance in terms of the measure of total variance existing in the variables. The first 22 factors account for a total variance of 58,5%, with all of these factors having an eigenvalue greater than 1 (Table 5.4).

**TABLE 5.4: EIGENVALUES OF THE CORRELATION MATRIX AND
CUMULATIVE VARIANCES (FIRST FACTOR ANALYSIS)**

FACTOR	EIGENVALUE	CUM. VAR	FACTOR	EIGENVALUE	CUM. VAR.
1	12,941	0,159	42	0,680	0,788
2	5,929	0,233	43	0,668	0,796
3	2,378	0,262	44	0,663	0,804
4	2,256	0,290	45	0,647	0,812
5	1,902	0,313	46	0,636	0,820
6	1,721	0,334	47	0,611	0,828
7	1,667	0,355	48	0,602	0,835
8	1,584	0,375	49	0,586	0,843
9	1,521	0,393	50	0,570	0,850
10	1,445	0,411	51	0,561	0,856
11	1,316	0,427	52	0,558	0,863
12	1,310	0,441	53	0,532	0,870
13	1,285	0,460	54	0,527	0,876
14	1,260	0,475	55	0,515	0,883
15	1,211	0,490	56	0,496	0,889
16	1,171	0,504	57	0,494	0,895
17	1,166	0,519	58	0,475	0,901
18	1,149	0,533	59	0,469	0,907
19	1,102	0,547	60	0,462	0,912
20	1,071	0,560	61	0,446	0,918
21	1,038	0,573	62	0,443	0,923
22	1,029	0,585	63	0,428	0,929
23	0,998	0,598	64	0,422	0,934
24	0,965	0,610	65	0,405	0,939
25	0,949	0,621	66	0,393	0,944
26	0,930	0,633	67	0,384	0,949
27	0,915	0,644	68	0,376	0,953
28	0,895	0,655	69	0,363	0,958
29	0,875	0,666	70	0,351	0,962
30	0,864	0,677	71	0,336	0,966
31	0,855	0,687	72	0,329	0,970
32	0,827	0,697	73	0,322	0,974
33	0,809	0,707	74	0,302	0,978
34	0,782	0,717	75	0,293	0,982
35	0,762	0,727	76	0,279	0,985
36	0,752	0,736	77	0,264	0,988
37	0,735	0,745	78	0,251	0,991
38	0,718	0,754	79	0,241	0,994
39	0,703	0,762	80	0,217	0,997
40	0,697	0,771	81	0,202	1,000
41	0,690	0,780			

The SAS programme, used to analyse the data, applied the mineigen criterion with which the stipulated eigenvalue was

given as 1.0. This resulted in 22 factors with eigenvalues greater than one, having reduced the number of factors by 59 (81-22). However, 22 factors still seemed too unwieldy to attain maximum interpretability and, therefore, a scree plot of eigenvalues was constructed. This scree plot is shown as appendix B.

5.7.3.3 Second factor analysis (oblique rotation 3 factors)

From the resultant scree plot it became clear that a straight line can be drawn through factors 1 to 3, while the slope of the remaining factors from factor 3 onwards is significantly different from the straight line cutting through factors 1 to 3. Factors 1-3 were lying in a straight line, while the remaining 78 were plotted virtually in a horizontal line. It became demonstrably clear that the extraction of more than three factors would lead to little or no additional variance. Thus a 3-factor solution has been done, by means of the promax rotation method, for maximum interpretability. The 3-factor solution is also in accordance with the three dimensions as subsumed in the questionnaire. Table 5.5 reflects the three-factor solution.

While the rationale for conducting a three-factor solution has been explained, the oblique rotation (promax) method has been chosen by virtue of it being able to elicit a more

interpretable clustering of variables and, therefore, better loadings on each of the three factors.

On the basis of a three-factor solution some of the variables loaded differently than initially anticipated in the questionnaire, although the instrument made provision for three dimensions or categories. The oblique rotation method (promax) was used in the three-factor solution. According to Nie, Hull, Jenkins, Steinbrenner and Bent (1975:473) the oblique factors are empirically more realistic than the orthogonal factors, although the latter are mathematically simpler to handle.

TABLE 5.5: ROTATED FACTOR PATTERN

ITEM	FACTOR 1	FACTOR 2	FACTOR 3
IL 13	0,683	0,000	0,000
IL 6	0,649	0,000	0,000
IL 19	0,623	0,000	0,000
IL 12	0,617	0,000	0,000
LS 50	0,585	0,000	0,000
IL 27	0,527	0,000	0,000
IL 20	0,526	0,000	0,000
LS 40	0,524	0,000	0,000
IL 22	0,519	0,000	0,000
EC 65	0,472	0,000	0,000
IL 11	0,467	0,000	0,000
EC 69	0,466	0,000	0,342
EC 66	0,464	0,000	0,274
IL 1	0,446	0,000	0,000
IL 23	0,445	0,000	0,000
IL 21	0,427	0,000	0,000
IL 25	0,415	0,000	0,000
EC 68	0,414	0,000	0,367
LS 52	0,397	0,000	0,000
IL 16	0,390	0,000	0,000
IL 17	0,389	0,000	0,257
EC 81	0,384	0,000	0,252
EC 71	0,373	0,000	0,362
EC 74	0,365	0,000	0,307
IL 5	0,364	0,000	0,000
IL 26	0,341	0,000	0,000
EC 72	0,332	0,000	0,318
IL 8	0,317	0,000	0,000
IL 14	0,295	0,000	0,000
EC 55	0,288	0,000	0,000
IL 18	0,286	0,000	0,000
LS 48	0,251	0,000	0,000
EC 67	0,219	0,000	0,000
IL 9	0,332	0,263	0,000
EC 56	0,345	0,000	0,000
IL 7	0,450	0,000	0,000
LS 32	0,000	0,672	0,000
LS 30	0,000	0,665	0,000
LS 31	0,000	0,646	0,000
LS 29	0,000	0,589	0,000
LS 37	0,000	0,579	0,000
LS 36	0,000	0,556	0,000
LS 38	0,000	0,539	0,000
LS 43	0,000	0,521	0,000
LS 33	0,000	0,514	0,000
LS 41	0,000	0,513	0,000
LS 44	0,000	0,509	0,000
LS 34	0,000	0,457	0,000
LS 45	0,000	0,444	0,000
LS 39	0,000	0,442	0,000
LS 35	0,000	0,433	0,000

ITEM	FACTOR 1	FACTOR 2	FACTOR 3
EC 61	0,000	0,422	0,000
LS 28	0,000	0,355	0,000
IL 15	0,000	0,313	0,000
EC 59	0,000	0,302	0,324
LS 42	0,294	0,290	0,000
EC 60	0,000	0,290	0,000
EC 62	0,000	0,291	0,000
LS 51	0,000	0,276	0,000
IL 4	0,000	0,274	0,000
LS 46	0,000	0,252	0,000
IL 3	0,258	0,000	0,000
IL 24	0,000	0,000	0,000
IL 2	0,000	0,000	0,000
IL 10	0,000	0,000	0,000
EC 76	0,000	0,000	0,733
EC 77	0,000	0,000	0,701
EC 75	0,000	0,000	0,695
EC 78	0,000	0,275	0,531
EC 79	0,000	0,000	0,499
EC 53	0,349	0,000	0,433
EC 80	0,327	0,000	0,412
EC 58	0,000	0,000	0,388
EC 70	0,377	0,000	0,384
EC 57	0,000	0,000	0,376
EC 54	0,369	0,000	0,374
EC 73	0,346	0,000	0,359
EC 63	0,000	0,000	0,000
LS 49	0,000	0,000	0,000
EC 64	0,000	0,000	0,000
LS 47	0,000	0,000	0,000

Values smaller than 0,250 are indicated as 0,000. The values greater than or equal to 0,250 but smaller than 0,300 have been approximated to 0,300. The criterion for significance are values equal to or greater than 0,300 or smaller than or equal to -0,300 (Child, 1976:45).

Interpretation of factors

The three factors in table 5.5 are interpreted as follows:

Factor 1: Independent learning ability

It emerged from table 5.5 that there are 37 items with significantly highest loadings on factor 1, namely:

IL (13, 6, 19, 12, 27, 20, 22, 11, 1, 23, 21,	
25, 16, 17, 5, 26, 8, 14, 18, 9, 7, 3)	= 22 items.
LS (50, 40, 52, 48)	= 4 items.
EC (65, 69, 66, 68, 81, 71, 74, 72,	
55, 67, 56)	= 11 items.
Total	= 37 items.

Therefore, there is a total of 37 items which group together under factor 1 because of their significantly highest loadings on factor 1.

The four lecturing skills items which are defined in factor 1, are LS (40, 48, 50 and 52). However, on closer inspection, all these items relate to a specific aspect of independent learning like "approach from different angles for better understanding; search for more information; variety; ability to listen attentively; to think critically and creatively".

The 11 nature of Economics items which are defined in factor 1 are EC (65, 69, 66, 68, 81, 71, 74, 72, 55, 67, 56). However, on closer inspection all these items relate to a specific aspect of independent learning like

- * the ability to analyse;
- * critical thought and analytical ability;
- * the ability to describe;
- * thinking logically by applying principles;
- * reading ability;
- * understanding;
- * to follow argument or debate;
- * enthusiasm for the subject.

The resultant clustering of 22 IL, 4 LS and 11 EC items with significant highest loadings on factor 1 has shown a commonality in terms of characteristics which apply to independent learning ability. It is, therefore, apt to call factor 1 "Independent Learning Ability" (IL).

Factor 2: Lecturing skills

It emerged from table 5.5 that altogether 23 items show significant highest loadings on factor 2. These items are:

LS (32, 30, 31, 29, 37, 36, 38, 43, 33, 41, 44,	
34, 45, 39, 35, 28, 51, 46)	= 18 items.
IL (15, 4)	= 2 items.
EC (61, 60, 62)	= 3 items.

Altogether 23 items loaded significantly on factor 2.

Apart from the 18 items which deal with lecturing skills, there are 2 items (IL 15 and IL 4) which were supposed to refer to independent learning. In addition, there were 3 items (EC 60, 61, 62) which pertained to the nature of Economics. On closer inspection it appears that item 15 refers to "different viewpoints in Economics" and item 4 to "self-discipline", which, in essence, hold affinity with lecturing skills because the lecturer needs to instill self-discipline in the student, and the lecturer has to approach a problem from different angles in order to accommodate different viewpoints in the subject Economics.

Furthermore, it appears that items EC (60, 61, 62) all relate to particular topics in Economics which need to be conveyed to students in a clear and logical manner, otherwise students might not understand the essence of the subject. These items could then be interpreted as fundamental issues which the lecturer would have to mediate to students, and from a lecturing point of view, the explanation of these concepts would require exceptional skill.

The resultant clustering of 18 LS items, 2 IL items and 3 EC items with significant highest loadings on factor 2, has shown a commonality in terms of characteristics which apply to lecturing skills. It is, therefore, apt to call factor

2 "Lecturing Skills" (LS).

Factor 3: Nature of Economics

The following 13 items load significantly highest on factor 3: items 76, 77, 75, 78, 79, 53, 59, 80, 58, 70, 57, 54, 73. These items formed a homogeneous grouping as anticipated. All of them relate to a particular aspect of Economics and, therefore, this factor is justifiably called 'Nature of Economics' (EC).

5.7.3.4 Item analysis

The rotated factor pattern made it possible to name each of the three factors (dimensions) on the basis of a common loading and characteristics of independent learning ability, lecturing skills and the nature of Economics, respectively. The ensuing item analysis will be able to clarify further possible relationships between items with the highest internal homogeneity.

Subsequent to the rotated factor pattern a new grouping of items under the three dimensions emerged. As a result, an item analysis was performed on each of the items in the three factors to determine whether each item contributes significantly to the total of the dimension concerned. For each item the mean, standard deviation and correlation with the total field have been calculated and juxtaposed to the

Alpha-Cronbach reliability index for the dimension should the item be excluded from the dimension. The data are reflected in tables 5.6, 5.7 and 5.8.

TABLE 5.6: ITEM ANALYSIS WITH ITEMS IN THE DIMENSION

"INDEPENDENT LEARNING ABILITY" (IL)

VARIABLE	\bar{X}	SD	CORRELATION WITH TOTAL	ALPHA IF ITEM IS EXCLUDED
13	2,037	0,755	0,530	0,870
6	2,009	0,732	0,444	0,872
19	1,854	0,752	0,445	0,872
12	2,386	0,833	0,600	0,868
50	1,903	0,820	0,419	0,872
27	1,984	0,765	0,405	0,872
20	2,454	0,996	0,492	0,870
40	2,051	0,840	0,532	0,869
22	1,610	0,767	0,448	0,871
65	2,311	0,826	0,582	0,869
11	1,908	0,775	0,451	0,871
69	2,077	0,845	0,615	0,868
66	2,327	0,815	0,563	0,869
1	1,806	0,676	0,417	0,872
23	1,561	0,669	0,301	0,874
21	2,269	0,902	0,370	0,873
25	2,141	0,962	0,324	0,874
68	2,246	0,789	0,610	0,868
52	1,747	0,776	0,412	0,872
16	2,164	0,860	0,459	0,871
17	1,835	0,865	0,481	0,871
81	2,458	1,017	0,485	0,870
71	2,320	0,902	0,538	0,869
74	2,458	0,870	0,473	0,871
5	1,838	0,748	0,381	0,873
26	1,855	0,853	0,409	0,872
72	1,984	0,765	0,486	0,870
8	1,824	0,757	0,299	0,874
14	1,683	0,814	0,435	0,872
55	2,272	0,984	0,375	0,872
18	1,582	0,794	0,307	0,874
48	1,734	0,839	0,287	0,874
67	2,562	1,105	0,323	0,874
3	1,635	0,697	0,342	0,873
9	2,400	1,034	-0,128	0,884
56	2,519	1,013	-0,268	0,886
7	2,951	1,018	0,322	0,888

Number of respondents = 645

Number of items = 37

Alpha reliability index = 0,875

Factor 1: Independent learning ability

For 643 degrees of freedom ($N=645$) a correlation is significant on the 1% level if $r = 0,106$ (Bartz, 1976:249). From table 5.6 it is evident that the calculated r value for each item and the total field is greater than 0,106. It can therefore be asserted that the correlations are all significant on the 1% level.

Items 7, 9 and 56 correlate negatively as these items depict a negative connotation in relation to the field "independent learning ability". Item 7 states that "I learn only to pass examinations"; item 9 is "I am influenced by others or surroundings when learning", and item 56 states that "I think Economics is a difficult subject". These three items suggest a tone which is not conducive to independent learning, therefore the negative correlations. By reversing their scoring, that is, changing the "totally disagree" to "agree wholeheartedly" the correlations will reflect positively. By inserting the negative "not" in each of these statements, for example, "I learn not only to pass examinations", these items blend with the rest within the dimension "independent learning ability".

Consequently, none of the 37 items on the basis of their correlations will be excluded. The 37 items in the IL dimension, as determined in the factor analysis, will

therefore suffice. A high Alpha reliability coefficient of 0,875 was obtained for the dimension "independent learning ability".

Factor 2: Lecturing skills

Table 5.7 shows that 23 items correlate significantly on the 1% level with the total in this particular dimension. Therefore, this dimension is explained by the 23 items as determined by the factor analysis. A high Alpha reliability coefficient of 0,825 was obtained for the dimension "lecturing skills".

Number of respondents = 47
Number of items = 21
Alpha reliability index = 0,875
Factor 2: The Nature of Research

Table 5.8 shows that 11 items correlate significantly on the 1% level with the total in this particular dimension. Therefore, this dimension is explained by the 11 items as determined by the factor analysis. A high Alpha reliability coefficient of 0,825 was obtained for the dimension "lecturing skills".

**TABLE 5.7: ITEM ANALYSIS WITH ITEMS IN THE DIMENSION
"LECTURING SKILLS" (LS)**

VARIABLE	\bar{X}	SD	CORRELATION WITH TOTAL	ALPHA IF ITEM IS EXCLUDED
32	1,241	0,486	0,543	0,814
30	1,254	0,505	0,525	0,814
31	1,249	0,493	0,518	0,814
29	1,291	0,601	0,465	0,815
37	1,198	0,483	0,438	0,817
36	1,361	0,621	0,479	0,814
38	1,235	0,459	0,441	0,817
43	1,344	0,556	0,478	0,815
33	1,311	0,560	0,398	0,817
41	1,403	0,656	0,436	0,816
44	1,427	0,602	0,482	0,814
34	1,288	0,584	0,349	0,819
45	1,373	0,561	0,442	0,816
39	1,396	0,595	0,397	0,817
35	1,587	0,743	0,378	0,818
61	1,370	0,592	0,408	0,817
28	1,674	0,862	0,280	0,824
15	1,409	0,664	0,257	0,823
60	1,533	0,804	0,276	0,823
62	1,800	0,808	0,270	0,824
51	1,776	0,755	0,293	0,822
4	1,168	0,439	0,231	0,823
46	1,750	0,792	0,270	0,823

Number of respondents = 645

Number of items = 23

Alpha reliability index = 0,825

Factor 3: The Nature of Economics

Table 5.8 shows that all the items correlate significantly on the 1% level with the particular field total. These 13 items have consequently been identified in the item analysis based on the grouping of the items in the factor analysis under factor 3.

**TABLE 5.8: ITEM ANALYSIS WITH ITEMS IN THE DIMENSION
"NATURE OF ECONOMICS" (EC)**

VARIABLE	\bar{X}	SD	CORRELATION WITH TOTAL	ALPHA IF ITEM IS EXCLUDED
76	2,119	1,013	0,558	0,806
77	2,026	0,919	0,532	0,809
75	1,809	0,903	0,488	0,812
78	1,979	0,819	0,477	0,814
79	1,947	0,823	0,528	0,810
53	1,827	0,854	0,570	0,806
80	1,995	0,787	0,565	0,807
58	1,662	0,756	0,409	0,818
70	2,333	0,822	0,491	0,812
57	2,482	0,954	0,278	0,829
54	1,719	0,841	0,559	0,807
73	2,265	0,873	0,448	0,815
59	2,269	0,997	0,246	0,833

Number of respondents = 645

Number of items = 13

Alpha reliability index = 0,826

To illustrate further the consistency of the 13 items in the dimension "Nature of Economics" the Alpha reliability coefficient of the field was high, namely 0,826.

As a result of the item analysis done on the three factors, the following table (table 5.9) depicts the final composition of each of the three new dimensions in terms of the various items.

**TABLE 5.9: GROUPING OF ITEMS IN THEIR RESPECTIVE
DIMENSIONS IN THE QUESTIONNAIRE**

DIMENSION	ITEM	TOTAL
INDEPENDENT LEARNING ABILITY (IL)	1, 3, 5, 6, 7, 8,9,11,12, 13, 14, 16, 17,18, 19, 20, 21, 22,23,25, 26, 27, 40,48,50,2,55, 56, 65, 66, 67,68,69, 71, 72, 74, 81	37
LECTURING SKILLS (LS)	4, 15, 28, 29, 30, 31,32, 33, 34, 35, 36, 37, 38,39, 41, 43, 44, 45, 46, 51, 60, 61, 62	23
NATURE OF ECONOMICS (EC)	59, 53, 54, 57, 58, 70,73, 75, 76, 77, 78, 79, 80	13
	TOTAL	73

In table 5.9 the items are arranged as per dimension. The first dimension, independent learning ability, consists of 37 items. The second dimension, lecturing skills, comprises 23 items, and the third, nature of Economics, covers 13 items - a total of 73 items. This means that eight of the original 81 items did not appear in any of the dimensions subsequent to the factor and the item analyses. These are items 2, 10, 47, 63, 42, 24, 49 and 64. These eight items did not show any significant loading in the rotated three-factor solution. In the subsequent item analysis for each dimension no further items were discarded and, therefore 73 items (as indicated in table 5.9) will remain and all further calculations will be based on these three dimensions.

In the following section various hypotheses will be stated and these will be accepted or rejected accordingly on the basis of the interpretation of given data.

5.7.3.5 Testing of hypotheses

- (a) The relation between achievement in Economics and each of the variables independent learning ability, lecturing skills and nature of Economics.

Hypothesis 1

The null hypothesis (see 5.6.1) is that there is no significant correlation between the achievement of students in Economics (AE) and the independent variables of independent learning ability (IL), lecturing skills (LS) and the nature of Economics (EC), respectively.

To test this hypothesis, an intercorrelation matrix has been compiled in table 5.10 (Pearson-Product moment correlations).

When interpreting these correlations it must be noted that these correlations merely reflect the relationship between two variables, while no contributing factors are taken into consideration. A correlation coefficient, therefore, does not comprise any cause-effect characteristic (Mulder, 1981:75).

TABLE 5.10: INTERCORRELATION MATRIX FOR FOUR VARIABLES
(AE, IL, LS, EC)

VARIABLE	AE	IL	LS	EC
AE	1.000			
IL	0.230	1.000		
LS	0.206	0.236	1.000	
EC	0.194	0.707	0.305	1.000

All these correlations are significantly positive
 ($p < 0,01$; $N=645$).

Table 5.10 reflects the correlations between the four variables - achievement in Economics (AE) (item 82), independent learning ability (IL), lecturing skills (LS) and the nature of Economics (EC).

The correlations between the three independent variables (IL, LS and EC) and achievement in Economics (AE) have been negative. However, these correlations are reported in table 5.10 as being positive, because the first 81 items were responded to by either a 1 (strong positive) or 2 (positive) while a higher percentage indicated at item 82 (achievement) was the more positive achievement. The lower responses on the scale juxtaposed with the higher achievement percentage should, therefore, be positively correlated.

Table 5.10 suggests that the dependent variable, achievement in Economics (AE) correlates significantly with

each of the independent variables, independent learning ability (IL), lecturing skills (LS), and the nature of Economics (EC) ($p < 0,01$). Hypothesis 1 is, therefore, rejected and the alternative is accepted, namely, that there is a significant correlation between AE and IL, LS and EC, respectively.

Although the correlations between AE and each of the three independent variables are significantly positive, they are all low (Mulder, 1981:74). Consequently, the conclusion can be drawn that there is not a strong relationship between achievement in Economics and each of the variables IL, LS and EC.

Of the three independent variables achievement in Economics (AE) correlates the highest with independent learning (IL) ($r = 0,230$; $p < 0,01$). The relationship between AE and IL is explored further by a t-test calculation as reflected in table 5.11.

**TABLE 5.11 THE ECONOMICS ACHIEVEMENT OF GOOD AND
WEAK INDEPENDENT LEARNERS**

INDEPENDENT LEARNING ABILITY (IL)	ECONOMICS ACHIEVEMENT (%) (\bar{X})
Good (<2,044)	57,956
Weak (>2,044)	51,592

$$(t = 5,453; df = 643; p < 0,01)$$

The mean value for the dimension independent learning ability for the research group as a whole, is a weighted value and has been calculated as 2,044. This value has been used as a criterion to distinguish between good and weak independent learners. Responses smaller than 2,044 depict good independent learners and responses greater than or equal to 2,044 reflect weak independent learners.

From the data given in table 5.11 it is clear that the good independent learner's average performance in Economics is significantly ($p < 0,01$) higher than the weaker independent learner's. From the evidence the conclusion can be drawn that there is a relationship between achievement in Economics (AE) and independent learning ability (IL). The relationship between these two variables point to conclusive evidence that the good independent learner will perform significantly better than the weak independent learner.

The abovementioned relationship is substantiated further by a high positive correlation between independent learning (IL) and the nature of Economics (EC) ($r = 0,707$; $p < 0,01$), as reflected in table 5.10.

Good independent learners are, therefore, placed favourably to achieve better results in Economics, because the subject lends itself well to an independent learning ability.

- (b) The relation between independent learning ability (IL), lecturing skills (LS) and the nature of Economics (EC).

Hypothesis 2

The null hypothesis (see 5.6.2) is that there is no significant correlation between IL, LS, and EC, mutually.

From table 5.10 it emerged that the mutual correlations between the three independent variables were all significantly positive ($p < 0,01$). As a result, the stated null hypothesis 2 is rejected and the alternative hypothesis is accepted, namely, that there are significantly positive correlations between IL, LS and EC mutually.

Viewed logically, these correlations can be interpreted as follows (Mulder, 1981:75):

- * Between IL and LS a low positive correlation ($r=0,236$).
- * Between IL and EC a high positive correlation ($r=0,707$).
- * Between LS and EC a low positive correlation ($r=0,305$).

The high positive correlation between an independent learning ability and the nature of Economics suggests that the subject Economics lends itself well to independent learning. Together with the finding that good independent learners perform better in the subject than weak independent learners, it is logical to conclude that in the lecturing of Economics at technikons more emphasis should be placed on the promotion of independent learning and the development of concomitant abilities.

By emphasising the nature and underlying basis of Economics, students should acquire a better understanding of the subject. The lecturing of Economics has, therefore, vast implications for the sustainability of the significantly high positive correlation between an independent learning ability and the nature of Economics. Moreover, the residential technikon student is not entirely excluded from using both means to perform well in

Economics, that is, through independent learning and lecturing skills.

The research statistics revealed that of the 645 respondents, 223 students out of 341 were good independent learners and they also preferred good lecturing skills. Therefore, the means by which to achieve good results in Economics, are not mutually exclusive.

(c) The Economics achievement of English and Afrikaans students

Hypothesis 3

The null hypothesis (see 5.6.3) is that there is no significant difference between the mean Economics achievement score of English students and the mean Economics achievement score of Afrikaans students.

In order to test the hypothesis, a t-test was performed on the data.

**TABLE 5.12: THE MEAN ECONOMICS ACHIEVEMENT OF ENGLISH
AND AFRIKAANS STUDENTS**

LANGUAGE	N = 645	ECONOMICS ACHIEVEMENT (\bar{X})
English	355	49,935%
Afrikaans	290	61,103%

$$(t = -10,026; df = 643; p < 0,01)$$

The data in table 5.12 reveal that at the 1% level of significance a difference occurs between the Economics achievement of English and Afrikaans students. For this reason, the null hypothesis is rejected and the alternative is accepted, that is, that the Afrikaans students achieve significantly better than their English counterparts.

The reason for the Afrikaans students performing better than their English counterparts is attributable to the majority of students who indicated their language preference as English, but for whom English was, in fact, a second or a third language. These students' problems are compounded by the textbooks which are essentially English.

The Afrikaans students, although placed at a disadvantage by predominantly English textbooks, receive their study material from the correspondence technikon in Afrikaans, while the Afrikaans student at the residential technikon enjoys the benefit of bilingual lectures. However, bilingual lectures could also be confusing especially if it

is done in a class which has both language groups present, or when the lecturer favours a particular language.

- (d) The Economics achievement of first-, second- and third-year students.

Hypothesis 4

The null hypothesis (see 5.6.4) is that there is no significant difference between the mean Economics achievement of first-, second- and third-year students, respectively.

In order to test the hypothesis, a F-test and a t-test were used to determine possible significant differences between achievements in Economics in the different years of study.

**TABLE 5.13 THE MEAN ECONOMICS ACHIEVEMENT OF FIRST-,
SECOND- AND THIRD-YEAR STUDENTS (F-test)**

YEAR OF STUDY	N	Economics achievement \bar{X}
1	406	51,379%
2	113	62,416%
3	126	59,794%

(F = 34,88; df = 642; p<0,01)

The F-test revealed that there is a significant difference (p<0,01) between the three groups of students with respect to their mean performances in the subject Economics.

Consequently, a t-test was done to determine whether any significant differences occur when the groups are paired. The data are revealed in table 5.14.

TABLE 5.14: THE MEAN ECONOMICS ACHIEVEMENT OF FIRST-, SECOND- AND THIRD-YEAR STUDENTS (t-test)

Year of Study	Economics achievement (\bar{X})	t-value	df	p
1 2	51,379% 62,416%	5,988	517 (N=519)	p<0,01
1 3	51,379% 59,794%	5,778	530 (N=532)	p<0,01
2 3	62,416% 59,794%	1,118	237 (N=239)	p>0,05

The t-test showed that:

- * The average of the first-year students (51,3%) differs significantly ($p<0.01$) with the average (62,4%) of the second-year students.
- * The first-year average (51,3%) differs significantly ($p<0,01$) with the average (59,7%) of the third-year students.
- * The mean performances of second-year students (62,4%) and third-year students (59,7%) do not differ significantly ($p>0,05$).

As a result, the null hypothesis is not rejected in respect of the second- and third-year students, but in respect of the differences between first- and second-year, and first- and third-year students.

The alternative hypothesis is, therefore, accepted that there is a significant difference between the achievements in Economics of first- and second-year students, as well as between first- and third-year students. The third-year students and the second-year students performed significantly better than the first-year students.

The following could be cited as some of the reasons for the lowest mean achievement in Economics by the first-year students:

- Economics is not a compulsory prerequisite subject for Technikon training.
- Many students do not have an Economics background prior to entering the Technikon.
- The subject terminology is difficult for most beginners and even more difficult for them to contextualise.
- Most first-year Economics classes at residential technikons are big, therefore, personal contact by the lecturer with the student is almost non-existent.
- Most first-year students at tertiary level need time to adapt from a "spoonfeeding" towards a more "heuristic" and searching environment.
- For the first-year student the question paper might be relatively 'more difficult' than it would be case with the second- and third-year student.

The second-year student seems to have stabilised in terms of greater adaptability towards independent learning, as well as greater receptivity during lectures. This student has also built up a background knowledge of the first year. The second-year Economics student would also tend to show a better economic literacy skill. Although the subject-matter is more advanced than at first-year level, it is still not as complex as the material presented at third-year level.

The majority of the third-year group was constituted by students at the residential technikon. These students had the benefit of receiving tuition from a lecturer. While these students have the benefit of two years of tuition in Economics, their accomplishments are enhanced by the personal guidance of the lecturer, as well as their more substantial economics literacy level. Because of the degree of difficulty of the subject at third-year level, one would expect the more able student to do the subject, hence the significant difference in mean performance between first- and third-year respondents.

- (e) A comparison between first-, second- and third-year Economics students in respect of the independent variables.

Hypothesis 5

The null hypothesis (see 5.6.5) is that there is no significant difference between the first-, second- and third-year Economics student in respect of IL, LS, and EC.

In order to test the hypothesis, a F-test and a t-test were done to determine possible significant differences between means in IL, LS and EC. (The means are weighted values for each group).

TABLE 5.15: FIRST-, SECOND-, AND THIRD-YEAR ECONOMICS STUDENTS' PERCEPTION OF IL, LS, AND EC (F-test)

YEAR OF STUDY	N=645	IL (\bar{X})	LS (\bar{X})	EC (\bar{X})
1	406	2,066	1,482	2,048
2	113	1,989	1,434	1,994
3	126	2,025	1,316	2,020
	F-value	1,81	16,89	0,58
	P df=2, 642	p>0,05	p<0,01	p>0.05

In the case of independent learning ability and the nature of Economics the F-test showed that there are no significant differences ($p>0,05$) between the three groups of students. A possible explanation for this phenomenon is that all three groups of students indicated positively that they recognise the benefits which an independent learning ability holds for the student. They also perceive the

nature of Economics in similar vein. The nature of the subject Economics is determined to a large extent by the syllabus which is the same for all technikons.

The F-test, however, shows that the three groups of students' perception of lecturing skills differs significantly ($p < 0,01$). Consequently, a t-test was done to determine between which groups (paired combinations) the difference is significant. The data are reflected in table 5.16.

**TABLE 5.16: FIRST-, SECOND- AND THIRD-YEAR ECONOMICS
STUDENTS' PERCEPTION OF IL, LS AND EC
(t-test)**

Year of study	LS (\bar{X})	t-value	df	p
1 3	1,482 1,316	2,708	527 (N=529)	$p < 0,01$
2 3	1,434 1,316	2,315	237 (N=239)	$p < 0,01$
1 2	1,482 1,434	0,811	517 (N=519)	$p > 0,05$

The t-test showed that there is a significant difference ($p < 0,01$) between first- and third-year, and second- and third-year students. There is no significant difference ($p > 0,05$) between first- and second-year students. The difference between first- and third-year students could be explained by the more critical perception which third-year

students have of effective lecturing. Therefore, they are in a better position to respond more positively than first-year students to the criteria for effective lecturing skills. Similarly, the third-year student is better able than the second-year student to evaluate effective lecturing, hence the significant difference ($p < 0,01$) between second- and third-year students' perception of lecturing skills.

The stated null hypothesis 5 is, therefore, not rejected in respect of IL and EC, but is rejected in the case of LS. The alternative hypothesis is, therefore, accepted in respect of LS which states that significant differences do occur between first- and third-year students, and between second- and third-year students in respect of lecturing skills.

5.8 Synthesis of results

A questionnaire comprising 81 items was designed to determine the relative contribution of independent learning and lecturing skills to achievement in the subject Economics. The questionnaire, after a factor analysis, comprised three dimensions, namely:

- * independent learning (IL): 37 items.
- * lecturing skills (LS) : 23 items.
- * the nature of Economics (EC): 13 items.

Eight of the original 81 items were discarded after the factor analysis had been done. The final number of items totalled 73, with additional items covering biographical data like achievement in the subject, type of institution where student is studying, language preference and year of study.

5.8.1 Factor analysis

A principal components analysis, followed by a rotated (promax) factor analysis was done on the items from which three factors emerged. The outcome of this process was a new grouping of items within each factor. The three factors were called independent learning ability (IL), lecturing skills (LS) and the nature of Economics (EC).

5.8.2 Item analysis

With the new composition of items per dimension an item analysis for each dimension was done. No further items were discarded and, therefore, 73 items comprised the final number of items.

The Alpha-Cronbach reliability index was as follows for each dimension:

Independent learning ability (IL) $\alpha = 0,875$

Lecturing skills (LS) $\alpha = 0,825$

The nature of Economics (EC) $\alpha = 0,826$

The reliability indices for the three dimensions are high and provide a reasonable basis for further analyses.

5.8.3 Hypothesis testing

With the assistance of Pearson-Product moment correlation coefficients and analysis of variance the stated null hypotheses were tested. The following findings emerged:

5.8.3.1 Correlations between achievement in Economics (AE) and each of IL, LS and EC respectively

Positive correlations exist between:

Achievement in Economics and IL ($r=0,230$; $p<0,01$): a low positive correlation.

Achievement in Economics and LS ($r=0,206$; $p<0,01$): a low positive correlation.

Achievement in Economics and EC ($r=0,194$; $p<0,01$): a low positive correlation.

5.8.3.2 Correlations between IL, LS and EC mutually

Positive correlations exist between:

IL and LS ($r=0,236$; $p<0,01$): low positive correlation.

IL and EC ($r=0,707$; $p<0,01$): high positive correlation.

EC and LS ($r=0,305$; $p<0,01$): low positive correlation.

5.8.3.3 Differences in achievement in Economics of Afrikaans- and English-speaking students

It was found that the Afrikaans-speaking students ($N=290$; $\bar{X}=61,103\%$) seem to fare significantly ($p<0,01$) better in Economics as opposed to the English-speaking students ($N=355$; $\bar{X}=49,935\%$).

5.8.3.4 Differences in achievement in Economics with respect to year of study

Significant differences ($p<0,01$) occur between first- and third-year and first- and second-year students with respect to achievement in Economics. The second-year group performed best ($62,416\%$), followed by the third-year ($59,794\%$) and first-year students ($51,379\%$). No significant differences were found ($p>0,05$) between the Economics achievement of second- and third-year students.

5.8.3.5 Differences in IL, LS and EC with respect to year of study

Significant differences ($p<0,01$) occur between first- and third-year students, as well as between second- and third-year students with respect to LS. The third-year group is in a better position to respond more positively to lecturing skills (a weighted mean of $1,316$), followed by the second-year group (a weighted mean of $1,434$) and the

first-year group (a weighted mean of 1,482). In respect of IL and EC no significant differences ($p>0,05$) were found between the different years of study.

5.9 Summary

In this chapter the planning and execution of the empirical investigation as well as the statistical calculations and interpretation of the data were outlined. The following chapter will concentrate on a brief outline of the research, while conclusions and recommendations will be formulated. These conclusions will be based on both the theoretical and empirical investigations. The chapter is concluded with the implications for the study, as well as recommendations for further research.

CHAPTER SIX

OVERVIEW OF THE RESEARCH, FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

6.1 Overview of the research

6.1.1 Rationale for the study

It is estimated that by the end of the twentieth century there will be a shortfall of 228 000 high-level skilled human resources in South Africa (Spies, 1989). Technikons have an important role to play in providing such skilled human resources. However, teaching and learning will have to assume vastly different dimensions in view of increasing student numbers in technikons. In the South African educational context, technikons have been mandated to provide technological and career education, as opposed to universities which concentrate on the expansion of science.

With increasing student numbers and subsequent higher student-lecturer ratios, the need for accommodating more effective teaching and learning in tertiary education has become more apparent. The research has revealed that:

- lecturers have to contend with ever-increasing student numbers;
- learning could be ineffective under these conditions;

- more than 30% of all students in tertiary education in South Africa study by correspondence;
- the teaching-learning correlation is not as direct as it should be.

If all learning takes place in the classroom, the teaching-learning correlation will be high. However, students do not only learn from lectures presented in the classroom, but also from reading textbooks, completing assignments and doing background reading in journal articles and other relevant sources.

The current research emanated from work done by Hounsell as reported in Entwistle and Tait (1990:170) who postulated that learning outside the confines of the ordinary classroom does make a considerable contribution to student achievement in a subject.

The subject Economics was chosen as area of investigation, because it is a field in which the researcher taught for many years, as well as having trained aspirant teachers. Using achievement in Economics as the dependent variable, the independent variables were independent learning, lecturing skills and the nature of the subject Economics.

The research findings suggest that there is a relationship between students' achievement in Economics and their ability to learn independently, as well as from lectures.

The subject Economics also lends itself very well to independent learning.

6.1.2 Analysis and delimitation of the problem

The literature suggests that there is a lack of research into the concept "independent learning" (Boud, 1981:12). It would also appear that no significant difference occurs in the performance of the independent learner and the student who receives lectures. However, because all learning cannot take place in the classroom, the student is expected to do additional reading outside the confines of the ordinary lecture. The extent to which learning occurs through reading additional textbooks, completing assignments and projects has not been determined in exact empirical terms.

The only evidence available is that of Hounsell (in Entwistle & Tait, 1990:170) who postulates that independent learning could make an equal, or even greater, contribution to academic achievement than lecturing skills. Achievement in the subject Economics as taught at two technikons was isolated as dependent variable. In order to give effect to the concept "independent learning" part of the sample chosen were students who studied by "correspondence", that is, those students who do not receive formal classroom tuition. The rest of the sample were residential technikon students.

In investigating this research problem, it became clear that all learners in tertiary education need to possess the necessary affective characteristics as described in chapter 2 in order to become successful learners. These characteristics did not apply only to independent learners, because those students who attend formal lectures need to have independent learning abilities in order to learn outside the confines of the classroom.

6.1.3 Purpose of the study

The research has been of a twofold nature, namely, the literature survey or theoretical investigation, and the empirical or practical section. Specific objectives were formulated for each section.

6.1.3.1 Objectives of the theoretical investigation

The literature survey pursued the following objectives:

- * To discuss the nature of the concept "independent learning" and its value for students in tertiary education and to derive the characteristics of independent learners.
- * To define "independent learning" from an empirical-andragogic view.
- * To discuss specific teaching styles and to match these with certain learning styles.

- * To determine what lecturing effectiveness means and how this process could promote learning.
- * To explain key concepts underlying the subject Economics and how student learning could be accommodated within this framework.
- * To describe a possible competency-based outline of a module in the subject.
- * To define operational constructs in the areas of independent learning, lecturing skills and the nature of the subject Economics from which items are formulated for the purpose of compiling a questionnaire.

6.1.3.2 Objectives of the empirical investigation

The following objectives were formulated following the literature survey:

- (a) A questionnaire was compiled with the purpose of:
 - * Establishing the nature of students' perceptions of independent learning, lecturing skills and the nature of the subject Economics.
 - * Relating their perceptions of these dimensions with their performance in the subject.

(b) To use appropriate statistical techniques to determine:

- * the relationship between achievement in the subject and independent learning, lecturing skills and the nature of Economics;
- * the extent to which significant differences occur between variables if different years of study and language preference are used as dividers.

6.1.4 Method of investigation

The method of investigation links up with the twofold objectives as set out in the previous paragraph. In addition to the literature survey, the planning and execution of the empirical investigation include the following:

- * A questionnaire consisting of three dimensions has been compiled for first-, second- and third year technikon Economics students. The three dimensions were independent learning, lecturing skills and the nature of the subject Economics.
- * The draft questionnaire was presented to a group of students for a pilot study. Following this exercise, changes were effected after which the questionnaire was administered.
- * Permission was granted by the heads of department and

- lecturers at the different technikons for the questionnaire to be administered.
- * The respondents returned the questionnaires to the researcher who checked each one for completeness and clarity. With the assistance of the standardised SAS computer programmes, the data were analysed statistically by the Department of Computer Services at Unisa.
 - * The findings and conclusions, based on the theoretical and empirical investigations, will be used to make recommendations, while the implications of these recommendations will also be discussed.

6.1.5 The research group

The research group comprised first-, second- and third-year technikon Economics students at two different technikons in South Africa. The final research group consisted of 645 students - 352 male and 293 female students. The composition in terms of year of study was 406 first year, 113 second year and 126 third year students. Of the total sample, 355 students had a preference for English and 290 for Afrikaans, while 415 students studied at a residential technikon and 230 at a distance education technikon.

6.2 Findings and conclusions based on the literature survey

The most important findings which emanated from the literature survey with its concomitant conclusions are the following:

6.2.1 The importance of an independent learning ability

The literature has revealed that learning is and should be a relatively stress-free activity when a student should be engaged in probing meaning in the learning material and attempting to develop an enquiring mind instead of memorising for the sake of mere reproduction. This would require from the student to be intrinsically motivated and to be able to learn without being forced into it through examinations or lecturers.

The literature has revealed further that threatening assessment conditions make surface approaches to learning more likely and that such assessment conditions militate against the whole objective of independent learning.

The conclusion reached is that there is a clear distinction between "learn" and "study", the former being relatively stress-free and the latter involving the technique of coping with, amongst others, an external motivating (demotivating?) factor such as examinations. While

successful independent learning is largely reliant on positive attitudinal and psychological traits, such as self-discipline and self-organisation, successful study - normally in preparation of an examination - is based on specific skills. These skills would enable the learner to cope with stressful assessment conditions, as well as developing the ability to remember key information.

6.2.2 The importance of cognitive style

The literature survey covered two distinct cognitive styles which the student could experience while learning. These conditions are not mutually exclusive but could assume one or the other at different stages in the learning context.

The cognitive style has an important influence on the learner. Some learners are described as "field-dependent" and others as "field-independent". The "field-dependent" learner is strongly influenced by the prevailing field, while the latter type of learner experiences the environment more or less independent from the surrounding field.

The other type of cognitive style is called the "environment-defined" as opposed to the "learner-defined" style. Parallels could be drawn between the "field-dependent" and "environment-defined" cognitive styles, as well as between "field-independent" and "learner-defined"

cognitive styles.

The conclusion could be drawn that the student who has a cognitive style which is largely of the "field-independent" or "learner-defined" type, will be the more successful independent learner. This type of student is less influenced by others or surroundings and is able to reason better, solve problems and create structure in the learning material.

The "field-dependent" and "environment-defined" cognitive styles are not conducive to independent learning, as these conditions do not assume that there is capacity for self-direction, self-assessment and, generally, providing the opportunity for the student to exercise choices about learning.

6.2.3 The nature of independent learning

The literary evidence suggests that many misnomers exist about the concept "independent learning". Many academics understand the term to mean any of the following:

- individualised projects;
- highly structured reading lists;
- close supervision of the educational experience;
- detailed specifications of how the task should be completed.

On closer investigation, the term "independent learning" would imply the quality and intensity of effort which the learner is able to generate within him- or herself in order to probe meaning, to elaborate upon ideas, to find pathways to solve problems, to identify problem areas, and to have the ability to synthesise. The important role of the self, that is, the self-concept, self-organisation, self-discipline and self-assessment, can never be underestimated. Independent learning does not mean "learning on your own without any contact with lecturers or peers". In essence, it means the student possesses the necessary attitudinal and psychological traits to work through the learning material, to attach significance, to become involved, to be intrinsically motivated, and to determine the learning objectives to chart the course to successful and meaningful learning.

6.2.4 Independent learning as way of instruction and learning

For the student who is an independent learner, independent learning is both a way of self-instruction as well as a way of learning. The conclusion drawn from this evidence is based on the fact that good independent learners have well-developed reading skills. These reading skills would allow the student to probe the meaning in the learning material. As a precondition for successful independent learning would be "the availability of the learning material" which is

normally in printed format.

6.2.5 The role of the lecturer

The notion exists that independent learning is a type of learning "in the absence of the physical presence of the lecturer". Lecturing effectiveness plays a significant role in promoting independent learning. The lecturer should be in a position to determine whether students identify with deep-level approaches to learning, whether students prefer to accept responsibility for their own learning and whether courses are structured in such a manner so that these promote independent learning.

The conclusion drawn from the literary evidence is that lecturing effectiveness as viewed from both the lecturer's and students' perspective, has to be enmeshed into a meaningful and coherent whole. The lecturer's approach, the style of lecturing, the methods employed and the knowledge of how students learn are imperative for lecturing effectiveness. Similar to becoming a successful independent learner, lecturing effectiveness is also dependent on positive affective and attitudinal traits on the part of the lecturer.

6.2.6 The match between teaching and learning styles

The literature is explicit in terms of emphasising the importance of the effect of teaching style on learning. In this context, "lecturing" is categorised as one method of teaching. Style would seem to be very person-centred and is, therefore, recognisable with the person. Therefore, teaching and learning style are inherently part of the person's character and, although latent, do come to the fore in situations such as teaching and learning.

For teaching to be effective from the student's perspective, and for learning to be effective from the lecturer's point of view, some synergy has to be found between the teaching style and learning style of both lecturer and student. However, a paradox seems to arise when students who are deep-level, and good independent learners can compensate for weak lecturers. The achievement of this category of learner does not seem to be affected by the shortcomings of lecturers who do not provide well-structured learning material, challenging learning objectives and detailed reading lists.

In line with this paradox, the less able independent learner would rely more on the lecturing ability of the lecturer, or the availability of detailed notes, handouts, learning objectives and recommended reading lists. This type of student also requires closer supervision and

guidance from the lecturer.

Despite the anomaly which could exist in terms of effective lecturing and meaningful independent learning, the literature accounted for sufficient research evidence that there is no substitute for effective lecturing. Despite a student being a good independent learner, the effective and exemplary lecture is always appreciated.

6.2.7 The importance of lecturing skills

While it is conceded in many circles that the task of lecturing does not require any formal training, the literature is very clear on those skills which embrace effective lecturing. Apart from the positive attitudes such as personal touch, integrity and authenticity of the lecturer, it is assumed that all lecturers are experts in their particular fields of study. However, students wish to experience clarity in terms of the learning material which needs to be substantive.

In addition, the art of explaining, be it verbal or in writing, is of cardinal importance when lecturing. Explaining is regarded as the central activity of lecturing, and together with the generating of interest and the presentation of information, these skills are indispensable for effective lecturing.

The conclusion drawn from this evidence is that the training of teachers and lecturers should, amongst others, not only include methods of teaching or the psychology of learning, but also a section on the art of explaining. Lecturers should become aware that explaining could be of a threefold nature: descriptive, interpretative and reason-giving. A knowledge of the kinds of explaining could obviate many problems which students might encounter when not grasping an explanation by a lecturer the first time. The art of explaining allows the lecturer to approach the learning material from different angles, thereby putting different perspectives to the same phenomenon. The lecturer should also emphasise the skills which students should acquire in order to equip them for the world at work.

6.2.8 Economics literacy

From the literature it has become clear that the student of Economics is not necessarily literate in Economics, nor is it assumed that the student has a profound understanding of the theoretical foundations of the subject. The literature has also revealed that students find it difficult to relate economic theory in its proper perspective to phenomena in the economic world.

A knowledge of Economics has become imperative in a fast-changing technological, economic and political environment.

The politics and economics of countries are intertwined and to put the two in proper perspective, a thorough knowledge of the subject is necessary.

A good point of departure is the understanding of basic concepts such as opportunity cost, marginalism, efficiency and rationality. These concepts cover the nature of the subject.

The conclusion arrived at when students lack the understanding of these basic concepts is that they will not realise that nothing is free of charge. In economic terms there is always somebody paying for the commodity or service. Secondly, the issue of foregoing one service or commodity in favour of another is at stake, thereby, bringing the concept of choice into play.

An economic choice is a rational choice, but not necessarily an efficient choice. The choice that people exercise in the economic world has a cost attached to it. Students of Economics must realise that additional factor input does not necessarily realise greater profit, because greater efficiency and rationality might not be present. Therefore, greater factor inputs could lead to a worse profit maximising position as a result of disutility.

The concept efficiency is seldom attainable in today's economic world, because shortages or over-supply do occur.

The over-arching conclusion as a result of these concepts is that the Economics student needs to have a reasonably sound analytical ability in order to visualise the philosophical premise from which these concepts are derived, as well as a descriptive ability to relate these concepts to the economic world.

6.2.9 The teaching of Economics

Economics is regarded as one of the more difficult subjects in education. From the available literature gleaned, it became evident that much was written about the subject per sé but very little about the teaching of the subject. In addition, the problem with the teaching of Economics is compounded because large numbers of students enrol for the subject in their first year. The ratio of students to lecturer is, therefore, very high.

The conclusion reached is that there is a close relationship between effective teaching of the subject and the number of students doing the subject with a specific lecturer. Furthermore, the lecturer will be assisted in his/her task if more practical evidence is made available as to how different facets of the subject should be taught, apart from the methods of teaching that are used.

6.2.10 Approaches to Economics education

The literature has identified four distinct approaches to an Economics education. These were the deductive logic approach, the inductive approach, model-building and the literacy approach. The approach followed by the lecturer is often a function of the lecturer's disposition towards the subject.

If the lecturer is philosophically disposed towards the subject the inclination is to adopt a deductive approach. While there is merit in this approach, the economic argument followed is often geared towards what economic policy ought to be, and not necessarily what will work in the circumstances. The difficulty with this approach is that the economic model is used as point of departure and often students experience difficulty to relate the particular model to everyday economic events.

The conclusion drawn from this approach is that the student should be subjected to a philosophical approach if the situation warrants it, but otherwise, the deductive-logic approach should be linked to the practicalities of the day.

The inductive approach is based on descriptive content and factual information. This approach seems to find greater favour with students because it is more tangible. From the content economic principles are laid down, in terms of

which the economic model is construed.

The literacy approach requires from the student more than mere economic understanding. One such approach is the model-building approach which emphasises the use of techniques. The great disadvantage is that students could memorize techniques either algebraically or graphically in order to justify economic models. However, mere technique mastery does not constitute economic mastery nor literacy in the subject.

A more conducive method for economic literacy to be attained would seem to be a descriptive and factually - oriented approach.

This approach demands from both lecturer and student the integration of real-world phenomena with the subject matter. For most Economics students the descriptive approach offers a more tangible point of departure to most complex economic phenomena, techniques and mechanisms. A descriptive approach to teaching the subject is in line with the very important and proven teaching strategy of moving from the "known to the unknown".

The conclusion derived from this finding is that lecturers need to analyse the subject-matter critically in order to derive those aspects to which direct applicability could be found. The information should be presented in a manner

which links up with the experiences of students. Where information is of a more abstract nature, sufficient preparation should enable the lecturer to link the subject-matter to real-life examples; alternatively, students should be referred to case studies which would explain the theoretical concepts.

6.3 Findings and conclusions based on own research

The most important findings which flowed from the empirical investigation and the conclusions which could be drawn from an educational point of view, are the following:

6.3.1 Independent learning and the subject Economics

The questionnaire responded to by 645 technikon Economics students provided three distinct factors, namely:

- * Independent learning
- * Lecturing skills
- * Nature of Economics

These three factors are not mutually exclusive but interrelated, with each one exercising an influence on ultimate achievement of the student in Economics. These three variables also show a relationship between one another. It is, especially, the relationship between independent learning and Economics as subject which

reflected a high positive correlation.

This finding suggests that the subject Economics is well suited for independent learning. This finding suggests further that learning material is made available to the student, so that the student may be able to learn in a meaningful way without the assistance of a lecturer. Independent learning does not mean "learning in the absence of a lecturer". However, it means the "availability of learning material" to the student for learning to take place.

The conclusion drawn from this finding is that the learning material should be made available to the student, be it through lecturers or printed matter, in a manner which upholds the principles of effective and meaningful presentation. One way of effective presentation of Economics subject-matter in technikons is through the competency-based model which transforms the learning material into specific tasks. These tasks are then stated as learning objectives, the outcome of which is clearly stipulated against specified performance criteria.

6.3.2 The influence of an independent learning ability on achievement in Economics

The results showed clearly that the achievement of students who identified themselves as good independent learners was

significantly better than the weak independent learners.

The conclusion reached is that the student with an ability to learn independently will perform better in the subject Economics than the student with an inability to learn independently.

Furthermore, even though students receive lectures in Economics, the subject demands from the student to do further reading and research in the subject. These activities will, necessarily, have to take place outside of normal lecturing periods.

Because the subject lends itself well to independent learning, the good independent learner has a far greater chance to become economically literate, thereby not only memorising techniques to explain economic models, but to gain a greater understanding of developing his/her own techniques of explaining economic phenomena.

The good independent learner in Economics will be in a favourable position to elaborate logically on basic facts, to probe the meaning of complex concepts, and to relate theory to practicalities of the day.

The positive effect of independent learning on achievement in the subject Economics is attributable to a "less anxious" atmosphere which accompanies learning, as opposed

to "studying". Students who are good independent learners are not overtly concerned with examinations, whereas the weak independent learner relies heavily on skills to cope with studying for the purposes of an examination. Most of these skills embrace techniques to memorise and reproduce information.

Even though these skills might result in good achievements in terms of percentages, these achievements are meaningless, as most students would have forgotten a large percentage of the information after the completion of examinations.

Independent learning, and therefore achievement in Economics, should not reflect the success of different skills of coping with the subject matter, but rather a culture which epitomises life-long learning. Independent learning is a sound vehicle toward this goal.

6.3.3 Achievement in Economics in relation to language preference

The empirical investigation revealed that the mean achievement of the Afrikaans-speaking students was better than that of their English counterparts. This was the general finding for the whole sample, irrespective of year of study.

The conclusion reached from this finding is that language plays a significant role in student performance in Economics. While most of the textbooks in Economics are written in English, it is expected that the students who have a preference for English would do better in the subject. However, most of the students in the sample who have English as a preference are, in fact, students for whom English is their second or third language. Their first language is a Black language.

Therefore, it is not unusual for this study to have found that the mean achievement of English - speaking students is lower than the students who have Afrikaans as their first language.

Another possible explanation for the difference in mean achievement is the problem which English-speaking students encounter with the textbooks. For those students who have English as a second or third language the textbooks and terminology are understood with difficulty. However, for the Afrikaans-speaking student the terminology and text might have been translated by lecturers for better understanding by students, although it must be conceded that Afrikaans-speaking students will also experience problems with English textbooks. Where Afrikaans students attempt translations of terminology and text, it frequently goes hand in hand with a good deal of independent learning as well.

Another contributing factor for the weaker mean achievement of the English-speaking student could be the disadvantaged black school system in which Economics might not have been taught as a formal subject. It could, therefore, mean that the student only encounters the subject for the first time at technikon level.

Many technikon business courses have Economics as one of the prescribed subjects, albeit at first-year level. It is common knowledge that most technikon and university students experience their biggest academic problems in the first year. It is, therefore, not surprising to find that the mean achievement of first-year students has been the lowest of the sample surveyed.

6.3.4 Achievement in Economics in relation to year of study

The empirical investigation showed that the mean achievement of the first-year Economics student was lower than that of the second-year, which in turn, was higher than that of the third-year group.

The lower mean achievement of first-year Economics students could be ascribed to:

- * adaptation problems experienced;
- * bigger workload;

- * big classes;
- * less individual attention given to student by lecturer;
- * the relative difficulty which first-year students experience with the examination papers, because questions might be focusing on more advanced cognitive levels;
- * first-year students might not have developed the ability to learn independently.

The mean achievement for second-year students was better than that of first- and the third-year. Understandably the second-year student has adapted to the needs of the subject and the course as a whole. Certain abilities which might have been lacking at first-year level, could have been acquired partially for second-year students to cope better than first-year students.

While many first-year students might be doing Economics merely as a "filler subject", the second-year student would seem to display a greater commitment towards the subject. The reason for this is that the second- and the third-year student in Economics wishes to make the subject either a major or principal subject, therefore, the increasingly better mean performance.

As the level of complexity of the subject increases commensurately with the year of study, the subject demands

more skill and input from the student in order to attain success.

The lower mean achievement of third-year compared to second-year Economics students could be attributed to the higher level of work, the greater depth required and also the relative complexity of examination questions.

On the personal side, many third-year students could become complacent and over-confident because they have attained success during the previous two years. However, as the mean achievement between second- and third-year Economics is not significantly different, it could be assumed that the factors influencing success with both groups are similar, namely:

- an ability to learn independently;
- an ability to read;
- an ability to take notes;
- intrinsic motivation, and
- a general will to learn and succeed.

6.3.5 Comparing first-, second- and third-year students with independent learning ability (IL), lecturing skills (LS) and nature of Economics (EC) as variables

The empirical investigation has established that there are

no significant differences between independent learning ability (IL) and the nature of Economics, and first-, second- and third-year students. It is only in respect of lecturing skills (LS) where the differences between the three groups of students are significant.

The empirical data revealed the extent to which students in Economics perceive effective lecturing. The findings have indicated that third-year students are better able to judge which elements comprise effective lecturing, than is the case with second- and first-year students.

The conclusion drawn from this evidence holds affinity with the previous findings. The third-year student is better able than first- and second-year students to distinguish between good and ineffective lecturing skills, although the research has also revealed that the desire is present with all students to become good independent learners.

6.4 Recommendations and implications

The conclusions drawn from the literature survey and the empirical investigation, in conjunction with one another, give rise to certain recommendations. These recommendations and their implications are discussed below.

6.4.1 Fostering an independent learning ability

While the focus in the Economics classroom is on the promotion and development of the cognitive abilities of the students, the fostering of an independent learning ability with students is equally important. The research has been clear with regard to the benefits which are derived by being an independent learner.

Students should be given co-responsibility with lecturers for setting learning objectives, developing appropriate courses and forming part of the assessment procedures. Courses should be structured in such a way so that these promote independent learning.

Instead of merely transferring information to students, lecturers could promote independent learning by assuming a greater role in managing the learning. More time could then be devoted to inculcating the non-cognitive factors like self-concept, interest, attitude and motivation which will all contribute to the development of an independent learning ability.

In terms of the knowledge component, students have an appreciation for purposeful and effective lectures. When lectures are presented these must not only be regarded as a collection point for information, but should also be a stimulus for independent learning.

The subject Economics is a classic example which lends itself very well to independent learning. Therefore, the development of an independent learning ability within students is a function of the subject Economics, the students' attitude towards the subject, their interest in learning, amongst others, and the manner in which the lecturer is able to foster independent learning.

Moreover, an independent learning ability is one of the biggest assets which any student can acquire, because it is not only "a way of learning" but also "a way of teaching yourself".

6.4.2 Lecturer training programmes

All technikons conduct regular training programmes for newly appointed as well as more experienced staff. These programmes, essentially, are designed to sharpen teaching skills, to introduce new teaching methodologies and to assist staff members with the process of general classroom practice.

These programmes have become important because many appointments at technikons do not require any formal teacher training. However, the mere possession of the academic qualification does not imply that such information can be conveyed meaningfully to students.

Programmes for training lecturers should focus on the following:

- * Lecturers should be mindful of the variables present in the classroom.
- * The principles of preparing a lecture and the integration of it with the students' experience should be adhered to.
- * Lecturers should have a thorough knowledge of student assessment techniques so that the appropriate assessment technique can evoke the desired learning outcome.
- * The handling of big class groups is a focal point in Economics. Lecturers should be familiar with the principles of lecturing to big groups of students.
- * Effective communication, which include the abilities to speak, listen, write and read, should be promoted with lecturers so that these abilities could be instilled in students.
- * A programme in how to do academic research is important for lecturers. With this background, lecturers could then lead students to do research and to become able independent learners.
- * A programme in competency - based education will allow lecturers to identify skills which students should have to do the subject Economics successfully. Some of these skills include numeracy. The competency - based programme requires the lecturer to identify tasks which are then transposed into performance and

learning objectives. Knowledge of this programme will allow lecturers to develop a system of modular instruction. This type of instruction provides a basis for independent learning to take place.

6.4.3 Writing of Economics textbooks

The availability of appropriate Economics textbooks for South African students is a major problem. Most Economics textbooks are imported from either Britain or the United States of America.

Lecturers need to embark upon a programme of writing their own Economics textbooks for technikon use. This will alleviate one of the major problems which students in Economics have with imported textbooks, namely, that such textbooks assume a certain level of proficiency. Although there are books available from overseas which match the students' level of proficiency, many students in South Africa experience language problems.

A large percentage of the sample used in the research indicated English as their language preference, although English is only a second or third language. Therefore, imported textbooks in Economics are not only problematic for the Black students, but also for those students who are essentially from an Afrikaans background.

6.4.4 Developing economic literacy

According to the research economic literacy is indicative of a much more profound insight into Economics and economic phenomena than mere understanding. A student who has knowledge of Economics, or who has achieved good results in an Economics examination, is not necessarily economically literate.

The development of economic literacy could be brought about by:

- the teaching of the subject by engaging in more descriptive explanations of economic phenomena;
- not over-emphasising techniques in order to explain economic models, but rather to follow a more practical line from which models are then construed;
- approaching economic issues from different angles in order to accommodate different viewpoints;
- broadening the vision of students through an international understanding of Economics. For example, the interdependence of nations and cooperation between them on economic issues should be stressed. Supporting facts and figures could be given, with caution, so as not to generate hatred within students of developing countries.

6.4.5 Smaller class sizes

The research shows that the Economics classes at technikons are big. Lecturers experience problems with big class groups because it is difficult to achieve the objectives of good lecturing and effective learning.

One way of trimming class sizes would be through a change in method, namely, to accommodate tutorial classes and introducing a system of modular instruction. With the ever-increasing student numbers it would seem a contradiction in terms to effect changes in method away from ordinary lectures.

However, the Economics students need support in order to cope with the demands and the complexities of the subject. Academic support and development are standard practices at most tertiary educational institutions in South Africa. Therefore, backed by international research evidence that teaching and learning are more effective with smaller groups, the implementation of tutorial sessions and modular instruction would place students in a position to achieve better results in Economics, develop better understanding and become economically more literate.

Smaller class sizes will also hold benefits for the lecturer. The lecturer will be able to focus better on how things should be done. More opportunities will arise for

preparation, giving individual attention to students, managing the learning, engaging in curriculum and course development and embarking on research.

6.4.6 Developing distance learning packages

With the increase in student numbers at technikons, all students cannot be accommodated in classrooms on campus. However, the facility of providing distance education is an alternative. To implement such a system, lecturers would have to undergo training in the whole process of preparing learning packages and to familiarise themselves with a system of mediated instruction.

Without emulating the known distance learning tertiary educational institutions, many technikons and universities have embarked upon these outreach programmes, because existing physical facilities have become inadequate.

6.4.7 Economics as a school subject

Upon entering the technikon, students enrol for courses which require Economics as a subject. Many of these students experience difficulty, because they did not do the subject at school. The introduction of the subject at school level, supported by the training of sufficient Economics teachers, will solve this problem. More students will be better placed to understand and relate to the

economic world, which has become a major part of life today. The student will be in a better position when encountering the subject at technikon level, having done the subject at school level.

6.4.8 More practical Economics syllabi

The technikon philosophy is underscored by the provision of vocational and career education. Students are trained to do a specific job. Therefore, all syllabi should emphasise the practical hands-on approach.

However, certain syllabi like Economics, seem to be largely theoretically-based as these have been inherited from the universities. Although many changes have taken place in adapting Economics syllabi, the largely theoretical component is still present.

In order to do justice to technikon education, Economics syllabi will have to be adapted to accommodate the practical component. One way of doing this is to compile a competency - based programme so that theoretical aspects are elaborated upon through specific tasks and performance objectives. This type of programme will also specify specific skills which students have to acquire during the course.

6.4.9 Books on the teaching of Economics

The research has determined that although much had been written about Economics per sé, not much has been written about the teaching of Economics. What is available, however, is literature on the teaching of the subject at school level. The paucity of literature on the lecturing of the subject at tertiary level was conspicuous.

Technikon lecturers could embark upon a programme which will improve and supplement the scarce resource in this regard. Additional printed matter pertaining to the lecturing of Economics at technikons will also eliminate the current practice of referring to sources which apply mostly to teaching the subject at secondary school and university level. The techniques used at school level do not always apply directly to lecturing the subject at technikon level.

6.5 Problems encountered with the research

Some of the problems experienced during the course of the research are as follows:

- * A number of students did not complete the entire questionnaire. This was mostly the case with the correspondence students.
- * The achievement in Economics item to which students had to respond, referred to their last examination in

the subject. The percentage obtained might not have been true reflection of their ability in the subject.

- * The research has been limited only to Economics students at two technikons. The perceptions of other students doing the subject were, therefore, not obtained.
- * The possibility exists that some of the respondents could have interpreted certain items wrongly or that a dishonest response might have been given.
- * In the past too little research has been done in the area of independent learning, with the result that there is no real certainty, in generalisable terms, as to how exactly the abilities of a good independent learner could be acquired.

6.6 Recommendations for further research

As a result of this study, the following recommendations for further research are the following:

- * Further research should be embarked upon to determine methods and techniques with which to equip technikon students with an independent learning ability.
- * More research should be done to supplement existing literature with specific literature on lecturing Economics at technikons.
- * In a changing educational scenario in South Africa

characterised by increasing student numbers the possibility of accommodating such numbers through independent learning and distance education programmes should be investigated.

- * Concerned academics in the field should embark upon the writing of textbooks in Economics which are appropriate for South African students.
- * Techniques should be developed empirically to determine any predictors to achieve success in Economics.

6.7 Closing remarks

The researcher, as teacher and lecturer of the subject Economics at school and technikon level, has always been concerned with the manner in which lectures are conducted in the classrooms. This concern gave rise to the kind of learning taking place and how students can compensate outside the classroom for any lecturing deficiencies inside the classroom.

Another concern of the researcher was about students who rely solely on lectures and notes in order to sustain them. Once more the possibility of learning outside the confines of the classroom seems to provide a solution.

However, the relative contribution of independent learning and lecturing skills to achievement in Economics has never

been empirically investigated. Preliminary reading provided evidence of a probable contribution that independent learning could make to achievement in Economics.

Upon further investigation of the literature the researcher attempted to find more conclusive evidence whether independent learning, in the form of reading textbooks, doing background reading and completing assignments, would enhance the performance of students in the subject.

The literature survey covered the areas of independent learning, as well as lecturing skills which enable the lecturer to be most effective in the classroom. The subject Economics was chosen by virtue of the researcher's interest in it and the important role which the subject plays in modern society. A knowledge of Economics, in general, and an economic literacy, in particular, are useful for any person who wishes to understand current economic events and their implications.

A self-structured questionnaire flowed from the literature survey, upon which the empirical investigation was built. Appropriate statistical analyses were used which gave rise to certain findings and conclusions. The findings of the literature survey and the empirical investigation provided the basis for recommendations that have been made, together with their implications.

A synopsis of the findings confirmed that an ability to learn independently is a definite asset for any student, and moreso, in relation to Economics which lends itself very well to independent learning. However, students should be guided to acquire these traits which characterise independent learning. On a hypothetical level it can be asserted that an independent learning ability contributes to the achievement in Economics.

The researcher wishes to emphasise that this study should not be regarded as a panacea to inculcate independent learning within students, nor is it a formula for lecturers to achieve better results in the subject Economics. It was merely an effort to highlight a niche which existed in current educational research.

Finally the researcher wishes to express the hope that the findings and recommendations of this research will make both technician lecturer and student more sensitive to a myriad of issues which surround the teaching-learning phenomenon.

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Please respond to the following items by circling one of the following numbers ranging from 1 to 4 for each statement. All the items in this questionnaire are directly related to the subject being studied.

Your honest response is valued. Please do not write in any empty space.

- 1 = I AGREE WHOLEHEARTEDLY
- 2 = I AGREE TO A LARGE EXTENT
- 3 = ACTUALLY I DO NOT AGREE
- 4 = I TOTALLY DISAGREE

1. I have the ability to get the most out of my learning experience by interacting with the learning material.

2. Reading is an essential learning activity.

3. I set my own learning goals.

APPENDIX A

4. Effective learning requires a lot of practice.

5. Learning is a continuous process that requires constant effort.

QUESTIONNAIRE: INDEPENDENT LEARNING,

6. When I learn, I am able to apply what I have learned to new situations.

LECTURING SKILLS AND THE NATURE OF

7. I learn best when I am able to interact with the learning material.

ECONOMICS TO FIRST-, SECOND- AND

8. I have a good understanding of the concepts and theories of economics.

THIRD-YEAR TECHNIKON ECONOMICS

9. I have a good understanding of the concepts and theories of economics.

STUDENTS

10. I am influenced by others in my learning experience.

11. As a student, I am able to apply what I have learned to new situations.

12. I am able to identify the main concepts and theories of economics.

13. I am able to explain the concepts and theories of economics.

14. I am able to apply what I have learned to new situations.

QUESTIONNAIRE

Please respond to the following items by inserting one of the following numbers ranging from 1-4 in the block accompanying each statement. All the items in this questionnaire are directly related to the subject Economics.

Your honest response is valued. Please do not leave any blocks empty.

- 1 = I AGREE WHOLEHEARTEDLY
- 2 = I AGREE TO A LARGE EXTENT
- 3 = ACTUALLY I DO NOT AGREE
- 4 = I TOTALLY DISAGREE

- | | |
|---|------------------------------|
| 1. I have the ability to pay full attention when I interact with the learning material. | <input type="checkbox"/> K1 |
| 2. Reading is an essential learning activity. | <input type="checkbox"/> K2 |
| 3. I set my own learning objectives. | <input type="checkbox"/> K3 |
| 4. Effective learning requires self-discipline. | <input type="checkbox"/> K4 |
| 5. Learning tends to develop an attitude of enquiry in me. | <input type="checkbox"/> K5 |
| 6. When I learn I am able to utilise the resources, my time and effort effectively. | <input type="checkbox"/> K6 |
| 7. I learn only in order to pass examinations. | <input type="checkbox"/> K7 |
| 8. I have greater control, through learning, over what I wish to do. | <input type="checkbox"/> K8 |
| 9. I am influenced by others or surroundings when learning. | <input type="checkbox"/> K9 |
| 10. As student, I recognise my strengths and weaknesses in learning. | <input type="checkbox"/> K10 |
| 11. I am able to identify the knowledge, skills and attitudes that I need to acquire. | <input type="checkbox"/> K11 |
| 12. I am able to examine Economics information critically. | <input type="checkbox"/> K12 |
| 13. I am able to organise my learning activities effectively. | <input type="checkbox"/> K13 |

ALL ITEMS RELATE TO THE SUBJECT ECONOMICS.

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- | | | |
|-----|---|------------------------------|
| 14. | I like to assess the progress I am making in Economics. | <input type="checkbox"/> K14 |
| 15. | I realise that there are different viewpoints as far as Economics is concerned. | <input type="checkbox"/> K15 |
| 16. | Although it is not always required of me I try to probe deeper into the learning material for better understanding. | <input type="checkbox"/> K16 |
| 17. | The subject Economics allows me to develop an ability to ask questions about things. | <input type="checkbox"/> K17 |
| 18. | I accept responsibility for my own learning in Economics. | <input type="checkbox"/> K18 |
| 19. | I have the ability to read with understanding. | <input type="checkbox"/> K19 |
| 20. | I ask questions during lectures in order to find out more about Economics. | <input type="checkbox"/> K20 |
| 21. | When I am among my fellow students I take the initiative in learning. | <input type="checkbox"/> K21 |
| 22. | My attitude towards learning is positive. | <input type="checkbox"/> K22 |
| 23. | I have a belief in my own learning ability. | <input type="checkbox"/> K23 |
| 24. | I do not like the mere memorisation and regurgitation of facts in Economics. | <input type="checkbox"/> K24 |
| 25. | I am relaxed when I learn. | <input type="checkbox"/> K25 |
| 26. | I prefer to attempt my own interpretation of the learning material. | <input type="checkbox"/> K26 |
| 27. | When I learn, I am able to present or transfer the information successfully. | <input type="checkbox"/> K27 |
| 28. | I prefer lectures which are accompanied by audio-visual aids. | <input type="checkbox"/> K28 |
| 29. | I prefer lectures which are well-structured and presented confidently. | <input type="checkbox"/> K29 |
| 30. | I prefer lectures with clearly stated objectives. | <input type="checkbox"/> K30 |

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31. I like lectures in which the content is organised. ☐ K31
32. I like lectures in which the lecturer is able to point out relationships between concepts. ☐ K32
33. I enjoy lectures which emphasise the skills that one should acquire. ☐ K33
34. I like lectures in which lecturers can anticipate possible problems that students may have. ☐ K34
35. I prefer lectures which elicit student participation. ☐ K35
36. I prefer lectures which are presented enthusiastically. ☐ K36
37. I enjoy clearly presented and interesting lectures. ☐ K37
38. I prefer that lecturers select appropriate examples to present their lectures. ☐ K38
39. Where necessary, I prefer lectures to focus also on why certain issues are raised, and not only on content. ☐ K39
40. I approach the lecture from different angles for better understanding. ☐ K40
41. I like lectures which can link up with what is known to me before proceeding to the unknown. ☐ K41
42. I enjoy lectures which motivate me to search for more information. ☐ K42
43. I like those lectures which stimulate positive attitudes to learning. ☐ K43
44. I prefer lectures which stimulate my thinking. ☐ K44
45. I am motivated by lectures which inspire me to improved learning performance. ☐ K45
46. My own learning ability contributes to the success of a lecture. ☐ K46

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47. I am more interested in the content of lectures rather than the structure and logic thereof. ☐ K47
48. I am comfortable with a variety of teaching styles like discussions and tutorials, and not only lectures. ☐ K48
49. I prefer to learn on my own, for example, through audio or video tapes, the computer and textbooks. ☐ K49
50. I possess the ability to listen attentively during lectures. ☐ K50
51. I prefer a practical, hands-on approach to learning. ☐ K51
52. I prefer those lectures which require me to think critically and creatively. ☐ K52
53. The subject Economics helps me to develop an ability to reason. ☐ K53
54. As my knowledge of Economics increased, my attitude towards the subject became more positive. ☐ K54
55. My enthusiasm for the subject Economics is a direct result of my lecturer's enthusiasm for the subject. ☐ K55
56. I think Economics is a difficult subject. ☐ K56
57. I think Economics is a popular subject amongst students. ☐ K57
58. Economics teaches me to make rational choices between scarce resources. ☐ K58
59. I realise that even if a commodity is free, there is still somebody who must pay for it. ☐ K59
60. The scarcity of resources is a fixed human problem. ☐ K60
61. In view of the scarcity of resources, I have to choose between alternatives. ☐ K61
62. More factor inputs do not necessarily mean greater profits. ☐ K62

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63. An efficient economic system implies that there is no waste. ☐ K63
64. In reality supply and demand equal each other. ☐ K64
65. I have acquired the ability to analyse economic problems. ☐ K65
66. I have the ability to describe economic phenomena. ☐ K66
67. I have personal experience of institutions of economic concern (banks, retailers, etc.). ☐ K67
68. I think logically by applying underlying economic principles. ☐ K68
69. The subject matter promotes critical thought and an analytical ability in me. ☐ K69
70. I understand how economies are organised and function. ☐ K70
71. I understand how major economies in other countries have developed. ☐ K71
72. I have understanding for the problems which economies experience while developing. ☐ K72
73. I comprehend or evaluate debate about current economic issues. ☐ K73
74. I can follow any argument or debate about economic issues. ☐ K74
75. I have a need to master the language of economics. ☐ K75
76. I have a need to specialise in economics towards further research. ☐ K76
77. I have a need to master economic models and techniques. ☐ K77
78. I prefer learning economics which is concretised by case studies. ☐ K78
79. Through case studies my level of motivation and interest for economics increases. ☐ K79

ALL ITEMS RELATE TO THE SUBJECT ECONOMICS.

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80. I learn concepts which enable me to form balanced and informed judgments about economic matters. ☐ K80
81. I have a reading list which accompanies my study of economics. ☐ K1

Please answer the following questions as well:

82. Which percentage did you obtain in your last Economics examination? K2-3
83. What is your language preference: ☐ K4
- | | |
|-------------|----------------------|
| English = | <input type="text"/> |
| Afrikaans = | <input type="text"/> |
84. Gender: Male = K5
- | | |
|----------|----------------------|
| Female = | <input type="text"/> |
|----------|----------------------|
85. At which Technikon are you studying: ☐ K6
- | | |
|-------------|----------------------|
| Peninsula = | <input type="text"/> |
| R.S.A. = | <input type="text"/> |
86. Year of Study: First K7
- | | |
|--------|----------------------|
| Second | <input type="text"/> |
| Third | <input type="text"/> |

THANK YOU FOR YOUR VALUED RESPONSE.
PLEASE ENSURE THAT YOU HAVE RESPONDED TO EVERY ITEM.

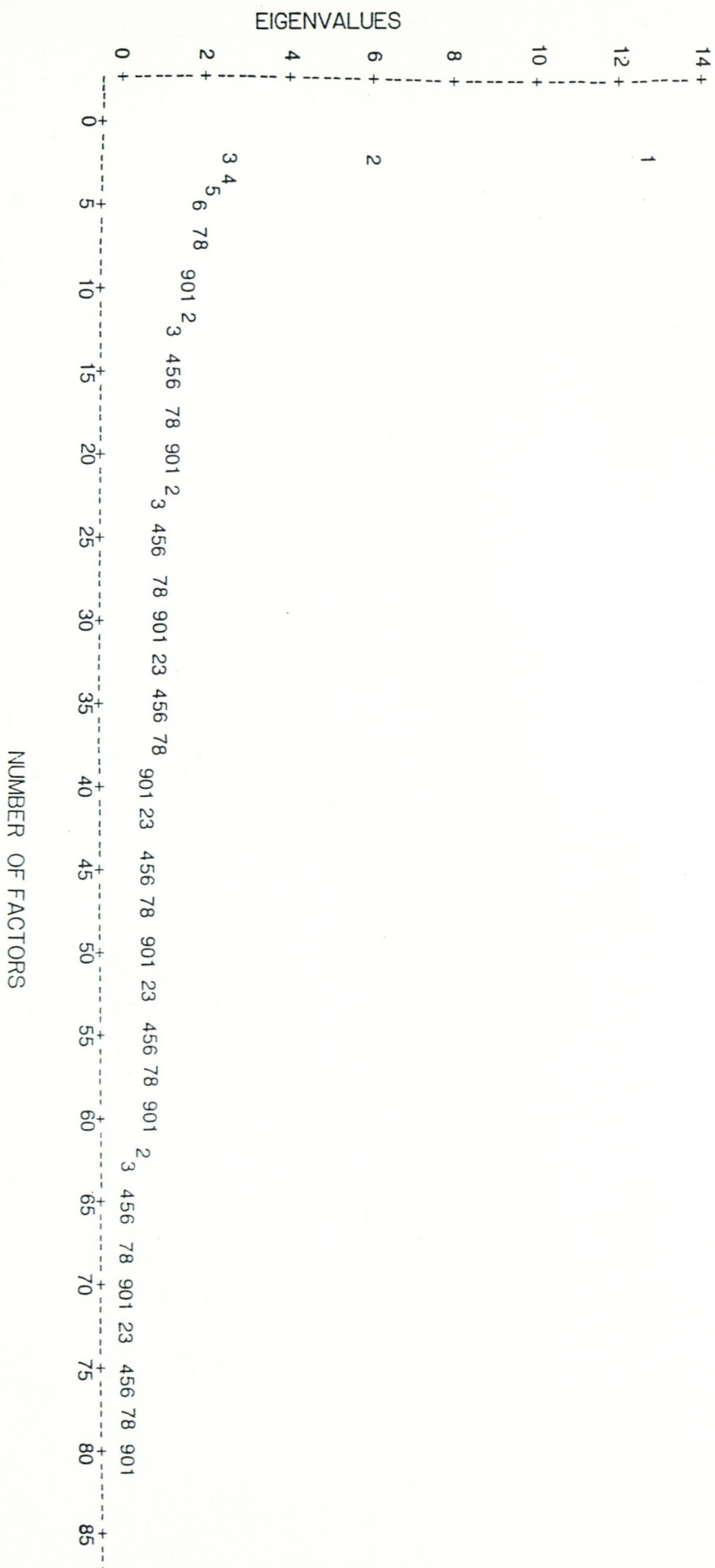
EIGENVALUES

APPENDIX B

APPENDIX B

SCREE PLOT OF EIGENVALUES

SCREE PLOT EIGENVALUES OF FACTORS



CAPE PENINSULA
UNIVERSITY OF TECHNOLOGY



