CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In this chapter the motivation for the work, the theoretical and methodological approaches employed, and the hypotheses to be applied are described. The problems of securing enrolment and expenditure data are also discussed. Key terms are defined and certain usage of them explained. Finally, the organisation of the whole work is briefly noted.

1.2 MOTIVATION AND NECESSITY

Government plays an increasingly significant rôle in tertiary education. Although this has been happening for some time, the rôle of government has not yet received the attention that it deserves. It is only since the late 1950s that political scientists in Britain have begun to study some facets of its tertiary education. The British example is used, for its tertiary education system is a fairly centralised one, more so than is that of South Africa, and it is the one which has been receiving considerable attention. The works of Berdahl (1959), Donaldson (1975), and Kogan (1971, 1975, 1978) are illustrative of the wide range of topics covered.

Even less work has been done on the interaction between the South African polity and its tertiary education system. The work of J.B.Z. Louw (1978) remains a notable exception. It is therefore more important at this stage to provide a broad coverage than to concentrate on minor aspects.

1.3 THEORETICAL AND METHODOLOGICAL APPROACHES

Since the appearance of Thomas S. Kuhn's influential work, The Structure of Scientific Revolutions (1962,1970b), a vast literature on it has developed. Gary Gutting, for instance, devotes fifteen pages listing

works on Kuhn's book in the history, philosophy, and sociology of science, the social sciences, and the humanities (1980:324-339). It it outside the scope of this work to deal with the ongoing debate about Kuhn's work, but it is important to indicate in what sense Kuhn's concept of paradigm is being employed.

Kuhn sees science development as occurring in two phases. By science he means the natural and the physical or the "mature" and "developed" sciences (1970a:245, 247), not the social sciences, which are still in their early stages of development. There are long periods of "normal science" and short ones of "revolutionary science" (1970b:2,6). This distinction is important, for it suggests that science does not always develop by accumulation of individual discoveries and is not linear. At times normal science breaks down and crises arise when anomalies develop and can no longer be accommodated within the existing puzzle-solving activities (67). The existing paradigm is then rejected by a part of the scientific community (92). There follow competing articulations and debates over fundamentals (91). The normal scientific tradition emerging from a scientific revolution is not only incompatible but often incommensurable with what went before it (103), because a new Weltanschauung has emerged (111).

Kuhn uses the concept of paradigm in two senses. In the first sense it stands for the "entire constellation of beliefs, values, techniques, and so on shared by members of a community" (174). In the second sense it is just one element in that constellation, "the concrete puzzle-solutions which, employed as models or examples, can replace explicit rules as a basis for the solution of the remaining puzzles of normal science" (175). The concept of paradigm will be used in the first sense of the term.

Although the social sciences are still underdeveloped, they do have paradigms. A number of competing paradigms exist in each of them (1970a:272). Sociology, for instance, has at least ten paradigms (Eckberg & Hill,Jr.,1980:132).

There are many possible ways of looking at the rôle of government in tertiary education, because there are also many possible functions of

tertiary education. From an individual's point of view, tertiary education may be seen as the mechanism for the acquisition and advancement of knowledge, self-development, the gaining of credentials in order to practice a certain profession, and career advancement. These are just some of the possibilities. They are not necessarily mutually exclusive. No explicit judgement is being made as to their intrinsic worth, for tertiary education is viewed as multi dimensional at the individual and societal levels.

If tertiary education is viewed from a governmental perspective in purely individual terms then educational planning is essentially based on social demand; that is, student numbers are forecast and the government then tries to meet the expected demand. Although no country practices this in its pure form, this paradigm receives the greatest support in the First and Second Worlds.

Another paradigm views tertiary education in relation to the manpower and socio-economic needs of the country. This is most popular in the Communist and Third World countries.

Human capital theory and its rate-of-return analysis is the third paradigm, which maintains that the raising of the educational level of the labour force leads to greater and faster economic growth. These three paradigms are not mutually exclusive and rarely, if ever, occur in their pure forms.

Human capital theory has a number of shortcomings; these are noted in Chapter 4. It is for these reasons that it is not employed. The social demand paradigm is more applicable to the First and Second Worlds than to a country such as South Africa, consisting of both the developed and the developing worlds. Moreover, it consigns a too minimal rôle to the government and is thus contrary to relating tertiary education to the manpower and socio-economic needs of a country. For these reasons, it will also not be used.

The second paradigm, called manpower planning for short, will thus be used. This implies that it is a function of the government to ensure

that certain manpower needs are met. To put it at a higher theoretical level, the government "must attempt to see that its more important private associations do not operate at cross purposes with the essential needs of survival and prosperity" (Berdahl,1959:1). It does not necessarily mean that there is a need for five-year economic plans and corresponding manpower need projections. What this paradigm calls for is overall educated manpower supply and demand forecasting and some attempts to make sure that supply and demand are in reasonable balance, especially for certain key professions, such as engineering and teaching. This does not negate the many other functions of tertiary education, but simply gives recognition to the rôle of government as one amongst a number of actors. Like the other paradigms, manpower planning has its shortcomings, as noted in Chapter 6.

The following hypotheses will be tested:

Hypothesis 1

The prestige of the universities within the tertiary education system will persist for a longer period than the economic rewards of its graduates alone would justify.

Hypothesis 2

The expansion from élite to mass tertiary education will lead to greater dependence on government funding and increased need for control, co-ordination, and national standards.

Hypothesis 3

Governments will underinvest in technical education.

Hypothesis 4

In "bad" economic times tertiary education enrolments will decline.

Hypothesis 5

Continuing university prestige will cause the college of advanced technical education (CATE) and technikon enrolments and diplomas and certificates awarded to lag behind university degrees and diplomas.

Hypothesis 6

In "bad" economic times CATE and technikon technical enrolments will decline.

Hypothesis 7

Fears of surpluses of university graduates, especially in the arts, on the one hand and shortages of certain types of manpower on the other hand will lead to government efforts to redress the balance.

Hypothesis 8

There will be significant limitations on government efforts to create the desired numbers and types of skilled manpower, for interventionism of this sort will run counter to individual aspirations.

Social science and education literature deal with a number of developments of relevance to a study of the rôle of government in tertiary education. Unemployment and underemployment of university graduates has a long history, going back to at least 1880 in Italy (Barbagli,1982:9), Weimar Germany of the early 1930s, and much of Western Europe and North America since the the late 1960s (Dreijmanis, 1978:256-259). Hypothesis 7 was derived from this literature.

A basic guiding idea in the expansion of tertiary education has been the belief that each person should be able to fully develop in accordance with his interests. Government human resource planning in relation to a country's socio-economic needs would lead to some restriction of the individual's freedom of choice (Dreijmanis,1977:41). Hypothesis 8 stems

from this basic problem of reconciling individual desires with societal needs.

From an economic point of view, it seems plausible that "there may be some tendency, though not an altogether consistent one, for enrolment rates to fall or level off during recessions" (Gordon,1974:59). Hypotheses 4 and 6 were developed from this prediction. A noted educationist, Ernst G. Malherbe, wrote that in South Africa there has been underinvestment in technical and scientific education (1977:626). Hypothesis 3 is an adaptation of Malherbe's view.

It is common knowledge that in South Africa university prestige is great and that academic education in general is highly valued. Hypotheses 1 and 5 are derived from this knowledge. It is also quite well known that there has been a phenomenal expansion of tertiary education enrolments since 1945. It thus seems plausible that tertiary education expansion has lead, amongst other things, to greater reliance on government for financial support.Hypothesis 2 is based on this belief and its probable consequences.

These are not the only possible hypotheses. They do place, however, many of the South African tertiary education developments in comparative perspective and at the same time also deal with some peculiarly South African developments. Moreover, they fit in quite well with the aim of this work of providing a broad coverage of the interaction between the government and the tertiary education system.

As far as the methodology is concerned, it is diverse. Historical, documentary, and statistical analyses are used. There is a heavy reliance on such primary sources as various government commission reports, laws, parliamentary debates, and departmental annual publications. These have been supplemented by secondary sources and interviews of a number of government and other figures.

1.4 SCOPE

Tertiary education for the four main population groups since 1945 is covered. This provides a sufficiently long time perspective to consider the various developments and to test the hypotheses. Only formal education is considered, and tertiary education is defined as post-Standard 10 education in the CATEs, technikons, colleges of education, and the universities. The technical colleges, colleges of agriculture, the South African Merchant Navy Academy, the Conservatoire of Music, the Johannesburg College of Arts, and the Witwatersrand Teachers' College, which is to close in 1985, enrol few tertiary education students.

1.5 DATA PROBLEMS

It was the intention to include the independent states of Bophuthatswana, Ciskei, Transkei, and Venda as well, but this proved to be impossible on account of the difficulty of securing the necessary data. On 9 March, 1985, requests for tertiary education enrolment data were sent to all of the education departments and universities, except the University of Fort Hare, but the only positive result was the receipt of some enrolment statistics from the University of Bophuthatswana.

The published data on enrolments and expenditures proved to be inadequate. Additional data were thus sought from a number of government departments and educational institutions. Their co-operation is much appreciated. Although some gaps remain, enough data were secured to identify the main trends and to test the various hypotheses.

The more important unsolved problem areas may noted, with the table references in the brackets. The Joint Matriculation Board has the data on the number of matriculation exemptions and senior certificates awarded for the years 1945-1952 (Tables 2.1-2.4), but they are on cards in alphabetical order without any distinction as to the population groups involved (1984). According to the Central Statistical Services (1984), since 1973 it no longer collects information on first-year enrolments at the white colleges of education (Table 2.1). This missing information and information on first-year and total white women enrolments at CATEs

and technikons was sought in letters to them on 30 July, 1984. The response was poor, and when they did respond the information covered a few years only. Here it may be noted that with few exceptions nearly all of the colleges of education insisted that one must first seek permission from their respective provincial education departments to approach them. All of them granted permission, but for a variety of reasons, mainly lack of statistics or staff, very little information was secured from the colleges of education. The provincial education departments themselves cited lack of data and staff as the major problems.

Data on coloured (Table 2.2) and black (Table 2.4) first-year enrolments and the total enrolments of women (Table 2.9) in their colleges of education was sought by letters to them on 1 September, 1984. On 28 July, 1984, the same information was requested from the Indian colleges of education (Tables 2.3 and 2.9). Here again it was a combination of insufficient response and considerable gaps in the information provided.

As far as the black university enrolments are concerned, the University of Fort Hare (1984) does not have information on the number of students by academic discipline or the number of women students for the period 1945-1959 (Table 2.13). It will be noted that since 1980 (Tables 2.10-2.13) data by academic disciplines for all of the universities are no longer given.

Government current expenditure data on coloured CATE and technikon (Table 4.5), black colleges of education (Table 4.7), and white colleges of education (Table 4.9) were personally requested from the Controller-General and the Department of Treasury on 8 August, 1984, in Pretoria, but they indicated that they did not have the missing data. On 9 November, 1984, the provincial education departments and the departments in charge of the coloured, Indian, and black education were then requested to provide the necessary information; they were unable to do so. At the same time they were also asked for additional data on teacher diplomas and certificates awarded (Table 4.14), but here again they could not provide the information.

1.6 DEFINITIONS AND USAGE

There are certain key terms which need definition in order to avoid possible confusion. They are the following: vocational education, technical education, technician, technologist, and engineer.

A broad definition of vocational education was given by the De Villiers Commission when it defined it as "primarily concerned with the individual's development in respect of the knowledge and skills he will require to meet the requirements of some occupation or group occupations" (1948:62.) It did note, however, that the term vocational education is usually restricted to commerce, agriculture, home economics, trade, or industry (88.)

Technical education is a particular type of vocational education which stresses "technical information and understanding the laws of science and technology as applied to modern designs, production and service" (Strydom & Strydom,1980:2).

Technical personnel are best seen as forming a hierarchy. A technician is a person between a skilled worker or artisan and an engineer. He is in an occupation requiring a knowledge of technology and related applied sciences. The Goode Commission indicated that a technician in terms of education has a post-National Technical Certificate 3 background (1978:20.) At the upper limit of a technician one becomes a technologist, who has a broader education leading to a National Diploma for Technicians or a NTC 6 and a wider range of skills and ability to design and develop projects than a technician. Chapter 4 explains in greater detail these awards.

An engineer is equipped to analyse and solve engineering problems by scientific methods and has a university degree or its equivalent (National Bureau of Educational and Social Research,1960:Part Four,3-4). Perhaps the key thing is that all Of these persons have at least some tertiary education.

Three terms are used interchangeably -- 1) Indian and Asian because nearly all of the Asians are Indians, 2) teacher training college and college of education, and 3) current and operating expenditures. The terms non-whites and non-blacks are used as shorthand expressions without any derogatory connotations.

Whenever something is in italics, it so appeared in the original source. The Hansard refers to the House of Assembly and the English version unless otherwise indicated. As far as the page references are concerned, if the same source is used more than once in sequence the subsequent pages only are given. Long quotations are indented but not single spaced because the word processor used (IBM Document Composition Facility SCRIPT/VS, January, 1984) did not permit this.

1.7 ORGANISATION

In terms of the organisation, Chapter 2 deals with the development of tertiary education and its relationship to secondary education. The first part of Hypothesis 1 is also tested. Chapter 3 relates tertiary education to the political system, with particular attention being paid to the increasing rôle of government and the creation of a separate black education system. The administrative and funding mechanisms are also described. In Chapter 4 the policy dimension is analysed in terms of its determinants, implementation, and success, with particular attention being paid to the thinking or reasoning behind particular policies. Human capital theory and its shortcomings receive detailed analysis. Hypotheses 2-7 are tested, as well as the last part of Hypothesis 1. Chapter 5 deals with the government goals of economic growth and manpower needs, individual values, and their conflicts. Hypothesis 8 is tested. A possible reconciliation between the government and individual values is considered. Finally, in Chapter 6 the supply and demand projections of engineers, technicians, teachers, and university graduates are considered. Unemployment and underemployment of the latter and the potential for political discontent receive detailed analysis. A number of possible solutions to the shortages of technical personnel and teachers are proposed, as well as to the surpluses of university graduates.

1.8 CONCLUSION

Although the South African government plays an increasing rôle in tertiary education, its involvement has not received the attention that it deserves. Viewing tertiary education in relation to the manpower needs of the country was used as the guiding paradigm. Whilst there are some gaps in the available enrolment and current expenditure data, they do not invalidate the conclusions. Various key terms were defined and the organisational structure of the work outlined.