A STUDY OF FORECASTING PROCEDURES AND THE USE OF METHODS OF FUTURES RESEARCH IN DETERMINING THE DEMAND FOR AND SUPPLY OF TEACHERS IN INDIAN SCHOOLS IN SOUTH AFRICA FROM 1975 TO 2000

by

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CHAPTER ONE

PLANNING FOR THE FUTURE IN TERMS OF THE NEW CONCEPT OF FUTURES RESEARCH

1.1 DEFINITION OF FUTURES RESEARCH

Futures research[1, 2] is one of the more recent fields of research. It is particularly useful in such areas as sociology, technology, natural sciences and educational administration. Various possible trends are considered in formulating ideas that would help in the planning of the future. Essentially, futures research embodies a study of a multitude of factors that is expected to influence future planning. It is not possible to study all the factors because a number of factors is unknown. Further, it is not the future itself that is studied, but, conceptions of the future formulated in the present. Morkel points out that one can look at the future in many ways and yet the only certain element of forecasting is that one will be wrong.[3, 4] In futures research it is more important to assist in decision making, so that the future welfare of a society is ensured, than to arrive at a correct forecast.

Kreykamp[5] defines futures research as an accountable investigation of the future based on inter-disciplinary study.

1.2 FUTURES RESEARCH AS A SCIENCE OF FORECASTING

It is necessary to distinguish the science of futures research from other forms of forecasting such as, prophecies and science

fiction/

fiction. While prophecies and science ficiton attempt to forecast what the future *will* look like, futures research attempts to explain what the future *may* look like. Thus the emphasis is on future *planning* rather than on arriving at a *correct forecast*.(6)

1.3 RESEARCH ON THE FUTURE

All planning is directed towards the future. The planner is not merely interested in finding the sum total of a series of estimates so that he may formulate an image of the future. He interprets the factors and the dynamic of interaction of these factors meaningfully.(7)

An important principle of futures research is concerned with the question of how the future can be regulated so that it can be "man-adapted" rather than with the problem of how man can adjust himself to the *future*.(8)

Futures research(9) entails a study of a broad framework of the future and not a single, separate discipline. Contributions of various disciplines will have to be co-ordinated in order to integrate futures research into a menaingful whole. The task of a futures researcher may be assigned in the following manner:

(i) gathering of information on present and expected circumstances;

(ii) making forecasts supplementary to those of existing disciplines and bodies;

(iii)/

(iii) integrating information into images of the future and/or methods to ensure desirable developments;

(iv) dissemination of this information to bodies responsible for planning; and

(v) liaison with these bodies to determine their needs with regard to information and particular perspectives.

Kreykamp[10] expresses the view that futures research provides man with a better understanding of his existence in terms of the future. This could lead to man's critical participation in future planning, that is, man has an inherent share in determining his own fate. In this way the emphasis has shifted from *expectation* of the future to *planning* for the future.

Kahn and Wiener[11] contend that the period up to the year 2 000 will be characterized by phases of electronics, the computer, automation, cybernetics and data processing both in the fields of education and technology. These authors contend that the modern electronic computer has vast possibilities of imitating, equalling or even surpassing human intellectual capacities by the year 2 000.

In the light of this new thinking into the future, changes are anticipated in such areas as training by universities. Graubard[12] believes that the universities of the year 2 000

will be of a totally different nature both in their geographic situation and academic approach. The universities are expected to be established in a completely different environment which will take the form of university cities. It is also assumed that there will be a need for continuous liaison between academic institutions including universities and colleges of education. Orlans[13] supports the above-mentioned view point by believing that the task of research and training by the universities will be supplemented by research organizations to an increasing extent. Commercial houses are expected to strengthen their ties with universities when knowledge and even personnel will be exchanged between industries and universities on an ever increasing scale. In this respect it may be pointed out that South African Human Sciences Research Council is already entrusted with the responsibility of co-ordinating research done by the various institutions in the country.[14]

Some of the more important institutions engaged in futures research are the following:[15]

(i) Center for Integrative Studies, University of New York, Binghampton, New York

This centre is concerned primarily with studies in the long-range social and cultural implications of scientific and technological development;

(ii)/

(ii) The Futures Group, Glastonbury, Connecticut, U.S.A.

This organisation is conducting a study to explore the future of forecasting as a serious sustained and organised activity;

(iii) Institute for the Future

This Institute has already completed 30 major studies in the field of futures research covering areas such as social forecasting, technological forecasting, and assessment and direct assistance to planning and decision-making on new ventures;

(iv) Max-Planck - Institut Für Bildungsforschung, Berlin

This institute covers a wide range of projects in education including educational reform and planning; and

(v) Society for Long Range Planning, London

This body organises study groups and conferences on aspects of planning and the environment.

Other notable organisations involved in futures research are Battelle Memorial Institute, The Council of Europe, Educational Policy Research Center (Syracuse University), School of the Man Made Future (University of Edinburgh), The Teilhard Centre for the Future of Man and the World Future Society.

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The modern researcher's point of departure[16] in futures research is that he examines that which is regarded at present as being modern and progressive and then proceeds to draw his line of predictions as far ahead as year 2 000 in order to arrive at his views of what the future may look like. By adopting this *modus operandi*, the modern researcher will not accept factors that cannot be foreseen for purposes of future planning.

The futures researcher is confronted generally with the demand to view the future by means of a multi-dimensional approach.[17] For example, a study of the future demand for and supply of Indian teachers will incorporate a study of a number of variables, among others, the varying growth rates of the Indian school population in the different provinces of the Republic of South Africa, the changing pupil-teacher ratios, the implementation of a new staff-ration formula in schools, provision of additional funds in order to accelerate the building programme thus influencing "pupil loading" in the classrooms, the supply of teachers by the Indian community, the "wastage factor" in the teaching establishment, the improvement of conditions of service for teachers as a result of which more teachers are attracted to the profession and a change in the educational system of the country concerned.

The planning aspect[18] of futures research has, as its basis, the idea of *control*. Man's need for "intervention" and "participation" arises from his aim to attempt to control the future by means of

planning, and this emerges as a basic characteristic which could contribute probably to a rationale for the science of the future.

The process of planning[19] in education, for example, entails a series of choices. The quality of alternatives in the area of choosing would depend on the nature of the knowledge that is known about a subject. If a problem is foreseen, the planner is expected to take action timeously to avert such a development.

One of the main problems[20] confronting the modern researcher in South Africa and elsewhere is that attempts at forecasting are usually hampered by outdated and incomparable data. For example, a ten year forecast made on available data is not only likely to be erroneous, the data on which the forecast is made may be as much as five years old.

1.4 CLASSIFICATION OF METHODS OF FUTURES RESEARCH

It has become necessary to review our methods in regard to planning because of new technological developments in a rapidly changing world. Guidance is essential for those responsible for decision making particularly in the field of education. Techniques for planning for the future based on past methods have proved inadequate. Thus new methods of approach are evolving. In futures research speculations on the future does not contain elements of surprise.[21, 22]

As progress is made in the field of futures research new methods are inevitable. Since the planner in education is confronted with so many methods in futures research, the choice of methods will depend

largely on the choice of projects.[23]

Futures research in the social sphere is a new field alongside technological and economic forecasting. The latter two techniques include invention, innovation, diffusion and scenarios. In futures research, Pyke classifies techniques in forecasting as extrapolative, speculative, explicative, correlative or decision-making.[24, 25]

Modern researchers employ many methods of establishing images of the future. These methods may be classified in terms of the extent to which they lend themselves to manipulation by the planner. The functions of forecasting and integration, particularly in the field of education, cannot be executed without the participation of the planner. For example, a researcher, when determining the future demand for teachers, needs to liaise with a planner to know policy decisions for the future. The methods of establishing images of the future based on reigning trends do allow for speculations, but a method such as the operational game gives the planner the opportunity of choosing his own line of action and then obtaining further information on it from a simulated reality.[26]

Rescher[27] classifies the methods of futures research into three categories, namely, extrapolation of historical knowledge, analytical models and the use of experts. Extrapolations based on historical knowledge and current trends are in general use. Control of limitations of past experiences of forecasting. Analytical models are commonly used in exact sciences. In educational planning decision models are in use. The use of experts for forecasting can

be/

be gauged when it is appreciated that an expert or specialist in a field such as education is best able to recognise a new trend in its initial stages.

It is apparent that the choice of a method will depend on the utility value of the project. Both the merits and the limitations of the various methods in use by researchers and planners in education must be analysed so that the forecast will be more meaningful. Some of the more popular methods used in education for purposes of forecasting are as follows:

1.4.1 Trend Extrapolation

Extrapolations[28, 29, 30] based on historical knowledge and current trends are in popular use. The principle of taking the best out of the past or learning by experience has accepted value. By extrapolation is meant that a trend is determined on a series of observed phenomena in a given, known, interval of time, and that this deduction is then made applicable to another unknown interval. This method has its limitations, for example, the researcher can hardly consider all the preponderables such as future Senior Certificate passes when making forecasts. However, this method creates the possibility of sketching trends of the past and the present by means of simple curves or graphic representations. Projections are based on mathematical laws that are perceptible in the observed trend.

Cognizance should be taken of the following forms of trend extrapolation as well:

1.4.1.1 Projection

This is generally considered to be a refined form of extrapolation;

1.4.1.2 Mapping

Mapping is the relationship between two sets of figures, where the second set is the image of the first, that is, if $x \in$ set A, $y = f(x) \in$ set B. This is a *quantitative or qualitiative method* which can be regarded as a special form of trend extrapolation.

1.4.1.3 Interpolation

When structure is given to an image of the future in terms of broad trends, it is possible to fill in details using the principles of interpolation. It should be noted that an aim for a particular period in the future can be set with a normative approach as the point of departure. Intermediate steps between the two particular periods can be forecast in terms of the attainment of an aim by means of interpolation. For example, the data for five year intervals for school populations can be interpolated on a graph to obtain readings for one year intervals; and

1.4.1.4/

1.4.1.4 Trend correlation

This is a method of forecasting the trend of a complex and highly unpredictable parameter by using its relationship with other simple trends. However, there must exist a logical and significant relationship between predictable trends which have a sufficiently high correlation with the unpredictable trend.

1.4.2 Analytical Models

Griffiths[31] points out that the chief values of a model are that it enables one to ask questions, and it offers clues as to how the questions can be answered. He points out that the mathematical model is a special case of the isomorphic model, that is, there is a one-to-one correspondence between the model under discussion and that of which it is a model. Further, Griffiths contends that it may be possible that a theory may have the same form as a set of mathematical truths, that is, the relationships within the empirical theory may be the same as the relationships within a certain mathematical system. Thus numbers may be assigned to the properties of the empirical system, and these numbers may be manipulated according to the laws formulated in mathematics.

Analytical models[32] are commonly used in exact sciences and even in education. The better a phenomenon is understood, the better is the model that can be constructed

out/

out of it, and the more the information that can be obtained from it. A model constitutes the formally laid down concepts or variables which are necessary for the researcher to draw conclusions.

Moreover, a model is not the real system but only an abstract idealization of it.(33) The wealth of detail in the educational system is virtually inexhaustible and not only are many different models possible, but the construction of any model involves a deliberate selection of important characteristics which are considered to be important. This selection can only be made on the basis of the purposes for which the model is intended. Thus a model, by virtue of its reduction of detail by selection, is a simplification of reality.

1.4.3 Use of experts for forecasting

Rescher(34) advocates that the use of experts for purposes of forecasting is the most important method available to futures research. It is contended that an expert or specialist in a particular field is best able to recognise a new trend in its initial stages, and to concentrate upon it.

In the absence of any valid method, Helmer(35) finds the use of experts necessary in order to choose between alternative plans of action. The role of the expert is evaluated in terms of the relative frequency with which his predictions are eventually confirmed by later events. It is

easier/

easier to conduct such tests with short-term forecasting than with long-term forecasting.

Lätti[36] contends, that, if the principle, that an expert can be useful for forecasting, is accepted, then, the employment of groups of experts will be even more useful. This premise is based on both the knowledge factor and the social factor. The knowledge factor amounts to more knowledge, alternative opinions and even an increase in the knowledge of group members in the search for the best solution. The social factor embodies the principle of conformity, the dominant person in a group and the desire to win an argument rather than seeking the best solution.

The opinions of experts can be utilized in different ways.[37, 38]

1.4.3.1 In the symmetrical use of a group of experts, the opinions of all the members of a group concerned are utilized to find the best solution. There is asymmetrical use of a group of experts when aspects of a problem are tackled by different sub-groups or individuals.

1.4.3.2 The Delphi technique is a method of the symmetrical use of a group of experts. These experts do not consult each other but a series of questionnaires on the same subject are handled out with structured feedback of information. The Delphi technique

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was developed by Dalkey and Helmer at the Rand Corporation in 1951 and 1952. This technique is suitable for obtaining a consensus of opinion or at least a significant measure of convergence between opinions. Its main limitations are that sources of bias, the underlying assumptions and the validity of material which cause opinions of experts to change remain unknown. Furhter, researchers who disagree with the ideas of the model are unlikely to participate in a Delphi technique.

1.4.3.3 "Brain-storming" is a forerunner of all methods to obtain new ideas or a consensus of opinions. One or more experts are employed in this method. The underlying principle in this approach is that, among a large number of ideas there have to be a few good ones. Osborn[39, 40], a major exponent of brain-storming techniques in problem-solving methods, advocates that the average person is capable of formulating twice as many ideas when working alone. He suggests many techniques for increasing problem-solving ability. He found that by calling for a free and uncritical flow of associations and ideas, a large reservoir can be accumulated before any evaluation takes place. In the meanwhile, the free flow of ideas may have released unconscious associations, and these may lead to insightful solutions being offered by experts.

1.4.4 Cross-impact matrices

The use of cross impact matrices[41] is based on an experimental approach whereby the probabilities associated with each event in a given set which may take place in the future can be adapted. This set is chosen from the universe of conceivable future events so that interaction between sub-groups is possible. Further, most events which are predicted are associated to past as well as future events. The actual interrelationship between events and future developments is called *"cross-impact"*. It is evident that a systematic description of all possible ways of interaction between a large group of variables as well as an estimate of the effects of interaction is complicated. The importance of cross impact in the area of knowledge is gauged by the fact that it can improve insight into historical events as well as forecasting of futures.

Enzer[42] points out that the advantage, among others, of cross impact techniques is that they can serve for purposes of self-correction especially when there are inconsistencies between various forecasts. Furhter, a small number of input items can describe a great variety of possible events and reasons for changes in probabilities can be traced. The main disadvantages of this technique are that mathematical transformations and analytical procedure are not logically accountable, cross impact factors are not specifically defined, relative probabilities of individual series of events remain undetermined and interaction between pairs of events only is taken into consideration.

1.4.5/

1.4.5 Scenarios

A scenario[43, 44, 45] is a credible depiction of events whereby possible sequence of events, which are interrelated, are outlined. The sequence is a more-or-less acceptable version of what the future may look like. Hypothetical sequences of events are constructed for purposes of controlling decision-making. Description of scenarios has become a useful method of investigation in futures research. This involves the invention of credible paths between present conditions and hypothetical future conditions, so that, more meaningful choices may be made among currently available options. Simulation models can create a new scenario with each trial run so that a methodical collection of complex images of the future can be constructed.

1.5 TIME-INTERVALS OF FORECASTS

Short-term forecasting[46] for purposes of planning is common and relatively easy to determine. However, there are many more imponderables to consider in long-term forecasting. Hence, the latter type of forecasting is the more difficult. Further, methods which may be suitable for short-term forecasting may prove ineffective for long-term forecasting.

Researchers have classified time intervals for purposes of forecasting. Some of the more important classifications are as follows:

1.5.1 Moles[47] distinguished four time intervals for futures research:

Short/

Short range

Forecasting is done for a period 1 to 3 years ahead. Here the phenomenon itself is studied, and direct causes are sought;

Middle range

Forecasting is 4 to 10 years ahead. Investigations, reaction, feedback and the relationship between factors are investigated;

Long range

Forecasting is made 10 to 20 years ahead. Investigations are undertaken in order to obtain indications of the tempo of acceleration; and

Very long range

Forecasting is made for a period of more than 20 years ahead. The period of study is generally approached by means of theories.

The above-mentioned ranges may be described mathematically as follows: in the short range the function itself is observed, in the middle range the first derivative of the function is studied, in the long range the second derivative of the function is analysed while, in the very long range, theories are expounded.

1.5.2 McHale and Wakefield[48] have attempted a classification of time intervals as follows:

Short/

Short range

Study is made of a period of less than 10 years' duration. There is much "activity" in this study;

Mid-range

The time interval is 10 to 30 years, and "activity" is also characteristic of this period; and

Long range

The time interval under study is longer than 30 years. Such studies are found to be scarcer and are often intuitive or speculative.

1.5.3 Platt[49] based his classification of time intervals on the following model:

Inertia period

The time interval is 2 to 10 years ahead, and it is regarded as the "near future". Not much can be done to bring about material changes in this future pattern;

Choice and control period

The period under investigation is 10 to 20 years ahead. There is strong interaction between man and environment. The researcher often has a variety of alternatives to choose from, as compared with forecasting of the inevitable in the "inertia period"; and

Period of uncertainty

Forecasting is made for a period of more than 20 years ahead. This period of study lends itself to a vague type

of/

of planning because there are many preponderables for consideration, and the aims are generally not defined clearly.

Platt, however, concedes that limits between the above-mentioned three periods are fluid.

1.6 PLANNING IN EDUCATION

In Educational Planning[50] the choice of a time interval is important. For example, forecasting is essential for the successful administration of any education department. Forecasting from one to two years ahead is necessary for budget estimates, three to five years ahead is necessary to determine the intake of teacher trainees in order to meet the immediate demand for teachers, five to ten years ahead is necessary, inter alia, for physical planning in areas such as procuring of suitable school sites, planning and designing of schools, studying demographic trends and determining demand for school accommodation on a regional basis. Forecasting 10 to 20 years ahead becomes necessary to plan for education in the future, and for the growth of the education department itself both structurally and functionally.

In any kind of Educational Planning both the historical antecedents and the present trends in education must be known. Hence, this study of Indian education in the next chapter.

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CHAPTER TWO

THE CHANGING PATTERN OF INDIAN EDUCATION ARISING OUT OF LEGISLATION IN THE 1960s

2.1 INTRODUCTION

The development of Indian education[1] thus far has been confined largely to Natal and Transvaal. It was in these two provinces and, in particular, in Natal that the number of pupils justified the establishment of separate schools for Indians. In the Cape Province the majority of the Indian pupils are in Coloured schools and, to-date, there is only one Indian school, that is, at Port Elizabeth. In the Orange Free State the total Indian population in 1970 was five.[2] The most significant event in Indian education was the transfer of the control of education for Indians from the provincial and other education departments to the Department of Indian Affairs, Division of Education, in terms of the Indians Education Act, 1965 (Act No. 61 of 1965).

2.2 BRIEF HISTORICAL SURVEY OF INDIAN EDUCATION PRIOR TO TRANSFER OF CONTROL OF EDUCATION TO THE DEPARTMENT OF INDIAN AFFAIRS, DIVISION OF EDUCATION

2.2.1 Natal: Historical Survey before 1966

The first batch of indentured Indians arrived in Natal on 17 November 1860 at the request of the Government of Natal.[3] The Indian labourers brought with them their traditions and

culture/

culture, which were transplanted in the land of their adoption with little modification.

Although the majority of the immigrants were illiterate, they were not altogether uneducated. Some education was imparted to the enlightened ones in the form of discourses, narration and enacting incidents from the Mahabharatta, the Ramayana and the Puranas. Those who could read the vernacular taught the others religious poems and sacred songs. Thus it is necessary to distinguish between those who were illiterate in English but literate in their vernacular and those who were totally illiterate.(4)

It must be borne in mind that the provision of schools for the growing Indian population was inextricably bound up with the policy of the country towards the Indian immigrants who were not accorded the domiciliary rights of permanent settlers, despite a resolution passed at the Imperial Conference in 1921 that it was "desirable that the rights of British Indians to citizenship should be recognized."(5) The Lange Commission recommended a voluntary repatriation scheme for the Indian immigrants but this did not have the desired results because less than five thousand Indians accepted the free passage to India together with the monetary compensation. In 1921 the total Indian population was 155 738, of whom 140 871 were in Natal and 14 867 in Transvaal.(6)

Initially the only general education available to Indians was provided by Christian missionaries. The first Indian

school was opened by Rev. Ralph Stott in 1869. It was a day school run for older students, and the medium of instruction was English. By 1872 there were four schools, but these schools were compelled to close down in 1875 because Rev. Stott was unable to find teachers.(7)

The Indian Immigrant School Board(8) was appointed in 1879 by the Natal Colonial Government to administer money voted by the Legislative Council for Indian education, and, also, to report on the progress of Indian education. The Board received an average annual amount of £1 500 (R3 000), and this was granted to individual schools on the basis of regular attendance of pupils and efficient management of schools.(9)

In 1900 the expenditure on Indian education was £2 733 12s. 3d. and this was increased to £8 716 3s. 6d. in 1915. In that period the unit cost of pupil increased from £1 19s. 1d. to £3 12s. 0d.(10, 11)

In 1882 there were ten schools with a total pupil enrolment of 323. By 1883 there were 18 schools and the total pupil enrolment leaped to 1 011. In 1894 the Indian Immigrant School Board was abolished, and Indian education was placed under the control of the Natal Education Department. At this stage there were 2 452 pupils in 26 schools.(12)

Shortage of teachers hampered further development in Indian education. As an attempt to solve the problem the Natal Education Department instituted the Junior and Senior Teachers'

Examinations/

Examinations in 1900. However, no provision was made for the training of teachers. Canon Smith's efforts culminated in the opening of the St. Aidans Provincial Training College in 1904. The entrance qualification to a training course was standard 4.(13) Part-time teacher training classes were held at three centres, namely, Durban, Pietermaritzburg and Tongaat. In 1927 there were 130 teachers attending such classes, of whom 15 were women teachers.(14, 15) As the financial position of the Province did not provide for a teacher-training centre, the Indian community was urged to raise funds for this project.(16) In 1927 a teacher-training college was established through the efforts of Mr Srinivasa Sastri, the Agent-General for India in South Africa.(17)

In 1904 the education for Indian pupils in Natal was far from satisfactory. In fact, at best, such education only prepared the pupils for inferior clerical work. In 1925 eighty per cent of the Indian pupils did not proceed beyond standard 2.(18,19)

The progress of Indian education was slow initially, and by 1926 less than one third of the Indian children of school-going age were accommodated in schools, that is, only 9 155 pupils of some 30 000 were at school. However, there were three events which were responsible for the rapid progress in Indian education, namely, the visit of Mr Srinivasa Sastri, the Cape Town Agreement of 1927 and the establishment of the Natal Indian Teachers' Society in 1926.(20)

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In 1925 the Union Government passed the Provincial Subsidies Act. The subsidy of £5 5s. 0d. per unit of the average attendance of pupils of seven years of age, or over, was initially not used as intended until 1931. Kichlu, who was commissioned by the Government of India to investigate aspects of Indian education in South Africa, pointed out that Indian education was not a burden to the Natal Education Department but, rather, the Province was benefiting at the expense of the Indian children to the tune of £18 818 being saved in just two years.(21)

In terms of Provincial Notice No. 82 of 1928, the Dyson Commission,(185) assisted by Mr Kailas Prasad Kichlu and Miss C. Gordon, was set up and its report was published in May 1928. The Commission found that existing facilities were inadequate, especially in so far as state-aided schools were concerned. The state-aided schools were generally in a poor state of repair and unsatisfactorily equipped. The status and salaries of teachers in such schools were found to be unsatisfactory. During the years that followed the Report, there was an average increase of about 1 000 pupils per annum in Indian schools, and more money was also being spent. However, the improvements in Indian education were not commensurate with the increasing Indian population of school-going age. As a result of this Report, certain reforms were introduced in 1930.

In 1937 the Broome Commission(186) was set up to investigate Indian education in Natal. The report summarized the then

existing/

existing conditions as follows: "Viewing the rapidity with which the present system of Indian primary education has sprung up and the shortness of the average school life, it would appear that the vast majority of Indian children do not acquire the rudiments of primary education." The Broome Commission's main recommendations were the creation of a sub-department to control and administer Indian education more effectively in Natal, the need for the gradual introduction of a modified system of free and compulsory primary education and the desirability of an increased subsidy from the Central Government.

Post-primary education for Indians in Natal first gained significance in 1911 when the Indian Education Institute enrolled some 100 pupils. This Institute closed in 1914, but, there was a resurgence of post-primary classes at the Carlisle Street Indian School, Durban, in 1918. By 1927 the high school enrolment stood at 67 which was 0,6% of the total school population. In 1930 Sastri College (a secondary school for boys) and in 1932 the Mitchell Crescent Government School (a secondary school for girls) were opened in Durban. By 1933 it is recorded that there were some 300 pupils receiving secondary education.(187, 188)

As late as the early 1940s most Indian teachers were employed in state-aided schools. There was general dissatisfaction among these teachers who were inadequately qualified, poorly-paid and worked under shocking conditions. Mr Banks, the then

Director/

Director of Education in Natal, successfully recommended that all Indian teachers become government employees with improved remuneration and conditions of service and that immediate steps be taken to improve their qualifications. This is considered to be the Magna Charta of the Indian teaching service.(189)

During the years 1942 to 1944 significant developments took place in Indian education.(190)

(a) Natal Ordinance No. 23 of 1942 paved the way for medical inspection of Indian schools. In this respect it should be noted that the Indian pupil was discriminated against when compared with his Coloured counterpart since the latter received free education;

(b) In 1943 the building grant for the erection of state-aided schools was raised from $33\frac{1}{3}\%$ to 50%;

(c) In 1943 all teachers in state-aided schools were taken over by the Natal Education Department. The teachers received improved salaries and conditions of service;

(d) In 1944 the school feeding scheme was made available to Indian schools; and

(e) In part fulfilment of the recommendation that a sub-department be created for Indian

education/

education in terms of the Broome Commission, Mr J.E. Devlin was appointed Chief Inspector of Indian schools in 1944. This post, however, was dissolved in 1957.

Prior to the transfer of Indian education[191] to the Department of Indian Affairs in 1966, the Chief Inspector of Indian Education in the Natal Education Department pointed out that even though satisfactory progress had been made in Indian education in Natal since 1937, no appreciable effect had been made on the essential problem of school accommodation for all Indian children of school-going age. In 1952 it was estimated that 37 000 pupils had no school accommodation. This state of affairs led to the introduction of *the platoon school* - the double-shift system and, more recently, the use of *peripatetic classes* in many primary schools. Although the building of new Indian schools progressed significantly, the end of 1963 still saw over 30 000 pupils in platoon classes.

Generally primary schools for Indian pupils used the same syllabuses as for White pupils but on a restricted basis. As at 1964 the following subjects were either not included in the curriculum or they were available at certain schools only: Physical Education, Housecraft, Handicrafts, Music and Afrikaans as the second official language. Furthermore, Mathematics and a third language were seldom offered as exploratory subjects in standard 6.[192]

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In spite of the deficiencies and defects in Indian education, some notable progress[193] was made since 1937 in the scholastic achievement of pupils, notably, the holding power of secondary schools. The number of passes in the standard 6 examination increased from 880 in 1940, to 5 882 in 1962. In 1974 some 10 675 pupils in Natal have written this examination, which is no longer external in nature.[194]

The growth of secondary education was slow but sustained until 1958.[22] It is recorded that out of a total school population of 90 000 pupils, some 4 000 were in secondary schools, that is, 4,4% of the total school population. (The comparative figure for Whites in 1958 was 24%). Thereafter, there was a sharp increase annually in the number of secondary school pupils. In 1965 the secondary school pupils constituted some 13 000 pupils or 11,5% of the total school population. In 1974 the total number of secondary school pupils (phases 3 and 4) was 54 176 which constituted 34,45% of the total school population in Natal.[23]

Another aspect of the secondary education that calls for close scrutiny is the damaging *wastage* that is being encountered. A.N. Lazarus, principal of Woodlands State Indian High School, Pietermaritzburg, underlined the wastage in Indian secondary classes by pointing out that of every 100 pupils who passed standard 6 in his school, 33 passed Junior Certificate Examination and only 13 obtained the Senior Certificate.[24] It is contended that this wastage is even more alarming in other areas, and that it had been

accentuated/

accentuated by lack of secondary school accommodation since those lower down on the merit list sometimes found it difficult to gain admission to a high school. Even by 1974 not all secondary school pupils were accommodated in high schools. Rather than refusing admission to high schools, the Department has retained junior secondary classes in primary schools until the proposed high schools in their respective areas are ready for occupation. The table below indicates enrolments of standards 6 and 7 pupils in *primary* schools as at 5 March 1974:(25)

TABLE 2.1

SECONDARY SCHOOL PUPILS IN PRIMARY SCHOOLS

SCHOOL	STD. 6	STD. 7	TOTAL
Junagarth Road S.I.P.S.	173	525	698
Depot Road Memorial S.I.P.S.	255	377	632
* Protea S.I.H.S.	358	341	699
Shakaskraal S.A.I.P.S.	78	166	244
* Everest S.I.H.S.	240	151	391
* Victoria S.I.H.S.	261	388	649
T O T A L	1 365	1 948	3 313

In addition to the above-mentioned schools, a number of primary schools retained standard 6 pupils because of

inadequate/

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* such primary schools have been classified as high for administrative purposes by the Department.

inadequate transport services or insufficient high school accommodation in those areas.

Prior to the transfer of Indian education to the Department of Indian Affairs, a "one-tract" course was common at most Indian secondary schools. Of the 2 680 candidates for the Natal Junior Certificate Examination in 1963, 2 332 candidates (or 87% of this total) offered English A, Latin, Arithmetic, Biology, Mathematics and Geography. The seventh subject was generally History or Accounting. 925 candidates failed, but of these 315 were given passes in the Ordinary Grade. In 1963 of the 959 candidates for the Senior Certificate Examination, 700 (or 74% of the total) offered precisely the same courses, namely, English A, Latin, Biology, Mathematics, Geography and History. Of these 959 candidates 369 or 38% failed. Thus with differentiated education a demand arose for adequately qualified teachers in the various fields of study.(26)

An important consequence of the above-mentioned "one-tract" course offered by the Natal Education Department was that Afrikaans, although one of the official languages of the country, was not compulsory for all pupils. These pupils, who proceeded to become teachers, are now handicapped in that they know little or no Afrikaans although this language is *now compulsory* for all pupils from class (i) to standard 10.

By the enactment of the Indians' Education Act, 1965 (Act No. 61 of 1965) the control of the education of Indians from the

Natal/

Natal Education Department was affected on 1 April 1966.[27]

2.2.2 Transvaal: Historical Survey before 1967

Shortly before, and especially after, the discovery of gold on the Rand in 1886, a number of "freed" Indians and Indian traders settled in the Transvaal. The census of the Johannesburg Sanitary Board gave the number of Asiatics (mainly Indians) as 4 807 in 1896. Law 3 of 1885 (which in the main, proclaimed that Indians could not obtain burger rights and also assigning particular areas to them) was passed by the Volksraad of the South African Republic and agreed upon by the Imperial Government. However, as this law was, apparently, never strictly enforced, it did not quite stem the flow of Indians into the Transvaal.[195]

Before 1902 education for non-Whites in the Transvaal was largely a missionary venture without financial aid from the State.[28] After the Anglo-Boer War in 1903 the government, as a matter of colonial policy, made provision for the establishment, maintenance, control and inspection of Government schools in the Transvaal. Approval for financial assistance to private schools including those founded by the churches was granted.

The first school for non-Whites in the Transvaal was opened by a mission station in Ferreirastown in 1898.[29] Coloured, Indian, Chinese and Malay children attended the same schools, but, in areas where large numbers of Indian pupils warranted

it/

it, separate schools for Indians were established.

General J.C. Smuts, as Minister of Education, was the architect of the Education Act of 1907. This Act, among other welcome changes, provided for free education for Coloured and Indian pupils, and on an even keel with that of White pupils. Compulsory education was, however, provided for White pupils only.(30)

The first school for Indian pupils was opened in 1903 but it closed a year later.(31) At the request of the British Indian Association, the Witwatersrand School Board erected a permanent school for Indians at Johannesburg. The school opened on 14 February 1913 with a pupil enrolment of 136, and Mr A.H. Nye as its first headmaster. This school is now known as the Bree Street Indian Primary School. Later two schools were built at Pretoria; one was sponsored by the Moslem community while the other by the Tamil Vedic Association.(32)

Kailas P. Kichlu prepared a memorandum for the Administrator of Transvaal on the state of Indian education in the province.(33) He found 1 009 Indian pupils attending Government Indian schools and many more attending schools for Coloureds. He praised the Administration for valuable concessions such as, free education for primary school pupils and school meals for the poor children. However, he strongly recommended that primary education should be taught through the medium of the official languages of the country. On his

recommendation, the provincial authorities discontinued religious and vernacular instruction in State schools.

At the instigation of the Indian community in Johannesburg, a separate school for Indian girls was opened in March 1936. This is the present Johannesburg Indian Girls' School.(34)

The Nicol Commission was appointed in 1937 by the Transvaal Provincial Administration to enquire into education for Coloureds and Indians. It recommended that, inter alia, "every effort be made to replace hired buildings by government buildings at the earliest possible moment", in view of the short average school life of Coloured and Indian pupils "it be a standing instruction to inspectors of schools to encourage teachers of Coloured and Indian children to draw up their own scheme of work, so as to realise the highest aims for these children during the short period available." Thus the syllabuses intended for White pupils were not expected to be followed slavishly.(35)

Even as late as 1945, the Transvaal Education Department found that the poor state of the school buildings adversely affected the work of the teachers and children alike. Similar complaints recurred in 1949, 1953 and 1959. Since 1940 some substantial White schools in the Johannesburg area have been used as schools for Indians.(36)

In 1950 the Griffith Committee, appointed by the Administrator of the Transvaal, recommended, inter alia, that parents' associations for Indian schools be formed and recognized by

the Administration, and that principals be empowered to exclude pupils who failed to attend school regularly.(37)

In the post-war period Indian education in the Transvaal was characterized by considerable increase in pupil enrolment. In the period 1936 to 1950 the Coloured school population in the Transvaal increased by 36% and that of the Asiatics by 365% for the same period. This phenomenal increase is attributed to several reasons such as improvement in facilities for education, a higher standard of living, ensuring a higher status in the community and, perhaps, the insecurity of Indians in this country since they were not recognised as a permanent part of the population of South Africa until 1961.(38, 39)

The table below reflects the increase in the Indian school population from 1950 to 1958:(40)

TABLE 2.2

GROWTH OF INDIAN SCHOOL POPULATION (1950 - 1958)

Year	INDIAN		MIXED	
	Schools	Pupils	Schools	Pupils
1950	27	8 148	22	2 561
1951	30	9 068	23	2 570
1952	31	9 777	24	2 808
1953	32	10 252	26	3 068
1954	34	10 778	27	3 247
1955	36	11 267	29	3 396
1956	35	12 090	29	3 973
1957	30	12 989	49	11 003
1958	29	12 877	49	12 295

The/

The actual number of Indian pupils in the mixed schools is not indicated. The upsurge in the number of mixed schools in 1957 is probably attributable to the settlements in certain rural areas. By 1963 the number of Indian pupils rose to 19 954 in 63 schools, of which 28 were mixed schools.(41)

The Transvaal Education Department took active steps to replace White teachers at Coloured and Asiatic schools, primarily because of a shortage of White teachers and also because there was a need to delegate greater responsibilities to them for the education of their own race groups. Prior to transfer of control of education to the Department of Indian Affairs, practically all the White teachers in Indian schools had been eliminated.(42)

The per capita cost for Indian pupils was appreciably higher in the Transvaal than for their counterparts in Natal. The per capita cost for Indian pupils in 1958 in the Transvaal was £31 12s. 9d. whereas some six years later the per capita cost in 1963 in Natal was considerably lower, that is, £23 11s. 11d. (The per capita cost for Coloured pupils in Natal in 1963 was £38 8s. 0d.)(43)

The supervision and control of Indian schools were handled by the regular inspectors of schools. In 1951 the Griffith Commission recommended the appointment of an Inspector for Indian Education in the Transvaal, but nothing came of this recommendation.(44)

Under/

Under the control of the Transvaal Education Department, the syllabi and curricula in primary schools for Indians were the same as those for Whites. Similarly, the grants for the provision of books, equipment and consumables for Indian schools were the same as for Whites.(45)

With regard to differentiated education, the Transvaal Education Department had set the lead long ago.(46) There existed here a differentiated three-stream secondary curricula. The scope of the differentiated education already in existence before it became nationalized in this country can be measured in terms of the number of subjects that may be offered depending on the ability and aptitude of the pupil. By 1960, in addition to the two official languages, fourteen other subjects could have been offered by Senior Certificate candidates. There was a marked improvement in the "A" stream between the years 1960 and 1963 on account of the above-mentioned system.

TABLE 2.3

SENIOR CERTIFICATE EXAMINATION RESULTS (1960 - 1963)

CATEGORY OF PASS	1960	1961		1962		1963	
		U	L	U	L	U	L
(i) No. of candidates	167	84	71	60	96	88	137
(ii) 1st class pass	7	1	-	5	2	5	1
(iii) 2nd class pass	66	18	15	36	61	61	86
(iv) School Leaving	-	24	-	7	-	13	-
(v) Failed	94	41	56	12	33	9	50

N.B.: U Indicates University entrance certificate
L Indicates school leaving certificate

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The scope and diversity offered to Indian pupils must be regarded as generous and liberal in view of the fact that the Vocational Education Act of 1955 made it impossible for any provincial system to offer full differentiation and maximum diversity.(47)

Prior to 1967, there were no technical and commercial high schools or colleges catering for the needs of Indians. Unlike in Natal, there were neither inspectors of education nor supervisors in the Transvaal.(48)

Facilities for teacher education were also provided. Students attended the Eurafrican Training Centre at Johannesburg in 1919. Initially the Indian teachers wrote the same examination as was prescribed for Whites. In 1922 the first eight non-White candidates offered the Third Class Teachers' Certificate Examination (T3) but none passed. The Griffith Committee recommended separate training facilities for Indian teachers. In 1954 a teacher-training centre was attached to the Johannesburg Indian High School. In 1961 this institution offered courses for the Transvaal Teachers' Lower Diploma and the Transvaal Teachers' Diploma, similar to those offered for Whites. A two year post-standard 8 professional certificate was awarded to attract more women teachers.(49, 50)

By the enactment of the Indians' Education Act, 1965 (Act No. 61 of 1965) the control of the education of Indians from the Transvaal Education Department was affected on 1 April 1967.(51)

2.2.3 Cape: Historical Survey before 1971

In the Cape Province, the Indian pupils attended Coloured schools under the control of the Dept. of Coloured Affairs prior to 1971. Where the Indian communities are relatively small and scattered over a large area, the take-over of Indian pupils from Coloured schools will be undertaken by the Department on a piecemeal basis as and when the Indians are resettled in their own proclaimed areas and school buildings become available.(196)

The Indian communities are settled mainly in the urban areas of Cape Town, Port Elizabeth, East London, Kimberley and Mafeking. The census figures for Asians in the Cape Province in 1970 was 21 617.(52)

The first school for Indians, namely, the Woolhope Indian High School opened on 19 January 1971 with a total pupil enrolment of 629 pupils. The class range of the school initially was from class (i) to standard 7. By 1974 the enrolment at this school rose to 914 but there were still some 3 750 pupils in Coloured schools then.(53, 54)

2.3 INDIANS EDUCATION ACT, 1965 (ACT NO. 61 of 1965)

In 1961 when the Republic of South Africa came into being, the Department of Indian Affairs was created. In 1965 Parliament passed the Indians Education Act, 1965 (Act No. 61 of 1965) which provided for the creation of a Division of Education within the Department. In terms of the Act, the control of the education of Indians from

the/

the provincial and other education departments was transferred to the Department of Indian Affairs:

(a) Natal : with effect from 1 April 1966;

(b) Transvaal : with effect from 1 April 1967; and

(c) Cape : with effect from 1 January 1971.(55, 56, 57)

The main function of the Department of Indian Affairs was to guide the Indian population on the road to self-development socially, economically and politically. The Indians were to be afforded a steadily increasing say and eventually a measure of self-government in welfare services, education and local government as Parliament may delegate to them from time to time.(58)

Thirty seven sections were embodied in this historical Act which had far reaching implications for Indian education.(59) This Act, inter alia, provided for the control of education for Indians by the Department of Indian Affairs, to amend the Special Education Act, 1948, the Vocational Education Act, 1955, and the Republic of South Africa Constitution Act, 1961, and to provide for matters incidental thereto.

Some of the more important provisions embodied in this Act are:

(a) the control of education for Indians;

(b) establishment, erection and maintenance of schools;

(c) award of grants-in-aid or subsidies and loans in respect of schools and hostels;

(d)/

(d) transfer of management and control of State-aided schools to the Department;

(e) registration and management of private schools;

(f) appointment, promotion, transfer and discharge of staff at State schools, schools of industries, reform schools and certain State-aided schools;

(g) transfer of persons to the service of the Department and conditions of service including pension rights and retirement benefits;

(h) definition and procedure in the case of misconduct;

(i) powers of persons in the employ of the Department;

(j) classification of certain posts at institutions under the control of the Department;

(k) courses and conducting of examinations for the training of teachers;

(l) inspection of schools and hostels;

(m) compulsory school attendance;

(n) financial and other assistance to pupils;

(o) recognition of teachers' associations;

(p) establishment of education advisory council and education committees;

(q)/

(q) delegation of powers and duties by the Minister and Secretary for Indian Affairs; and

(r) regulations as contained in Government Notices in the Government Gazette.

From time to time there have been amendments to regulations.

An amendment to three of the regulations was announced through Government Notice No. R1937 dated 25 October 1968. The amendments provided for the omission of school meals scheme and a teacher serving as a honorary secretary on an education committee. The regulations concerning education committees were further amended by regulations contained in Government Notice No. 1994 dated 13 November 1970. An education committee was empowered, in consultation with the principal, to inspect the buildings, equipment and site of the school or its hostel with the object of making recommendations to the Director, collect funds for the benefit of the school fund and make representations to the Director with regard to part-time classes.

Regulations relating to admission of persons to State and State-aided schools for Indians was detailed in Government Notice No. R723 dated 13 May 1966 and amended by Government Notice No. R3009 dated 1 August 1969. (In this respect it may be pointed out that non-White pupils other than Indians may be admitted to an Indian school only with the approval of the Minister.) Regulations relating to the conditions of service as contained in Government Notice No. 1288 dated 26 August 1966 were amended by Government Notice No. 911 dated 30 May 1974.

Regulations relating to compulsory school attendance for Indians as contained in Government Notice No. R581 dated 15 April 1966 were amended by Government Notice No. R63 dated 12 January 1973 and Government Notice No. R640 dated 19 April 1974. These amendments enabled the pupils to acquire a higher degree of literacy and avoid the high drop-out rate of pupils. Compulsory school attendance does not control the wastage in the senior secondary phase since regular school attendance is compulsory only until the pupil reaches the age of fifteen years.(60, 61)

The regulations relating to the administration and control of school funds were promulgated in Government Notice No. R694 dated 6 May 1966, and these regulations were amended by regulations contained in Government Notice No. R235 dated 28 February 1969.

2.4 OTHER ACTS

There were also other important Acts that had far reaching implications for Indian education.

2.4.1 The National Education Policy Act, 1967

(Act No. 39 of 1967)

This Act(62) repealed the National Advisory Education Council Act of 1962, and it became a forerunner for the implementation of a centralized educational policy. As from 1 November 1970, the Department of Education, Arts and Sciences became known as the Department of National Education.

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In terms of this Act, the Minister may determine the general policy in respect of education in schools within the framework of the following principles:

(a) the education in schools under the control of a department of State or a provincial administration shall have a Christian character, but the religious conviction of the parents and pupils shall be respected in regard to religious instruction and religious ceremonies. In Indian education there is a difficulty in establishing a single broad religious character because of the presence of many linguistic groups and different religious affiliations;

(b) education shall have a broad national character. Differentiated education was implemented in Indian education in January 1973;

(c) the mother tongue, if it is English or Afrikaans, shall be the medium of instruction. In Indian schools the medium of instruction is English while Afrikaans as a second language became compulsory for Senior Certificate candidates in 1974 for the first time;

(d) requirements as to compulsory education, and the limits relating to school age shall be uniform. In Indian schools school attendance is compulsory for every pupil who in 1973 or thereafter lawfully enrols in class (i) at such schools. The child may only leave school after he has reached the age of 15 years;(63)

(e)/

(e) education (including books and stationery) shall be provided free of charge in schools under the control of a department of State or a provincial administration. Indian pupils receive texts, reference and "set" books on a loan basis, and these remain the property of the State;(64)

(f) education shall be provided in accordance with the ability and aptitude of and interest shown by the pupil, and the needs of the country. (vide (b) above);

(g) co-ordination, on a national basis, of syllabuses, courses and examination standards and research, investigation and planning in the field of education. The Department of Indian Affairs follows the common core syllabuses of the Joint Matriculation Board;

(h) the parent community be given a place in the education system with representatives on parent-teachers' associations, school committees, boards of control or in any other manner;

(i) consideration shall be given to suggestions and recommendations of the officially recognized teachers' associations for purposes of planning education; and

(j) conditions of service and salary scales of teachers shall be uniform. However, the salary gap between the various race groups is a historical fact.

2.4.2/

2.4.2 The Educational Services Act, 1967
(Act No. 41 of 1967)

In South Africa there are at present four provincial departments and one central state department of education controlling White education while there are three central state departments controlling Coloured, Indian and Bantu education. The first National Advisory Education Council saw as one of its greatest challenges the removal of divided control in the field of secondary education.(65)

In terms of Act No. 41 of 1967, vocational education must continue to be provided in separate schools. General secondary schools can provide a maximum of two vocational subjects as part of the educational programmes. Differentiated courses in secondary schools may include vocational subjects on a restricted basis. Secondary education for Whites falls under the authority of the provinces. As for Indians the education had been centralized by the Indians Education Act, 1965.

2.4.3 Indians Education Amendment Act, 1967
(Act No. 60 of 1967)

This Act(66) was passed in Parliament to amend section thirteen of the Indians Education Act, 1965, to provide for the retention of certain benefits by certain persons who are transferred to the Service of the Department of Indian Affairs or are deemed to have been appointed under the provisions of the said Act.

Section/

Section thirteen was amended to include an additional sub-section whereby the welfare of the Indian employees of the Department with regard to a pension or provident fund was extended. For example, any member who did not contribute towards a pension or provident fund may do so on transfer to the Department.

2.4.4 Indians Advanced Technical Education Act, 1968
(Act No. 12 of 1968)

This Act provides for the establishment of colleges for advanced technical education for Indians, for the control, administration and regulation of such colleges and for matters incidental thereto.(67)

Act No. 12 of 1968 is fundamentally the same as Act No. 40 of 1967, which deals with the establishment, control and administration of colleges for advanced technical education for Whites.

Some of the main provisions of Act No. 12 of 1968 relate to the status and proprietary capacity of a college, the declaration of the M.L. Sultan Technical College as a college for advanced technical education, certain institutions and classes which may be declared to be colleges for advanced technical education, administration of a college, appointment of staff and conditions of service, salaries and leave privileges of members of staff, discipline, conditions of loans to students, function of college council, delegation of powers and regulations.

Although/

Although there is provision for teacher-training at such colleges, the Department transferred the teacher training section from the M.L. Sultan Technical College for Advanced Technical Education to the Springfield College of Education as from the beginning of 1974. Further, the Department is planning to transfer secondary education from the M.L. Sultan Technical College for Advanced Technical Education to the Clairwood Technical High School (proposed) at the beginning of 1977.(68)

2.4.5 National Education Policy Amendment Act, 1969
(Act No. 73 of 1969)

The contents of this Act were published in the Government Gazette No. 2429 dated 11 June 1969. This act was passed to amend the National Education Policy Act, 1967, so as to effect alterations to the definitions of certain expressions, to regulate certain aspects of the training of White persons as teachers and to replace the National Advisory Education Council by the establishment of a National Education Council.(69)

This Act provides for the training of White secondary school teachers at universities but with certain concessions to the provincial colleges of education and colleges for advanced technical education. This Act also provides for the co-ordination of teacher training throughout the country to regulate certification, financial assistance for students and to ensure that the demand for teachers is met.

In/

In Indian education the supply of teachers is generally met by colleges of education. It is envisaged that in certain high school subjects such as Industrial Arts, Physical Education and Housecraft, the demand for such teachers will be supplied by colleges of education for the forseeable future.(70)

2.5 THE DIFFERENTIATED SYSTEM OF EDUCATION AND THE EMERGENCE OF A NEW SYSTEM OF EDUCATION FOR THE INDIANS

2.5.1 Differentiated education for Indians

Sir Percy Nunn points out that it is a moot point whether a child should be educated for himself or for the services of a society (or the State) or for some combination of the two ends. However, he subscribes to the thinking that a man becomes what he becomes mainly as the result of his reactions to his social environment.(71)

G. Krog, Deputy-Director of Indian Education, maintains that the aim of education is to develop the whole person, that is, his character, his personality, his intellect and his body. The child of tomorrow must assume his proper place as an adult in the world of tomorrow, and in this way he ought to make a constructive contribution to the society in which he lives.(72)

Education that takes into account ability, interest and aptitude of each pupil, which permits the pupil to gain most out of it and which is within his scope could be termed as

differentiated/

differentiated education. Another term synonymous with differentiation is streaming which has been applied with a measure of success in comprehensive schools in England.(73, 74)

Van der Walt stated that differentiation can be regarded as synonymous with individualization. The central theme is guidance to the end. It is simply the adjustment of education to individual differences. Immediately what springs to mind is that the drop-out rate will naturally decrease and the percentage passes at all levels should improve.(75)

In South Africa the National Education Policy Act, 1967, provided for a Committee on Differentiated Education and Guidance under the Chairmanship of the Director of the National Bureau of Educational and Social Research. The Nicol Commission on Differentiation (1937), Wilk's Report on Differentiation (1946), De Villier's Commission Report on Differentiation (1948) and the Pretorius Report on Differentiation (1951) all had a significant bearing on the recommendations of the "Reconnaissance Committee", that is, a committee under the Chairmanship of the Human Sciences Research Council which included a senior official from each education department in the Republic.(76)

The Transvaal Education Department has given the country the lead in differentiated education. As early as January 1966, in terms of Circular Minute No. 102 of 1965, the Transvaal Education Department permitted a pupil to change his curriculum at any stage of his entire secondary course. In

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this respect it may be pointed out that this Department adopted the three stream method, A stream candidates prepared for University Entrance Certificate, B stream candidates received Secondary School Certificate to study for a diploma while C stream candidates studied up to standard 8 (our present practical stream) to seek apprenticeship or employment.(77)

In August 1971 the Minister of National Education disclosed that a new system of differentiated education would operate in all White schools. The Natal Education Department implemented the differentiated system of education at the beginning of 1973. The Department of Indian Affairs followed suit in 1973 because the pupils of this Department were then writing the Senior Certificate Examination controlled by the Natal Education Department. South West Africa also introduced this system of education in 1973. The Orange Free State Education Department, the Cape Province Education Department and the Department of Coloured Affairs introduced differentiated education as from the beginning of 1974.(78, 79)

Indian education is in the midst of a significant change in its educational programmes. While the new system will change educational concepts to an appreciable extent, it must be viewed as the natural outcome of the educational systems which were operative for a long time both in South Africa and overseas. In Indian education, it was virutally initiated as an extension of the school curriuclum at all high schools to give

a better balance between academic and vocational subjects, and a greater use of school guidance at both primary and secondary school levels so that children will be directed to the courses that suit them best. However, the lack of essential educational amenities has limited the choice of courses at many high schools. The Department is aware of the limitations, and it has programmed specialist rooms to existing schools so that pupils may be educated according to their individual needs.(80)

The normal period of school education consists of twelve years, that is, four school phases of three years each.

The junior primary phase caters for children between the ages of approximately 6 and 8 years. This age span is normally referred to as the infant stage, and it embraces the present class (i), class (ii) and standard 1. Formal education commences in this phase and it is gradually developed. With due regard to the limits of school readiness, the child is taught basic skills, particularly reading and number concepts. In this phase differentiation must be based on presentation of subject matter, and only class teaching is generally done. In Indian education, the standard provision for pupils in infant classes is the grade room which is especially equipped with "pigeon-holes", child's access to the low chalkboard, toilets next to grade rooms where the child can be given toilet-training and special furniture. However, there is a dearth of adequately qualified teachers for this phase.(81, 82)

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The senior primary phase is the period when the "child phase" flows naturally from the infant phase and merges into early puberty. It is important to note that it is not easy to demarcate this phase on the grounds of age only. The great measure of uniformity with regard to physical and intellectual development as well as the social adaptability of the children between the ages of ± 9 years and ± 12 years indicate a natural phase in the life of a child and suggests that pupils in this stage can form an educational unit for whom special provision should be made in an educational programme. This phase covers the period in our present programme of standards 2, 3 and 4. In this phase education is not of a generally formative nature, that is, differentiation is according to the method of presentation but not in syllabus content. Class teaching should still form the basis of the educational programme, but subject teaching may be attempted in certain subjects where specialized knowledge and method of presentation will enable the children to develop their ability to the maximum. There are six compulsory examination subjects namely English, Afrikaans, General Mathematics, History, Geography and Elementary Science. Compulsory non-examination subjects are Right Living, Physical Education including Health Education, Aesthetic Education (Art, Music, Singing, Manual Training) and School Guidance as a service.(83, 84)

In the junior secondary phase, the main concern of the educationist is the valid assessment of the child's

aptitudes/

aptitudes, skills and interests. The education programme during this phase must assist the child to obtain clarity of his own ability and decide on the future direction of his studies. It will be particularly important for the child's future because records compiled on each child up to that point, will determine the type of curriculum he will undertake in the last phase. The syllabuses for the subjects for the academic group in this phase will not be differentiated, but the subject matter must be presented in a differentiated manner to enable the pupils to obtain the maximum benefit from the educational programme according to their ability and aptitude. For some pupils the educational programme must provide for a more practical and vocationally orientated course to enable them to derive the maximum benefit from their schooling. In this phase six compulsory examination subjects are English, Afrikaans, General Mathematics, General Science, History and Geography. In standard 6 the seventh subject for boys is either Technical Drawing or Industrial Arts and for girls either Housecraft or Needlework and Clothing. Generally, in Indian schools, it became necessary to offer Technical Drawing for boys and Needlework and Clothing for girls because of a lack of specialist rooms. The compulsory non-examination subjects are Right Living, Physical Education, Health Education, Aesthetic Education (Art, Music, Manual Training) and School Guidance as a service.(85, 86)

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The senior secondary phase provides for extensive differentiation by offering various fields of study and in certain approved subjects, at a *higher* as well as at a *standard* level. At the end of this phase the children ought to be better equipped for the career they will follow on leaving school. The Department offers courses in six directions of study, namely, Humanities, General, Natural Sciences, Commercial, Home Economics and Technical. While the Natal Education Department initially offered 47 courses that led to Matriculation Exemption and 10 additional courses that led to a Senior Certificate, the Department of Indian Affairs has offered initially no fewer than 113 courses under General and Humanities, 4 Commercial courses, 8 Domestic Science courses, 9 Natural Science courses and 3 Technical courses that all lead to Matriculation Exemption and 29 additional courses that lead to Senior Certificate. However, the number of courses that are being offered in practically all the high schools in rural areas is about three. This is due to the small number of pupils in standard 8, and, often, the lack of specialist rooms and the existing staff-ration formula restricted the number of courses that a school may offer. (87, 88, 89)

The Department described the content and aim of Guidance and Counselling for pupils in terms of a circular minute to Indian schools under its control.(90) Education Planners visited Indian schools in 1974 to discuss with Principals problems that they had encountered in the implementation of

differentiated/

differentiated education. The main problems appeared to be shortage of specialist rooms, inadequacy of the existing staff ration formula and the restricted number of courses offered in rural areas on account of uneconomical teaching units.(91)

The Psychological Services of the Department have been concerned with the welfare of the pupils so that they are educated according to their age, aptitude and ability. In this respect 19 763 pupils in Natal and 3 000 pupils in Transvaal were tested with the Junior, Intermediate and Senior Group Intelligence Tests. The Department has recruited 10 trained teachers in each of the years 1973 and 1974 to undergo a two-year in-service course in guidance at the University of Durban-Westville. 811 educationally backward and problem children were tested in 1973 with the Individual Scale for Indian South Africans. The Psychological Services of the Department works in close co-operation with the Human Sciences Research Council to standardise suitable psychological tests for the Indian pupils.(92)

With the exception of the building programme which is budgetted for by the Department of Public Works, all other expenditure comes from the budget of the Department of Indian Affairs. The implementation of differentiated education has resulted in the revision of syllabuses with behavioural objectives, issue of new text books to pupils and a revised

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and substantially increased list of inventory items and consumables for the different subjects. Salaries, wages and allowances have also been increased by about 17% in 1974 thus causing a significant increase on the budget for Indian education. In the financial year 1970/71 the Department incurred an expenditure of R16 167 350. This amount increased substantially to R26 236 035 in the financial year 1973/74 when differentiated education was introduced. The first budget estimates for the next financial year 1975/76 already exceeds R32 000 000. This expenditure became essential to provide for increased costs of items, better facilities and for improvement in the quality of education for Indians.(93)

2.5.2 The greater responsibility of the Indian community

In his *foreward* message to the Indian community in 1970, the then Minister of Indian Affairs stated that the declared policy of the Government was to promote the development of the Indians in the Republic so that they would eventually control those affairs which are peculiar to them as one of the race groups in this country.(94)

H.A. Prinsloo, the Secretary for Indian Affairs, maintains that the chief object of the Department of Indian Affairs is to guide the Indian population on the road to self-development socially, economically and politically so that the Indians may accept a steadily increasing say and eventually a measure of self-government in, inter alia, education.(95)

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The Professional Section of the Division of Education consists of the Education Planning Section, the Inspectorate and the Psychological Services which are under the direct control of the Deputy-Director (Professional). As at 1 November 1974, there were 6 Indians out of a total of 10 members in the Education Planning Section, 15 out of a total of 50 in the Inspectorate and 5 out of a total of 6 in the Psychological Services.(96)

Of late the Executive Committee of the South African Indian Council has made a number of investigations into educational matters for Indians especially with the acute shortage of school accommodation in certain areas. This Council is expected to be delegated greater responsibilities in the area of education after the elections on 6 November 1974.(97)

In terms of section 30 of the Indians Education Act, 1965, the Minister of Indian Affairs may, for purposes of consultation, recognize associations of Indian teachers. In this respect the South African Indian Teachers' Association is consulted in matters such as teacher training, salaries and qualifications of teachers and pupil welfare. In terms of sub-sections (2) and (3) of section 31 of the Indians Education Act, 1965, as promulgated in Government Notice No. R467 and amended by Government Notice No. R1937, the constitution, functions, appointment and discharge of members of an education committee are fully set out. Provision for the establishment of an education committee at each school enables the Indian parents

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to participate more fully in the education of their children. This committee acts as a liaison between home and school, and community and the Division of Education to ensure that the interests of their children are well catered for. The functions of this committee are, inter alia, the collection of monies for the school fund, to report upon the adequacy or otherwise of educational facilities, to inspect buildings and equipment in consultation with the school principal concerned, and to make representations to the Director in regard to part-time or continuation classes for adults.(98,99,100)

There is apathy and dissension among certain groups of the Indian community with regard to separate development and opportunities that will be made available to members of the Indian community. However, it is envisaged that the Indian community will be expected to play an even greater role as Indians are entrusted with greater responsibilities in the control of Indian education.(101)

2.5.3 Education as an Investment

Initially the Indian parent strove relentlessly to educate his children because of insecurity in this country. The fear of being expatriated always loomed large, and the Indian parent thus deemed it necessary to educate his children to enable them to apply themselves for future roles and occupations if compelled to resettle in a foreign country. Only as late as 1961 were the Indians recognised as part of the permanent population of this country.(102, 103)

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The growth of secondary education was slow but sustained until 1958. In that year there were some 4 000 Indian pupils in secondary schools, that is, 4,4% of the total school population of 90 000. (In 1958 the comparative figure for White pupils was 24%.) The Indians realized that better jobs awaited the better qualified person. In spite of the fact that school attendance was not compulsory beyond class (ii) for Indian pupils in 1974, there were 63 824 secondary school pupils. This constituted 35,32% of the total school population in South Africa.(104, 105)

The vast majority of the Indian population is without adequate capital or material assets. This deficiency in an industrailized country is considered in a serious light by Indians, and the Indian parent thus considers it a sound investment to educate his children to the best of their abilities, attitudes and interests. In business areas too, the smaller Indian retailer is not optimistic about his future competition with the emerging discount commercial firms and "super-markets".(106)

Perhaps the attitude of the Indians towards education as an investment can be seen best when one considers the contribution of the Indian community towards the building of state-aided schools. The fruits of this self-sacrifice are being reaped to-day in that the standard of education for Indians compares favourably with other racial groups in this country. The Indians, almost as soon as they landed on the

South/

South African soil, realized that their salvation lay in the education of their children.(107)

The relaxation of job reservations in industries and other areas of employment augurs well for the better educated Indian. The Indian has come to realize the need to study further, and this is borne out by the insignificant "drop-out" rate of Indian pupils, particularly in primary school education. Parents are encouraging their children to remain at school in order to attain the highest possible qualification because there is a positive correlation between educational attainment and income.(108)

2.5.4 Lowering of the "drop-out" rate

The South African Teachers' Association quoted figures given in Parliament, which are indicative of an appreciable drop in pupil enrolment beyond standard 7. It was stated that while in the first three phases of differentiated education, the total pupil enrolment up to and including standard 7 at the beginning of 1973 was 155 566 pupils, the pupil enrolment for phase four was 21 830 (this was 12,4% of the total pupil enrolment).(109)

A survey was made by the Department of Indian Affairs to assess "the drop-out" rate of Indian pupils from schools, including those children who had never attended school but were in good health.(110) The survey was confined to children between the ages of 7 and 16 years living in Natal and

Transvaal/

Transvaal during the period 1 March 1968 and 1 March 1969. The main findings of this investigation were:

(a) 7 105 children were in attendance at schools but they dropped out for various reasons;

(b) 1 674 children had never attended school although they were in good health; and

(c) The total drop-out was 8 779 children.

This drop-out group constituted about 5,8% of the total number of pupils who were in school between class (i) and standard VIII. The lowering of the drop-out rate is probably attributed to the success of streaming. The Department is of the opinion that this drop-out rate ought to decrease with the implementation of differentiated education. However, cognisance should be taken of the pupils in the practical stream, and who are destined to leave school generally at the end of standard 8.

While school attendance is compulsory for every Indian child who in 1973 or thereafter lawfully enrols in class (i) until he reaches the age of 15 years, it is anticipated that compulsory education will be extended to all Indian pupils as applicable to the White age-group as soon as adequate school accommodation obtains. This will reduce the drop-out rate further, especially in the senior secondary phase.(111)

It has been estimated that some 99% of all educable Indian children between the ages of 6 and 13 years of age were at

school/

school by 1970.(112) The dependancy on child labour is at a minimal because of improved salary and wages and the opening of more lucrative avenues of employment for Indians.

A study by van der Walt shows that it is generally accepted that the drop-out rate of pupils is higher in high schools than it is in the primary schools. It was found that of the 18 586 pupils who were admitted in class (i) in 1966, only 14 730 reached standard 5 in 1970. This shows that 10,7% of the original number either failed or left school. In high schools it was found that of the 10 560 pupils who were in standard 6 in 1966, only 2 145 reached standard 10 in 1970. This accounts for a drop-out rate of 79,7% which in South Africa is phenomenal by White standards for education. A comparative figure for White pupils showed that 50,03% of the pupils under the control of the Natal Education Department reached standard 10 in 1970.(113) However, the holding power of Indian high schools is improving significantly. In 1973 the growth rate of the high school population over the previous year was 6,53% as compared with 1,28% growth in primary schools over the same period.(114)

2.5.5 Compulsory Education

In terms of section 23 of the Indians Education Act, 1965, provision was made for the introduction of compulsory education for Indians. The Minister of Indian Affairs has the power to implement compulsory education if he is satisfied that sufficient and suitable school accommodation is available.

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The regulations relating to compulsory school attendance for Indians was published in Government Notice No. R581 dated 15 April 1966.(115)

In terms of Government Notice No. R63 dated 12 January 1973, the Minister of Indian Affairs declared that regular attendance at a State or State-aided school for Indians in the Republic of South Africa shall be compulsory for every child who in 1973 or thereafter lawfully enrols in class (i) at such school, and that such child shall continue to attend such school regularly until the end of the year in which he reaches the age of fifteen years.(116)

The qualification that the Minister first had to satisfy himself that "sufficient and suitable school accommodation is available" was removed in terms of section 31 of the General Law Amendment Act, 1973 (Act No. 62 of 1973) which was published in Government Gazette No. 3947 dated 23 June 1973, so that the introduction of compulsory education can be expedited.(117)

In terms of Government Notice No. R640 dated 19 April 1974, the Minister, inter alia, removed a further restriction, namely, whereas compulsory education for Indian pupils was to have been implemented for a specific age group in a specific area, the latter requirement of specific area was removed.(118)

However, compulsory education for Coloured pupils in Natal was introduced through Ordinance No. 23 of 1942 whereby children from the age of 7 years to 15 years were obliged to

attend/

attend school.(119) This pattern also differs from White education in this country in that it is obligatory for all White pupils to attend school until they attain the age of 16 in terms of the National Education Policy Act, 1967.(120)

A feature of Indian education in the post-war period was the considerable increase in pupil enrolment. In the period 1936 to 1950, the Asiatic school population rose by 365% (the corresponding percentage increase for Coloured school population in that period was 36%).(121)

The introduction of compulsory education for Indian pupils in stages was considered after a study of the availability of existing school accommodation. It is both educationally desirable and physically possible to introduce compulsory education for all pupils in the age group 6 to 15 years even at this stage. This would inevitably increase the holding power of schools and consequently increase the platoon school population but the Indian community has been accustomed to the platoon school system for over two decades. It will also achieve its educational objective of curbing the drop-out rate at schools.

The advantages that will accrue from compulsory education for Indians are, inter alia, the following:(122)

(a) The majority of the Indian pupils will be able to reach standard 7 by the time they reach 15 years, and this will decrease the drop-out rate substantially.

It/

It should be noted that an early abandonment of formal education is not only a waste of talent but also a waste of public money;

(b) Although it has not reached alarming proportions in Indian schools, the problem of truancy and absenteeism will be gradually diminished;

(c) The use of child labour will be restricted severely;

(d) Compulsory education will help to ensure a higher degree of literacy amongst the Indian community. A higher degree of literacy will enhance the social, economic and cultural aspects of the community. Better and worthwhile pursuit of leisure time will also ensue;

(e) With more skilled and semi-skilled jobs becoming available to Indians, the employers are giving preference to persons with higher educational qualifications. The need for a higher level of education becomes even more essential when it is realised that the Indian community is expected to play an even greater role in serving their own people in terms of the present policy of the government; and

(f) The drop-out rate amongst Indian girls is higher than amongst boys. It is envisaged that, with

compulsory/

compulsory education, the girls will remain longer at schools thereby enriching their community.

The greater holding power of schools will inevitably result in a concomitant increase in the demand for teachers.

2.5.6 Education for the Girls

In early India, because of the rigid caste system operative at the time, the women, like the Sundras or the lowest caste, were forbidden access to the Vedas or holy scriptures. Mahatma Gandhi did much to eradicate this caste system. Unfortunately this cultural pattern prevalent in India also permeated the Indian community in South Africa. The first school, which was opened by Rev. Stott in 1869, had an enrolment of 34 boys only. According to a report, the Indians "refused to have their girls taught to read."(123, 124)

Behr(125) pointed out that a serious defect in Indian education during the period 1927-1963 concerned the education of girls. Of the 3 284 pupils in Indian schools in Natal in 1909, only 324 (9,8% of the total) were girls, and more than half the pupils in attendance were below standard 2. While 74% of the estimated number of boys attended school in 1936, only 30% of the girls were in school. This was due partly to the fact that Indian parents were averse to the teaching of their daughters by male teachers. In 1937 there were 90 male teachers out of a total teaching force of 107. Furthermore, many parents were desirous of keeping their

daughters/

daughters at home as they were required to help in domestic work and to look after their younger siblings.(126)

However, there has been a steady increase in the number of girls at Indian schools. In 1927 there were 1 647 girls, in 1949 there were 16 000 girls, in 1970 there were 76 479 girls out of a school population of 162 976 (46,93%) and by 1974 this number rose to 86 051, that is, 47,62% of the total school population.(127, 128)

In 1950 the then Director of Education in Natal said, in his message to the Natal Indian Teachers' Society, "It is gratifying to see the steady increase in the number of qualified women teachers: they are needed particularly in the infants' and housecraft classes. For a long time Indian parents have been unwilling to allow their daughters to remain at school until they could qualify as teachers: the fact that this prejudice is gradually becoming overcome must be attributed largely to the persuasive pressure brought to bear upon them by teachers."(129)

Reporting on White staff in 1973, the Director of Education in Natal said that more than 70% of Natal's school teachers were women, and this militated against the establishemnt of new separate uni-sex schools. With greater job opportunities for Indian men and if the trend in White education in Natal is anything to go by, it is reasonable to predict that the role of Indian women in the teaching staff will become an increasingly important one.(130)

As/

As at 30 March 1974 there were 2 147 women teachers in Indian schools in South Africa. These teachers constituted 32,58% of the total teaching force of 6 590 teachers. The women teachers should be encouraged to improve their teaching qualifications through in-service training, and the status of women teachers should be placed on par with those of their male counterparts.(131)

2.5.7 School Building Programme

In Natal the Indians were largely instrumental in the provision of schools through self-sacrifice prior to 1950. Though satisfactory progress had been made in Indian education in Natal since 1937, no significant effect had been made on the essential problem of school accommodation for all Indian children of school-going age. The problem continued to grow in magnitude over the years, and it was estimated in 1952 that the number of children for whom there was no school accommodation was 37 000. By the end of 1963 there were some 30 000 pupils in the platoon classes because of a lack of school accommodation.(132)

School accommodation was one of the Department's main problems and challenges when it took over Indian education. At the time of transfer of Indian education in 1966, there was a platoon school population of 33 543 pupils. This population was accommodated at schools in Natal. By March 1974 the platoon school population decreased to 14 754 pupils. Since the transfer of Indian education to it, the Department of

Indian/

Indian Affairs has spent more than R29 million in the period 1967-1973 on the school building programme which included the completion of 22 high schools and 59 primary schools in Natal, Transvaal and the Cape. In order to implement differentiated education meaningfully the Department had to programme additions of specialist rooms that were lacking at existing schools.(133)

The school building programme makes provision for the natural growth of the school population, the elimination of platoon classes, the resettlement of school populations affected by the Group Areas Act and the replacement of unsatisfactory classrooms. The escalating costs of buildings (in 1974 the average cost of a 30 classroom high school was R525 000 and of a 20 classroom primary school was R300 000), the lack of suitable school sites in built-up areas and the closure of many state-aided schools have had a bearing on the rate of reducing the platoon classes. The Department's present "five-year" building programme is being geared to eliminating the lack of school accommodation in the present decade.(134)

The Department of Public Works is responsible for the provision of schools programmed by the Department of Indian Affairs. In addition to the above Major Works Programme, an average of 10 services not exceeding the cost of R20 000 each is undertaken annually in the Minor Works Programme. By 1974 the moentary allocation for the building programme in Indian education was in excess of R5 million.(135)

For/

For every 7 new primary schools, the Department provides 4 new high schools. The demand for school accommodation is based on the norms that for every 35 primary school pupils there is need for 1 classroom and similarly for every 32 secondary school pupils there is need for 1 classroom. School halls were previously built on a R-for-R basis but authority has now been granted by the Treasury of this country for the Department to provide halls at their own cost at high schools when funds become available.(136)

When more school accommodation becomes available for pupils, the pupil-teacher ratio must improve. There are many classes in Indian primary schools which exceed even 40 pupils and there many secondary class units exceeding 32 pupils. Thus an improvement in the pupil-teacher ratio is both educationally sound and highly desirable to implement differentiated education meaningfully for Indian pupils. Based on the Scottish Education Department's recommendations, it was reported in the Scottish Educational Journal that a pupil-teacher ratio of 15 : 1 is highly desirable and essential to meet the individual needs in a classroom.(137)

2.5.8 Technical and Vocational Education

The Republic of South Africa is presently undergoing phenomenal development in the industrial and technological fields. The Indians are expected to play an even more significant role in these fields. The development of technical and vocational education for Indians in Natal was

first/

first mooted in 1927 when the Indian Technical Institute was established. This Institute made steady progress as indicated by student enrolment increasing from 308 in 1931 to 518 in 1942, 919 in 1944 and 1 799 in 1945. Following the recommendation of the Hugho Commission, the M.L. Sultan Technical College was made an institution for higher education in terms of the Higher Education Act, 1923 (Act No. 30 of 1923). This important decision resulted in the establishment of the first Indian Technical College in South Africa with full statutory rights, powers and duties and with an independent College Council. By 1957 this College was firmly established with a full time pupil-enrolment of 400 and some 5 500 students attending extra-mural classes. Thus the College developed rapidly into an institution of major importance in the life of the Indian community.(138, 139)

The M.L. Sultan Technical College, with its branches in Stanger and Pietermaritzburg, functioned under the control of the Department of Education, Arts and Science until 1963. Thereafter this control was transferred to the Department of Indian Affairs. In terms of the Indians Advanced Technical Education Act, 1968 (Act No. 12 of 1968), the M.L. Sultan Technical College was declared a college for advanced technical education. More and more demands are being made on this College to provide training for skilled and professional labour for the growing industries of the Republic.(140, 141)

Stanger/

Stanger M.L. Sultan State Indian High School and Pietermaritzburg M.L. Sultan State Indian High School were transferred to the Department of Indian Affairs in 1968 and 1969 respectively. As at 30 June 1973 the M.L. Sultan College for Advanced Technical Education had a high school enrolment of 446 pupils for technical education. The M.H. Joosub Technical High School in Lenasia, Transvaal, opened with a pupil enrolment of 482 pupils (including pupils in the academic group) in 1974. The demand for high school technical education is expected to grow to 1 718 pupils by 1976. Plans for a technical high school in Clairwood, Durban, have reached an advanced stage. This school is expected to open in early 1977 with a pupil enrolment of 450. At this stage the high school pupils from M.L. Sultan College for Advanced Technical Education are expected to be transferred to the proposed school in Clairwood. The need for the Department to train teachers for technical education becomes even more demanding.(142, 143)

Presently the technical high school section of the College offers secondary technical education identical to that offered by all other technical high schools in this country. Classes commence at standard 7 level and pupils write the National Senior Certificate (with or without Matriculation Exemption). A high school education which contains both academic work and practical vocational training gives tremendous advantage to pupils in view of new openings in employment for the Indian

youth/

youth. The following examination subjects constitute the main curriculum of all courses: English, Afrikaans, Mathematics, Physical Science, Machine Drawing or Building Drawing *plus* one of the following vocational subjects: Woodwork, Woodworking, Brickwork, Plumbing and Sheetmetal Work, Welding, Fitting and Turning, Motor Mechanics and Electrical Wiring.(144)

The teacher training division of the M.L. Sultan College for Advanced Technical Education was transferred to the Division of Education as from the beginning of 1974. Prior to this the College offered education diplomas in Commerce, Home Economics, Physical Education and Industrial Arts. These teachers were placed in high schools, and the minimum entrance qualification to the College was the Senior Certificate.(145)

The remaining divisions of the M.L. Sultan College for Advanced Technical Education are:

(a) Commerce, Secretarial Practice and Management;

(b) Evening School for commercial and academic studies;

(c) Home Economics;

(d) Hotel and Catering Services;

(e) Physical Education, Health and Recreation; and

(f) Technology.

These divisions embrace a great variety of courses for juveniles and adults in both part-time and full-time

programmes/

programmes. Special courses offered by the College include electronics, chemical technology, punch-card and machine accounting courses, health inspection, building draughtmanship, classes for members of the Police force who study both official languages, criminal procedure, common law, criminology and ethnology.(146)

In the light of differentiated education for Indians, a technical field of study is also offered to boys in normal high schools. Where facilities exist, Industrial Arts for junior secondary pupils and Woodwork, Metalwork and Drawing as subjects in the senior secondary phase are offered. In the absence of such facilities Technical Drawing is being offered. In the meanwhile the Industrial Arts centre has been programmed by the Department to all existing high schools which lack them.(147)

2.5.9 Special Education

The Indians Education Act, 1965 defines a handicapped child as one between the ages of three and twenty-three years, who, although deviating from the majority of persons in his age in body, mind or behaviour, can, in the opinion of the Secretary for Indian Affairs, benefit appreciably from a suitable course of education. He requires special education in order to facilitate his adaptation to the community. He cannot attend an ordinary class in an ordinary school because such attendances may be harmful to himself or to other pupils in such a class.(148)

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In dealing with the handicapped, the State prefers to assist financially in the promotion and support of welfare services. There are many special schools and classes for handicapped Indian children.(149, 150)

The New Horizon School for the Blind in Pietermaritzburg is controlled by the Natal Indian Blind and Deaf Society, and it is subsidized by the Department. This school serves the whole Indian community in this country. The Durban School for Indian Deaf is a special, private day school which is housed in hired buildings. Plans for a new school in Mariannhill are afoot. The School of Industries in Newcastle is a school for boys who have been committed to the school in terms of the Children's Act. The purpose of this school is rehabilitation and instruction in a suitable trade. The proposed St. Bruno School of Industries in Newcastle is a school for the girls. The plans for these schools have reached an advanced stage.

Special classes for the mentally retarded pupils have been established at 61 primary schools by 1974. Each year about 15 such classes are established if accommodation is available. The maximum number of pupils in such a class is 20. Teachers in these classes are specially trained with a diploma in special education. It is of educational importance that pupils in these adjustment classes should not be isolated entirely from normal pupils. As soon as the pupils show satisfactory progress, they are transferred to the normal classes.

In/

In adaptation classes the pupils, who are scholastically retarded, receive remedial attention in the ordinary classes. Remedial education and speech therapy have been offered by the University of Durban-Westville to a number of these pupils.(151)

A special school for senior mentally retarded pupils has been programmed. The Department is presently exploring the possibility of establishing such classes at existing high schools.

A school for cerebral palsied children is to be opened at Genazzano, Tongaat, in April 1976.

The Department is presently investigating the possibility of commencing ward classes for children who have been hospitalised for long periods. Such classes are being conducted privately at FOSA Settlement in Newlands, Durban.

2.5.10 Adult Education

From 1972 the Department accepted responsibility for the establishment, control and maintenance of part-time classes for adults. Prior to this the M.L. Sultan Technical College provided adult education at such centres as Chatsworth, Clairwood, Verulam, Tongaat, Port Shepstone and Stanger.(152)

Increasing attention is being given by the Department of Indian Affairs to adult and extra-mural education so that both the general cultural level and the level of literacy of the

Indian/

Indian community may be raised. According to the Secretary for Indian Affairs, every school is being envisaged as a potential centre for adult education. Through its education committees, the Indian community is being encouraged to organize adult education programmes to suit its local requirements.(153, 154)

Candidates are prepared for the examinations of the Department of Higher Education. Tuition is given by teachers in the employ of the Department on a part-time basis. By 1974 there were 9 centres established for adult education. It is anticipated that such classes will commence at Actonwille (Benoni), Wood-Grange-on-Sea and Ramatha Road State Indian Primary School (Pietermaritzburg) in 1975, and in Ladysmith and Newcastle in 1976. The Department provided a sum of R30 880 in the estimates of expenditure for the financial year 1974/75.

2.5.11 Nursery School Education

The value of nursery school education is recognized universally as providing the infant with greater educational experience than would normally be provided in the home. The Department regards nursery school education essentially as a localized facility and it prefers to act as a central controlling body for nursery schools established by private enterprise, local authorities or other organisations. Nursery schools are required to register with the Department so that certain minimum standards governing accommodation, equipment,

personnel, among others, may be maintained. The Department subsidises such registered schools on a per capita basis.(156)

The Department envisages that nursery school education will aim at fostering the general development of the child in the age group two to six years with a variety of activities to develop intellectual growth as well as agility and dexterity.(157)

Presently there are only five registered nursery schools of which 3 are in Natal and 2 in the Transvaal. In 1974 the average pupil enrolment for a nursery school was 33, and the pupil-teacher ratio for such schools in that year was 16,5 : 1. The Department has just completed its investigation into the demand for nursery school education. A new basis is being formulated for the erection, maintenance, staffing and equipping of nursery schools. It is confidently expected that the number of nursery schools will increase when a new basis for subsidy is finalised by the Department.(158)

The training of nursery school teachers was initiated at the Springfield College of Education in 1973. In that year there were 32 students taking a diploma in the pre-school and junior-primary education, while there were an additional 33 students offering a similar course in the third and final year of study. As from 1974 the students commenced specialization for this diploma in their first year of study. In 1974 the number of students who pursued this course in the first year at the Springfield College of Education was 23.(159)

2.5.12 Teacher Training

2.5.12.1 University Education

Prior to 1936, the Indians in South Africa desiring full-time university education sought admission at the University of Cape Town, Witwatersrand, Fort Hare or at an overseas university. Through the stirling efforts of Sir Kunwar Maharaj Singh, the then Agent-General for India in South Africa, the University of Natal permitted Indians to seek admission in 1936. Indians attended part-time classes. In 1936 the Indian student enrolment was 19, 90 in 1942 and 220 in 1948. The students, who were generally teachers and office employees, attended lectures over week-ends.(160)

In 1946, the University of South Africa inaugurated a "Division of External Studies" with a view to providing instruction through correspondence. The enrolment of Indian students in 1946 was 150, in 1958 it was 601 and by June 1974 this number rose to 1 958 students, of whom 21 graduates were registered for the U.Ed. course and 86 graduates were registered for the B.Ed. course. This University was fulfilling a much wanted avenue for university education in the absence of residential universities in many areas.(161, 162)

In terms of the Extension of University Education Act, 1959 (Act No. 45 of 1959), provision was made

in/

in Parliament for the establishment of separate universities for the different race groups in this country. In 1961 a university college for Indians was established at Salisbury Island in Durban. Despite strong opposition from the Indian community with regard to its establishment, 114 students enrolled in the first year in the faculties of arts and science. In terms of Act No. 49 of 1969, this College was elevated to full university status and it was renamed University of Durban-Westville.(163)

By 1972 there were already 2 003 students enrolled at the University of Durban-Westville, of whom 530 or 21% of the total were female students. This University has since its inception come to play an important role in teacher education, and its Faculty of Education can stake a claim to a place in the forefront of teacher education in this country. Indian education has a large legacy of improperly or poorly qualified teachers, but it is hoped that eventually all high school teachers will be graduates, and this University is doing its utmost to help fill that need. In the period 1963 to 1973, the Faculty of Education of this University awarded 394 Primary Education Diplomas, 183 Secondary Education Diplomas, 284 Post-graduate Education Diplomas, 27 Special Education Diplomas and 72 Education Degrees in B.Ed. and M.Ed. The University

offers/

offers diplomas for primary, commercial and lower secondary teachers', the post-graduate University Education Diploma, a B.Ed., M.Ed. and D.Ed. and a new integrated degree, Bachelor of Pedagogics leading to both academic and professional competence.(164, 165)

2.5.12.2 Teacher Training at Colleges of Education

A universal problem in education is the training of an adequate number of teachers who can carry on the educational process efficiently. In the planning undertaken by the Department, the need for more and better training facilities was taken into consideration. In 1973, apart from the University of Durban-Westville, three institutions were responsible for teacher education, namely, the Springfield College of Education, the Transvaal College of Education and the M.L. Sultan College for Advanced Technical Education. At the beginning of 1974, the teacher training division was transferred from the M.L. Sultan College for Advanced Technical Education to the Springfield College of Education.(166)

The Springfield College of Education supplies most of the primary and junior secondary school teachers for Natal while the Transvaal College of Education caters primarily for students from the Transvaal.

Both/

Both these colleges of education offer three-year post Senior Certificate Education Diplomas for Junior Primary, Senior Primary and Junior Secondary. Separate hostels for male and female students at the Springfield College of Education are expected to be ready for occupation in June 1975. This may encourage students outside Durban to offer a teaching course at this College. Until 1972, the Transvaal College of Education was unable to recruit an adequate number of teacher trainees to meet teacher demand in the Transvaal. This leeway for teacher supply was being counteracted by recruiting selected students who passed the Senior Certificate at the "O" level in Natal. Invariably students with the Lower Secondary Education Diplomas in Science, Mathematics, Afrikaans and Commerce teach up to standard 10 level because of a dearth of graduates in these fields. The Department is presently investigating the institution of a four-year post-Senior Certificate course as the minimum requirement for teacher trainees.(167)

Prior to transfer of teacher training to Springfield College of Education, the M.L. Sultan College for Advanced Technical Education offered diplomas in the fields of commerce, home economics, industrial arts and physical education. In 1966 the student enrolment was 23 but this increased to 109 in 1973.(168)

Plans/

Plans for the proposed Transvaal College of Education in Laudium have reached an advanced stage. The first estimated cost of this project is R2 120 000, and it is designed to accommodate 450 teacher-trainees. This College is expected to be ready for occupation by the end of 1979.(169)

2.5.12.3 Bursaries

There has been a steady progress in the provision of financial assistance to would-be teachers, and to-day no student with a Senior Certificate in the Advanced Grade need be hindered by a lack of finance from following a teaching career. The Department now offers a bursary of R500 per annum to students pursuing a teaching course. This bursary covers cost of registration, tuition, books and boarding fees. An amount of R505 500 has been budgetted for the financial year 1974/75.(170)

2.5.12.4 In-service Training and Orientation Courses

The Department inherited a large percentage of poorly or inadequately qualified teachers from the Natal Education Department in 1966. Thus the Department instituted in 1968 a three-year in-service correspondence and vacation course at the Springfield College of Education to enable the above teachers already in service to study for the Natal Teachers'

Diploma/

Diploma. 1 080 teachers initially enrolled for this course, but on account of drop-outs and failures, only 857 teachers attempted the final examination. Of these, 464 passed. In 1974 the Department instituted a M+3 correspondence course at the Springfield College of Education. 1 848 teachers enrolled for this course at the beginning of 1974.(171, 172)

In order to keep teachers abreast of current developments in their subjects and to familiarize them with new approaches in education, regular orientation and refresher courses are held. At the beginning of his career, no teacher can be equipped for all the responsibilities he is going to be confronted by. The continued education of the teacher is envisaged through regular in-service refresher and orientation courses. Some in-service courses enable selected teachers to branch out as specialists, especially in areas which require specialized training, for example, remedial education.(173)

In 1973 the Department organized orientation and refresher courses in Needlework and Clothing, Mathematics and Science, Art, Junior Primary Education (Infant Teaching), Geography, Industrial Arts, Physical Science, Physical Education and Guidance. An amount of R7 178 was provided on the

budget/

budget for this purpose in the financial year 1973/74.(174)

There has been an appreciable increase in the number of teachers trained for Industrial Arts and commercial subjects, and the position has become more favourable towards supplying the demand for such teachers. There is still, however, an acute shortage of teachers in subjects such as Afrikaans, Physical Science and Mathematics especially in the senior secondary phase. The Department is taking the necessary measures to alleviate this shortage with orientation and other specialized "crash" courses for teachers.(175)

2.5.12.5 Consultative Committee for Teacher Training

In 1965 the Minister of Indian Affairs created a permanent Consultative Committee for the further promotion of teacher training programmes. The Consultative Committee, on which only Indian members have a vote, afforded the Indian community an opportunity to participate fully in the educational upliftment of its people. The Committee is responsible for advising the Director on all aspects of teacher education including such problems as the shortage of adequately qualified teachers for Afrikaans, Mathematics, Physical Science and Industrial Arts, improving the qualifications of

teachers/

teachers with low professional qualifications, evaluation of teachers' diplomas and degrees for recognition purposes by the Department, in-service courses for teachers, orientation and vacation courses, seminars for in-service teachers, courses, syllabi and curriculum, bursaries and financial aid to teacher trainees, examination and certification, among others.(176, 177)

2.5.13 Senior Certificate Examination Results

TABLE 2.4

SENIOR CERTIFICATE EXAMINATION RESULTS (1966 - 1973)

YEAR	NO. OF CANDIDATES	FAILURES	PASSES "A" GRADE	PASSES "O" GRADE	UNIVERSITY ENTRANCE	TOTAL NO. OF PASSES
1966	1 555	585 (38%)	-	-	-	970
1967	2 087	908 (44%)	-	-	-	1 779
1968	2 112	998 (47%)	768 (36%)	346 (16%)	250 (11%)	1 114
1969	2 336	936 (40%)	976 (39%)	424 (18%)	426 (18%)	1 400
1970	2 605	1 084 (40%)	822 (30%)	699 (26%)	367 (14%)	1 521
1971	3 350	1 418 (42%)	580 (17%)	952 (29%)	400 (12%)	1 932
1972	3 494	1 259 (36%)	559 (16%)	1 188 (34%)	488 (14%)	2 235
1973	3 773	557 (15%)	1 253 (33%)	1 464 (39%)	499 (13%)	3 216

The above table(178) reflects Senior Certificate Examination results since transfer of control of Indian education in 1966. The Department conducted its own Senior Certificate Examination since 1972, and it will take complete control of

the/

the Senior Certificate Examination in 1975. The table below shows admissions for teacher training:(179)

TABLE 2.5

STUDENT ADMISSIONS TO INSTITUTIONS RESPONSIBLE FOR TEACHER EDUCATION

YEAR	A	B	C	D
1966	1 555	970	557	35,82
1967	2 087	1 779	477	22,86
1968	2 112	1 114	494	23,39
1969	2 336	1 400	397	16,99
1970	2 605	1 521	548	21,04
1971	3 350	1 932	504	15,04
1972	3 494	2 235	277	7,93
1973	3 773	3 216	331	8,77
1974	4 420			

KEY:

A : Total number of candidates who entered for the Senior Certificate Examination;

B : Total number of passes;

C : Number of candidates who actually enrolled at a teacher education institution; and

D : C expressed as a percentage of A.

The above two tables show that the starting point of the problem in meeting future demand for teachers lies in the ability to improve both the quality and quantity of passes at the Senior Certificate level. The results in 1972 and 1973

have/

have shown significant improvements, and this augurs well for the future. However, only about $\frac{1}{8}$ of the total number of candidates, in the last two years, were eligible for admission to a degree at a university.

Although there has been a rapid growth rate in the high school population in recent years, the percentage of suitable recruits for the teaching profession appears to be on the decline. Since the "Ordinary Grade" Senior Certificate candidates were not admitted at Springfield College of Education until 1974 and the admission requirements to faculties such as science at a university are of a high standard, it has become apparent that something radical must be attempted in the direction of better instruction and supervision for the education of the individual. Effective supervision not only recognises the inherent values of each person but attempts to ensure that the full potential of all will be realised. Modern supervision at its finest is both dynamic and democratic, reflecting the vitality of enlightened and informed leadership. The low intake of students for degrees at universities each year indicates that the placement of only graduate teachers in high schools is a far distant cry.(180)

In 1973 just over a third of the total number of graduates were engaged in regular classroom work in high schools. The highly qualified graduates are generally rewarded with promotions, and they are drawn away from the actual classroom situation to do administrative work. The President of the South African Indian Teachers' Society pointed out that

although/

DEPARTMENT OF INDIAN AFFAIRS

FIGURE 2.1

organisation chart of the division of education.

MINISTER

Purpose: To further the development of the Indian community towards self-realisation.

Functions:
1. Creation of opportunities for development in the social, economic and political fields by—
   (*a*) advancement of education;
   (*b*) advancement of welfare; and
   (*c*) liaison.
2. Furthering of the interests of the race group on a regional basis.
3. Provision of administrative services.

SECRETARY

DIVISION OF EDUCATION

DIRECTOR

DEVELOPMENT

ADMINISTRATION

PROFESSIONAL SERVICES SECTION

Function:
1. Planning of instruction in educational institutions.
2. Control of educational standards.
3. Providing school psychological services.

DEPUTY DIRECTOR (PROFESSIONAL)

EDUCATIONAL PLANNING

Aim: Planning of instruction.

Function: Determine courses, syllabi, research.

INSPECTORATE

Aim: Control standards.

Function: General, panel and subject inspections, guidance.

PSYCHOLOGICAL SERVICES

Aim: Supply psychological services.

Function:
1. Providing educational guidance.
2. Carry out psychometric tests.
3. Organisation of special education.
4. Inspection of special schools.

EDUCATIONAL SERVICES SECTION

Function:
1. Provision of education State, State-aided, special schools and Colleges of Education.
2. Rendering clerical assistance at educational institutions.

PRIMARY AND HIGH SCHOOLS

COLLEGES OF EDUCATION

INDUSTRIAL SCHOOLS

UNDER SECRETARY

SCHOOL PLANNING

Function:
1. Determination of requirements.
2. Planning of facilities.
3. Arranging for facilities to be provided.

SCHOOL DEVELOPMENT

Function:
1. Payment of subsidies to State-aided schools.
2. Maintenance of schools.
3. Dealing with subsidised schools.

PUPIL WELFARE

Function:
1. Financial and material assistance.
2. Admission and exclusion of pupils.
3. Medical services.
4. Control over compulsory school attendance.
5. Appointment of school fund committees.
6. Control over spending of school funds.

EXAMINATIONS AND STATISTICS

Function:
1. Arrange for framing of question papers.
2. Printing and distribution of question papers.
3. Marking of scripts.
4. Publication of results.
5. Statistical information.

ADMINISTRATIVE SERVICES SECTION

Function:
1. Attending to matters regarding school accommodation, pupil welfare and examinations.
2. All matters regarding administration of personnel, supplies and office duties.

DEPUTY DIRECTOR (ADMIN.)

Functions:
1. Provide school facilities.
2. Maintenance and repairs at schools.
3. Welfare of pupils.
4. Examination facilities.

Functions:
1. Provide teaching staff.
2. Welfare and disciplinary matters re teaching staff.
3. General office services.
4. Supplies.

UNDER SECRETARY

STAFFING

Function:
1. Determination of staffing requirements.
2. Appointment of teaching staff.
3. Posting of teaching staff.
4. Promotion of teaching staff.

STAFF WELFARE

Function:
1. Leave matters.
2. Pension matters.
3. Bursaries.
4. Retirements.
5. Disciplinary matters.

PERSONNEL

Function:
1. Personal personnel functions.
2. Non-personal functions.

OFFICE SERVICES

Function:
1. Registry.
2. Typing.
3. Library.

SCHOOL SUPPLIES

Function:
1. Purchasing.
2. Supplies section.
3. Furniture and equipment.

although there is state assistance for teacher training, teaching as a profession do not appear to be popular among standard 10 pupils. He maintains that the best students are not entering the profession and that only comparable financial rewards, independence in which to practice a profession, chances of promotion, more attractive salary and service conditions seem to be the main deciding factors in the choice of a career.(181)

2.5.14 Structure and Organisation of the Division of Education

At the head of the Division of Education is the Director of Education, who is responsible to the Secretary for Indian Affairs and finally to the Minister of Indian Affairs. There are two deputy-directors, one for professional services and the other for administrative services.(182)

From a study of Figure 2.1, it is evident that the Division of Education has three sections, namely, the Professional Services, the Educational Services and the Administrative Services.(183, 184)

The Professional Services consist of an Education Planning Section, Psychological Services and the Inspectorate. The Educational Planning Section advises the Director on all aspects of educational policy, and collates the professional aspects of the educational services of the Department. The education planners are responsible for advising the Director on the formulation of policy in regard to such matters as the

introduction/

introduction of new courses, new syllabi or changes in the syllabi, audio-visual education, accommodation problems and transfer of pupils, zoning of pupils, building programmes, teacher training, inventory items and consumables for schools and selection of suitable text books for pupils. The Psychological Services works in liaison with the Human Sciences Research Council in order to standardise suitable psychological tests for Indian pupils. This section is responsible for testing of pupils and advising the Director on the institution of special classes at normal schools. The Inspectorate is responsible for the direction, operation, promotion and control of education, combating routine and encouraging incentive, the improvement of teachers' professional status, the adoption and diffusion of better techniques and the planning of programmes of action. Whereas, in the past, the emphasis by the Inspector was on authoritarian control, prescription and enforcement, it is now on leadership, consultation and guidance.

The Educational Services Section is responsible for the provision of education and rendering clerical assistance to primary and high schools, colleges of education and special schools.

The Administrative Services Section has a bigger staff than the Professional Services Section. Of the 128 posts in this section, 108, or 84,38%, were occupied by Indians. The Deputy-Director for this section has an Under-Secretary for

staffing/

staffing matters and an Under-Secretary for school development under his control.

The Division of Education is represented on a number of national councils. The more important ones are the National Council for Road Safety, S.A. National Council for the Deaf, S.A. National Council for the Blind, S.A. National Council for Care of Cripples, National Council for Audio-visual Education, Human Sciences Research Council, Council for the Provision of Literature for the Visually Handicapped (Department of National Education), S.A. Council for Child Welfare, Joint Matriculation Board and S.A. National Council for Epilepsy. The Division also has its many departmental committees and boards such as the Examinations Board, Consultative Committee for Teacher Training, Education Bulletin Committee, Subject Committees, Management Committee for *"Fiat Lux"*, Promotions Committee, School Development Committee and a committee for the Promotion of Family Planning among Indians.

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CHAPTER THREE

THE NEED FOR PLANNING FUTURE DEMAND FOR AND SUPPLY OF TEACHERS IN INDIAN SCHOOLS IN SOUTH AFRICA BASED UPON CHANGING PATTERNS IN INDIAN EDUCATION AND THE PRINCIPLES ON WHICH SUCH PLANNING IS BASED IN RESPECT OF FUTURE TEACHER REQUIREMENTS

3.1 THE NEED FOR PLANNING FUTURE DEMAND FOR AND SUPPLY OF TEACHERS

The need to plan ahead is underlined in the numerous studies carried out at the national level and, as a result of these, there emerged a government policy which takes the form of a planned provision of places at a university or college of education in the future. Consequently it would be possible to budget for the financial implications. These institutions will then determine their own development programmes in terms of this declared policy. Such factors as the additions to existing buildings, constructing new institutions, the availability of student teachers and the expected demand for places will have to be taken into consideration. Further, the influence of these factors will depend on when such decisions have been taken in the past. For example, a decision to build a new teacher education institution might have been taken a year ago but it may take five more years to find a suitable site, draw and approve plans, erect and bring into commission this institution.(1)

In educational planning it is necessary to survey the future demand for and supply of teachers. This becomes particularly essential for

purposes/

purposes of determining policy and planning for the future. For example, if the Department does not anticipate an adequate supply of teachers five years from now, it might well consider improving the qualifications of temporary assistant teachers. Thus, planning for the future is concerned with the concept of control.(2)

The future demand and supply of teachers will inevitably depend on the trends of school populations in the future. Projection of pupil enrolments is essential in educational planning for purposes of determining its building programme, budgetting for the next financial year and for long-term projects, future demand for and supply of teachers, per capita cost for pupils in the different standards and such other matters. Thus, projections give one an insight into the future patterns while the emerging problems can be controlled through planning. For example, the conscious act of setting up a model is a considerable aid to the precise formulation of practical problems.(3)

Careful planning, both short term and long term, is essential to meet the future demand for teachers in Indian schools in South Africa. Not only must there be an adequate supply of teachers from the colleges of education and the university, but these teacher-training institutions need to recruit suitable teacher-trainees for the various specialisms in the differentiated system of education. The Department is presently experiencing a shortage of specialist teachers in subjects like Physical Science, Mathematics, Afrikaans and Industrial Arts in high schools. Teachers for Junior Primary Education (Infant Teaching), Physical Education (women teachers) and Afrikaans are in short supply

in/

in primary schools.(4)

The availability of more school accommodation will not only help to eliminate the much criticized platoon classes obtaining in Indian education, but also influence the existing pupil-teacher ratio. With the availability of more classroom accommodation, the staff-ration formulae, applicable to Indian schools, can only become more liberal. Presently, there are many class units exceeding 40 pupils in Indian primary schools when the Department's approved norm is 35 pupils per classroom. Similarly there are many class units carrying 40 pupils each when the norm for secondary class units is 32 pupils. Thus the future demand for teachers will be influenced by the present building programme of the Department.(5)

Compulsory school attendance has been gradually introduced beginning from class (i) in 1973, class (ii) in 1974, standard 1 in 1975 and, progressively, a higher standard each year thereafter, until the child reaches the age of 15 years. This will also influence the demand for teachers, especially at the junior secondary level where the drop-out rate is much higher than that for primary schools.(6, 7)

Returns concerning "Boarding and Travelling Allowances" for pupils from principals of both primary and high schools reflect that there is a significant drop-out rate among pupils, especially those in high schools, as many experience travelling or boarding difficulties.(8) The present "boarding and travelling scheme" does not cater for all pupils in need of financial assistance, except the indigent pupils who pass the "means test". However, the Department is currently investigating a revised and improved "travelling and boarding scheme"

for/

for Indian pupils. The proposed scheme is expected to improve the holding power of schools, especially in the rural areas where transport services are poor and often non-existent.

In the past the teachers qualified to teach either in primary schools or high schools. However, the students, presently in training, are being prepared for teaching in the different phases of the differentiated system of education.

3.2 THE USE OF NORMS BY THE DIVISION OF EDUCATION WITH REGARD TO PRIMARY AND HIGH SCHOOLS IN THE VARIOUS PROVINCES OF THE REPUBLIC OF SOUTH AFRICA

3.2.1 Norms for Physical Planning

In assessing the demand for classroom accommodation, provision has been made by the Department not only for the natural growth of the school populations in the different provinces but also for the resettlement of school populations as a result of the Group Areas Act, the replacement of unsatisfactory classrooms, elimination of platoon classes and closure of State-aided schools. The provision of schools for such purposes invariably results in an increased demand for teachers.(9)

The approved norms used by the Department in respect of physical planning of schools in order to meet the potential demand are as follows:(10, 11)

(a) The average size of an Indian family is 6,75 persons of whom 2 are of school-going age, that is, about $\frac{1}{3}$ of the total Indian population based on 1970 State census figures;

(b)/

(b) A primary school with 20 classrooms and specialist rooms will accommodate 720 pupils including an adjustment class. A high school with 30 classrooms and 14 specialist rooms is designed to carry a potential load of 1 152 pupils, that is, including 6 peripatetic class units;

(c) A classroom with a floor space of 44,59m^2 (480 ft.^{2}) is designed to accommodate 35 pupils in a primary school and 32 pupils in a high school. However, schools, which experience pressure for accommodation, place about 40 pupils in a classroom;

(d) The ratio of primary to high school population is 7 : 4, that is, about 63% of the school population will be infant-primary school pupils while the remaining 37% will be high school pupils;

(e) The size of school sites suitable for infant-primary schools is 2 to 3,2 hectares (5 to 8 acres), and high schools 3,2 to 6 hectares (8 to 15 acres);

(f) Where Indian residential areas are being planned and developed by local authorities, sites for schools are reserved in compliance with the accepted norms; and

(g) Where sufficient and suitable land is not available, especially in built-up areas, multi-storey buildings have been designed even for infant-primary schools.

3.2.2 Norms for Indian school populations

The norms and principles used by the Department are as follows:(12, 13, 14)

(a) The growth pattern for the Indian school populations in the various provinces of the Republic is based on the 1970 census figures;

(b) In 1971 about 27% of the Indian population was in schools. The corresponding figure for Whites in South Africa was 25%. The growth patterns for the different provinces also varied. In the Transvaal, for many reasons, the growth rate for Indians is closer to the figure for Whites than in Natal. The Department assumes that 28% of the Indian population in Natal and 25% of the Indian population in the Transvaal will be in schools by 1980. The figures for the Cape are not reliable at present because of the large number of Indians who prefer to identify themselves with the Cape Malays and Cape Coloureds for political, economic and social reasons;

(c) The following table gives the facts and projections as derived from the 1970 census figures:

TABLE/

TABLE 3.1

PROJECTION OF 1980 POPULATION FOR DIFFERENT PROVINCES

YEAR	NATAL POP.	NATAL %	TRANSVAAL POP.	TRANSVAAL %	CAPE POP.	CAPE %	TOTAL POP.	TOTAL %
1960	395		64		18		477	
1970	518	2,8	81	2,3	22	1,6	620	2,7
1980	680	2,8	102	2,3	25	1,6	807	2,7

N.B.: (i) Population figures are given to the nearest thousand; and

(ii) Percentages and totals were derived from unrounded figures;

(d) The growth patterns of school populations in the various provinces differ. For purposes of projecting school populations, the Department is currently using the following norms for the various provinces:

TABLE 3.2

GROWTH RATE NORMS FOR THE DIFFERENT PROVINCES

PROVINCE	PRIMARY SCHOOLS	HIGH SCHOOLS	TOTAL SCHOOL POPULATION
Natal	1,1%	8,1%	3,1%
Transvaal	0,7%	2,9%	1,5%
Cape	no approved norms		

N.B.: There are no approved norms for the Cape because there is only 1 Indian school in the Cape to-date. By 1974 the Woolhope State Indian High School in

Port/

Port Elizabeth accommodated pupils from class (i) to standard X. The majority of the Indian pupils in the Cape are in Coloured schools, the largest concentration being in Cape Town, East London and Kimberley. The Department assumes that each new school provided by 1976 for the Indians in the Cape will be fully accommodated.

(e) Annually it is necessary to use differentiated norms for the different provinces because of the irregular growth patterns for Indian school populations in recent years. The contributory factors for this irregularity are, inter alia:

(i) The institution of the platoon school system by the Natal Education Department because of a lack of accommodation, resulting in an abnormally large intake of class (i) pupils;

(ii) The impossibility of admitting all the children of school going age and a waiting list existing in many schools, with preference being given to older children;

(iii) The tendency of the older children to leave school when they had gained a degree of literacy, especially in the case of older girls;

(iv) The admission of the last of the children on the waiting lists in 1966, resulting in high failures for class (ii) in 1967, standard 1 in 1967 and 1968, standard 2 in 1967, 1968 and 1969, and standard 3 in 1967 to 1970 although the tendency to

leave/

leave school had an effect here too;

(v) The transfer of education to the Department of Indian Affairs, when a new age limitation was imposed for admission to schools, resulting in an abnormally low intake of class (i) pupils in 1967. Other factors, such as the inability of parents to supply suitable proof for ages of children also contributed to this low intake;

(vi) The abnormal intake appears to be influenced by "school readiness" of children in the lower sub-economic groups of the Indian community; and

(vii) The fact that the first written examinations were held at the end of standard 3 could also account for the high failure rate and, further, the high pupil enrolment in standard 3. High enrolment figures are characteristic of standard 6 classes in the various years. In addition, streaming commences at the end of standard 5 where we see a high failure rate especially where such classes are at high schools.

Thus there appeared to be no clear-cut pattern on growth patterns for the various classes in Natal. The Department made a study of pupil enrolments in 1971 from class (i) to standard 3. The growth rate in class (i) appeared to be in the order of 8% p.a. and for class (ii) about 9% p.a., while there was a

decrease/

decrease of 8% p.a. in both standards 1 and 2 with a levelling off in standard 3, and a steady growth thereafter.

(f) A review of the norms for Natal in 1974 indicates that the average total growth rate over the last five years shows a close correlation to the Department's approved norm of 3,1% p.a. However, the growth rate patterns for both primary and high school populations fluctuated annually as it is evident from Table 4.1. The contributory factors for this irregular pattern appear to be those indicated in paragraph (e). The new differentiated system of education also has a bearing on pupil enrolments in standard 6 (beginning for streaming of academic group pupils from those of practical group), standard 7 (end of third phase) and standard 8 (beginning of last phase).

(g) The growth patterns for primary and high schools also change annually. The low intake of class (i) pupils in 1967 had affected the primary school population growth rate adversely in the period 1967 to 1973 (vide Figure 4.2). In the same period the growth rate in high schools was high, and there was also a lower drop-out rate of high school pupils. This low point of 1967 has moved into the high school populations of Natal and Transvaal in 1974. This movement increased the growth rate of primary school population significantly and simultaneously it has caused a decrease in the growth

rate/

rate of high school population in subsequent years until the low-point moves out of the high school sector at the end of 1978. Thereafter, it is anticipated that the pattern for the different classes will not be chequered but would be more regular.

(h) In pupil projections for the Cape, all the known Indian pupils in Coloured schools together with the only Indian school at Port Elizabeth have been taken into consideration. However, for teacher demand, only the schools that are and will be under the control of the Department of Indian Affairs need to be taken into consideration. The average compound growth rate at Woolhope State Indian High School for the period 1971 to 1974 was 7,3% p.a. It has to be borne in mind that this school started initially with the top standard as standard 7 in 1971 and progressed standardwise annually. It is anticipated that Cravenby State Indian Primary School and Rylands State Indian High School, which are 20 and 30 classroom schools respectively, will both be ready and fully accommodated at the beginning of 1976 in Cape Town. Kimberley State Indian Junior Secondary School with 10 classrooms and specialist rooms is expected to be ready for occupation early in 1977. The Department has also planned a 20 classroom high school for East London and a primary school with 3 classrooms for Mafeking. The latter two schools are expected to be ready for occupation towards the end of 1980. Apart from the larger areas, the Indians are scattered sparsely

all/

all over the Cape. This presents the Department with the problem of providing school accommodation for all Indian pupils in their own areas. The need for such pupils to board out or travel daily to attend Indian schools exists.

3.2.3 A review of the norms and principles used by the Department of Indian Affairs (Division of Education)

By and large the norms and principles described in paragraph 3.2.2 have been approved by the Department of Indian Affairs in 1971. Since then a more regular pattern is emerging in Indian education. It, therefore, becomes necessary to review certain norms regarding growth rates of school populations and certain principles for purposes of projecting pupil enrolments. Some of the revised norms and new principles used for pupil projections in the following *Chapter Four* are as follows:(15)

(a) The distribution of White children may be calculated by using figures given by Kies in an article published in the journal Spectrum 74.(16) The model for the White school population in 1980 is given as factors for the different standards where the factors are expressed as percentages of the total pupil population.

TABLE/

TABLE 3.3

A MODEL FOR CLASS DISTRIBUTION OF WHITE PUPILS BY PERCENTAGES

STANDARD	%	PHASES (%)
class (i)	8,9	
(ii)	8,7	
std. 1	8,6	Phase 1 : 26,2%
2	8,6	
3	8,7	
4	9,0	Phase 2 : 26,3%
5	8,6	
PRIMARY TOTAL	61,1	
6	8,5	
7	8,2	Phase 3 : 25,3%
8	8,5	
9	7,9	
10	5,8	Phase 4 : 22,2%
HIGH TOTAL	38,9	

It would seem that a more realistic distribution for Indian pupils would be the following mathematical model:

TABLE/

TABLE 3.4

A POSSIBLE MODEL FOR CLASS DISTRIBUTION OF INDIAN PUPILS BY PERCENTAGES

STANDARD	%	PHASES (%)
class (i)	9,35	
(ii)	9,32	
std. 1	9,16	Phase 1 : 27,83%
2	9,14	
3	8,83	
4	8,71	Phase 2 : 26,68%
5	8,49	
PRIMARY SCHOOL TOTAL	63,00	
6	9,72	
7	8,88	Phase 3 : 27,09%
8	7,53	
9	5,93	
10	4,94	Phase 4 : 18,40%
HIGH SCHOOL TOTAL	37,00	

The above distributions show that primary school pupils constitute 63% of the total while the remaining 37% comprise high school pupils. A comparison of the models for Whites and Indians shows that phase 1 (class (i) to std. 1) and phase 2 (stds. 2 to 4) are overloaded for Indians. This is also true of phase 3 (stds. 5 to 7). Contributory factors for the above distribution for Indians are attributed to various factors such as lack of school readiness, lack of stimulation in country districts, lack of compulsory school attendance excepting for class (i) and class (ii)

pupils/

pupils by 1974 and, in general, educational deprivation.

(b) While the model for Indians described in the paragraph (a) appears to be realistic for middle-range planning, there is an imbalance in the distribution of Indian pupils as compared to the White pupils. It is suggested that the class distribution of Indian pupils in Natal in about 1980 will be as follows:

TABLE 3.5

SUGGESTED MODEL FOR CLASS DISTRIBUTION OF INDIAN PUPILS IN NATAL IN 1980 BY PERCENTAGES

STANDARD	%	PHASES (%)
class (i)	10,78	
(ii)	11,36	
std. 1	9,88	Phase 1 : 32,02%
2	9,42	
3	9,87	
4	8,33	Phase 2 : 28,77%
sp. cl.	1,15	
std. 5	6,82	
PRIMARY SCHOOL TOTAL	67,61	
std. 6	6,29	
7	7,70	Phase 3 : 20,81%
8	7,53	
9	5,93	
10	4,94	Phase 4 : 18,40%
HIGH SCHOOL TOTAL	32,39	

Phase 1/

Phase 1 includes pupils in the nominal classes, that is, for those pupils who did not make satisfactory progress to be promoted from class (i) to class (ii). Phase 2 includes pupils in the special or adaptation classes. Further, if the above class distribution is acceptable for the present (1974) then 18,4% of the total or 28 938 in Natal should have been in phase 4 (stds. 8 to 10). However, the actual number of phase 4 in Natal in 1974 was 18 889. This discrepancy can be understood when one appreciates the high drop-out rate especially in phase 4. With the introduction of compulsory school attendance for class (i) pupils in 1973 it is assumed that this drop-out rate will improve considerably by 1984. It is for this reason that the mathematical model set out in this paragraph is recommended for pupil projections. This implies that annually phase 4 will grow significantly until a more stable pattern is attained by 1984.

In the proposed mathematical model for Indian pupils in Natal, the distribution of primary school pupils to high school pupils is 67,61 : 32,39 or approximately 2 : 1. If, however, standard 5 is considered strictly as part of junior secondary education, then the distribution of primary school pupils to high school pupils will be 60,79 : 39,21 or approximately 3:2.

(c) Both Professor J.L. Sadie of the University of Stellenbosch and Dr F.A. van Rensburg of the Human Sciences Research[17,18]

Council/

Council separately recognise the need to forecast pupil populations based on the total Indian populations. Until now the Department of Indian Affairs has based its pupil projections on the actual trends of pupil distributions in the various standards.(19) The above-mentioned authorities on pupil and population projections point out that the inherent weakness of projecting figures based purely on pupil enrolments is that one cannot readily build in the "drop-out" figure and one cannot visualise the fertility rate, the mortality rate and the migration patterns of Indians in South Africa which will all influence the future patterns of Indian school populations. However, Sadie and van Rensburg recognise that there has been a significant under-counting in census figures, and they build-in a correcting factor in order to arrive at a more realistic projected figure.

(d) The Department has been using approved constant figures as norms, but, both Prof Sadie and van Rensburg realise that the changing patterns of Indian populations should be taken into account. Hence the growth rates for the different provinces vary annually.

(e) The use of a mathematical model to project class distributions for Indian pupils becomes necessary in order to build-in factors such as the low-points in intake of beginners in a particular year and policy

decisions of the Department for the future.

(f) Over the last five years the total pupil population in phases 1, 2 and 3 has grown at an average compound growth rate of 2,2% p.a. while the total for all pupils grew at 3,1% p.a. This increase in total growth rate is due to the disproportionate growth in phase 4.

(g) Graph trends, demographic studies and mathematical models have been used to arrive at a more realistic pupil projection.

(h) There is a large number of Indian pupils in Coloured schools in the Cape, and a significant number of Coloured pupils in Indian schools in the Transvaal. When Indian schools are built in their respective areas, it is expected that these Indian pupils will be transferred from the Coloured schools. As at June 1974 there were 3 740 Indian pupils in Cape Coloured schools[20] while there were 676 Indian pupils in Transvaal Coloured schools.[21] Similarly, the Coloured pupils in Indian schools in the Transvaal are being transferred to Coloured schools as soon as such schools are built. It is for this reason that there appears to be practically no growth of pupil population in Indian schools in the Transvaal especially when it is considered that the total school population in the Transvaal in 1974 was 22 529.

3.3/

3.3 A BASIS FOR DETERMINING FUTURE TEACHER REQUIREMENTS IN THE VARIOUS PROVINCES

3.3.1 The teacher demand was determined separately for each of the four phases, the primary and high school totals and total of all teachers.

3.3.2 The projected figures have been determined separately for each of the provinces.

3.3.3 The Department uses the existing pupil-teacher ratios to forecast the future demand for teachers. The last pupil-teacher ratio used by the Department was for 1973. The figures as at 30 March 1974 for pupil and teacher populations in the various provinces were used as a guide to arrive at a suitable pupil-teacher ratio. In this respect, it may be mentioned that the Department is currently investigating the need to revise the existing staff ration formula for Indian schools.(22) The anticipated staff-ration formula is expected to be more liberal especially if it is considered that additional teachers for library (resource centres) and Guidance and Counselling are not catered for in the existing staff-ration formulae.(23)

The pupil-teacher ratios have been arrived at for primary and high schools separately for each of the provinces Natal, Transvaal and the Cape. In these pupil-teacher ratios, class (i) to standard 5 is considered to be primary school section while standard 6 to standard 10 is considered to be high school section. Although standard 5 is really the beginning of the junior-secondary phase, over 90% of the

pupils are in primary schools. Where figures for each phase are given separately, phases 1 and 2 are primary school sections and phases 3 and 4 are secondary school sections.

3.3.4 A need arose to revise the existing staff-ration formula because of the difficulties experienced by the teaching staff in implementing the new differentiated system of education. A sample study[24] of 36 schools by the Department using the proposed new staff ration formula revealed that it was liberal to the extent that there will be a general increase of 12% in the number of staff-members at a school. Further, if the proposal that the additional posts of Remedial Teacher, Teacher Librarians and Guidance Counsellors are to be considered over and above the present posts applicable to Indian schools, the over-all increase of teacher population is expected to increase by 21,5%. Statistically, this would mean, if the proposal that an increase of 12% is approved for 1976, 1 297 additional teachers would be required while if the second proposal is implemented then 1 407 additional teachers would be required (vide Table 4.26). With present supply of teachers from teacher training institutions, it is evident that it is not practicable to apply the second proposal at this stage. Apart from the fact that there are too few teachers adequately qualified to teach remedial education, school guidance and counselling and school library which are essential for the successful implementation of differentiated education, schools will be grossly understaffed for the forseeable future. The more liberal staff ration formula will result in more platoon

classes/

classes because of a lack of school accommodation. However, the second proposal should also be acceptable and the Department should plan immediately to overcome this proposed back-log.

3.3.5 The present staff-ration formula used by the Department takes into cognizance both the minimum number of hours per week for teaching in the various categories of posts and the number of pupils at a school. This causes undue hardships to teachers of English, when the classrooms are loaded with pupils averaging 40 in a class. The proposed staff-ration formula is based on pupil enrolments only, and the principal is expected to use his disrection when alloting hours of teaching time to a particular teacher on his staff. Further, while the present staff-ration formula takes into consideration primary and high school sections separately, the proposed staff-ration formula takes into consideration the phases. As for the platoon school enrolment at a school, the staff requirement was worked out separately from that of the morning session staff. Practical experience showed that schools invariably lost a teacher in such schools. Thus pupil enrolments at both the sessions are considered as one for purposes of determining staff requirements in the proposed formula.(25)

3.3.6 In determining the future demand for teachers, the existing staff ration formula has been used to obtain the number of teachers required for 1975. The proposed staff ration formula is expected to be implemented by the Department in 1976. For the period 1976 to 1980 it is anticipated that the first proposal of 12% increase in general staff requirements will be

implemented/

implemented. After 1980 the general staff-requirements are expected to be increased by an additional 10% (the second proposal being 21,5%).

Using the figures as at 30 March 1974 for pupil and teacher populations in the various provinces, the following pupil-teacher ratios were calculated for the present:(26)

TABLE 3.6

1974 PUPIL-TEACHER RATIOS FOR THE DIFFERENT PROVINCES

PROVINCE	PRIMARY SCHOOLS			HIGH SCHOOLS		
	PUPILS	TEACHERS	RATIO	PUPILS	TEACHERS	RATIO
Natal	114 655	3 926	29,20:1	42 617	1 734	24,58:1
Transvaal	14 995	507	29,58:1	7 534	389	19,37:1
Cape	631	23	27,43:1	283	11	25,73:1
TOTAL	130 281	4 456	29,24:1	50 434	2 134	23,63:1

It must be noted that standard 5 has been included in primary schools by the Department for purposes of determining pupil teacher ratios.

Using the first proposal of 12% increase in staff, the following pupil-teacher ratios were calculated:

TABLE/

TABLE 3.7

PUPIL-TEACHER RATIOS USING PROPOSED 12% INCREASE OF STAFF

PROVINCE	PRIMARY SCHOOLS			HIGH SCHOOLS		
	PUPILS	TEACHERS	RATIO	PUPILS	TEACHERS	RATIO
Natal	114 655	4 397	26,07:1	42 617	1 942	21,94:1
Transvaal	14 995	568	26,40:1	7 534	389	19,37:1
Cape	631	26	24,27:1	283	12	23,58:1
TOTAL	130 281	4 991	26,10:1	50 434	2 343	21,53:1

After 1980 a further increase of 10% in staff requirements for schools is expected as a result of the second proposal mentioned above. The following pupil-teacher ratios were calculated using the second proposal:

TABLE 3.8

PROPOSED 1980 PUPIL-TEACHER RATIOS FOR THE DIFFERENT PROVINCES

PROVINCE	PRIMARY SCHOOLS			HIGH SCHOOLS		
	PUPILS	TEACHERS	RATIOS	PUPILS	TEACHERS	RATIOS
Natal	114 655	4 790	23,94:1	42 617	2 115	20,15:1
Transvaal	14 995	619	24,22:1	7 534	389	19,37:1
Cape	631	28	22,54:1	283	13	21,77:1
TOTAL	130 281	5 437	23,96:1	50 434	2 517	20,04:1

It/

It is anticipated that sufficient school accommodation will become available by 1980, and that the above pupil-teacher ratio can be implemented despite the fact that the more liberal staff-ration formula will entail employment of more teachers. However, it is by no means, as liberal as the approved pupil-teacher ratio, for example, as in the Scottish Education Department. Here the Scottish Government was planning for a pupil-teacher ratio of 15 : 1 in the session 1977-78, and considering making even this ratio more liberal.(27)

For the period 1976 to 1980 the pupil-teacher ratio for Transvaal high schools should have been 17,28:1 and after 1980, this ratio should have changed to 15,86:1. However, the present pupil-teacher ratio for Transvaal high school pupils is 19,37:1 which is far more liberal than that for Natal or Cape, even for the period after 1980. The present pupil-teacher ratio for Transvaal high schools has been, therefore, left unchanged.

3.4 THE "WASTAGE FACTOR" IN THE TEACHING ESTABLISHMENT

In assessing the demand for teachers, the Department has to plan not only for the natural growth of school populations in the various provinces but also for suitable and a sufficient number of teachers as replacements in existing teaching posts. This latter requirement is called the "wastage factor". Generally, the wastage factor constitutes resignation of teachers, deaths, retirements and termination of services of teachers who are not adequately qualified.

On/

On transfer of education to the Department of Indian Affairs, Indian education had a large legacy of improperly or poorly qualified teachers. The Department's immediate aim was to improve the qualification of such teachers and to replace such teachers with adequately qualified teachers when necessary.(28) Even by 1968 there were as many as 2 015 teachers in a temporary capacity in both Natal and the Transvaal. A number of these temporary teachers comprised married women who may qualify for permanent appointment.(29)

In 1972 it was found that 2,5% of the actual number of teaching posts was taken up by locos tenentes, part-time teachers and the like. In 1973 such incumbents filled 2,2% of the teaching posts.(30)

The table below indicates the wastage factor operating in Indian schools in Natal and Transvaal. Figures for the period 1967 to 1973 have been calculated using figures obtained from Department's files. However, the figures for the period 1969 to 1971 were given as combined totals for Natal and Transvaal in these files. These averages have been reflected against both provinces but, from the pattern that emerges, it would seem that these averages are on the higher side for Natal and on the lower for the Transvaal. The wastage factor has been expressed as a percentage of the total teaching staff in that province.(31)

TABLE/

TABLE 3.9

WASTAGE FACTOR FOR DETERMINING TEACHER DEMAND IN NATAL AND TRANSVAAL

NATAL

	1967	1968	1969	1970	1971	1972	1973
Resignations	97	154	291	311	264	93	86
Retirements	4	5	20	28	22	16	17
Deaths	13	16	20	17	20	26	23
Terminations	60	167	268	254	247	41	9
TOTAL	174	342	599	610	553	176	135
WASTAGE FACTOR (%)	3,63	7,09	10,44	10,33	9,05	3,30	2,39

TRANSVAAL

	1967	1968	1969	1970	1971	1972	1973
Resignations	35	116				59	61
Retirements	4	3				3	0
Deaths	4	8				2	1
Terminations	-	91				53	7
TOTAL	43	218	*	*	*	117	69
WASTAGE FACTOR (%)	4,82	24,41	10,44	10,33	9,05	13,00	7,70

*The wastage factors for the period 1969-1971 are given as averages for Natal and Transvaal combined.

The/

The wastage factor in Transvaal schools has been higher than that for Natal schools because of a higher incidence of the rate of resignations among teachers in that province. This higher resignation rate in the Transvaal is attributed to factors such as the more lucrative careers open to Indians in commerce and industry and the lower qualifications, and hence lower salaries, of teachers compared with their counterparts in Natal. The Department terminated a large number of unqualified teachers in the Transvaal in 1968 after the transfer of Indian education from the Transvaal Education Department to the Department of Indian Affairs in April 1967. In the meanwhile the Department instituted in-service correspondence course to enable the lowly qualified teacher to get at least an M+2 grading. Personal guidance by the Inspectorate and informative articles on new approaches in teaching were published in the Education Bulletin, a publication for teachers. In order to make up for the shortfall in the demand for teachers, students from Natal, particularly with a good Senior Certificate "O" level, were recruited to the Transvaal College of Education. The wastage factor for Transvaal schools improved significantly in 1973, and in that year it did not become necessary for the Department to recruit any Natal students for the Transvaal College of Education. This wastage factor is expected to drop over the years and the Department now has just over 150 Indian teachers who are not adequately qualified. Further, the Department cannot afford to terminate lowly qualified teachers any further because the demand for teachers is expected to exceed the supply when the proposed staff-ration formula is implemented.(32)

The/

The wastage factor dropped in 1972 when 423 teachers successfully completed the first in-service correspondence course for a matriculation plus two years professional qualification in November 1971. A two year correspondence course for in-service teachers leading to an M+3 grading was instituted by the Department in 1974. 1 848 in-service teachers have enrolled for this course. It is expected that these in-service courses will not only improve the qualification of teachers and the quality of teaching but will improve the holding-power of teachers in the establishment.(33)

The wastage factor for Natal schools for purposes of forecasting will be reduced to resignations, retirements and deaths. The factor used is 2,2% in 1975, 2,1% in 1976 and 2% in 1977 and thereafter.

The wastage factor for Transvaal schools used for purposes of forecasting is 7,5% in 1975, 7% in 1976, 6,5% in 1977, 6% in 1978, 5,5% in 1979 and 5% in 1980 and thereafter.

The wastage factor for Cape schools has not been determined. Presently, there is only one school for Indians in the Cape. In 1973 there were no resignations, retirements, deaths or terminations at this school and, hence, the wastage factor was 0%. It is expected that the pattern will be largely the same as for Natal where more lucrative occupations are not easily available as in the Transvaal. The wastage factor used for purposes of forecasting is 0% for 1975, 0% for 1976 and 2% in 1977 and thereafter. By 1977 there are expected to be at least two high schools and a primary school for Indians in the Cape.

3.5/

3.5 INSTITUTIONS RESPONSIBLE FOR TEACHER EDUCATION

The effect on institutions training future teachers arising from the Gericke Commission is that the Minister of Education ruled, in terms of Government Notice No. 1103 published in the Government Gazette dated 10 July 1970, that the training courses for secondary school teachers being offered by the various colleges of education be gradually phased out and discontinued after 31 December 1976.(34) In the main, the supply of teachers for high schools will come from the University of Durban-Westville, while the supply of teachers for primary schools and for certain specialist subjects like Industrial Arts, Domestic Science and Physical Education will be supplied largely by the two colleges of education, namely, the Springfield College of Education, Durban, and the Transvaal College of Education, Johannesburg.(35)

The supply of teachers is based on the actual student enrolments in the various years of study, the student pass rate and the assumption that the ideal of demand and supply of teachers for Indian schools will be reached by 1980.

Both the Springfield College of Education and the Transvaal College of Education offer three-year post Senior Certificate courses in Education Diploma (Junior Primary), Education Diploma (Senior Primary) and Education Diploma (Junior Secondary). At the Springfield College of Education only candidates in possession of the Senior Certificate (Advanced Grade) are accepted. At the Transvaal College of Education selected candidates with a good Senior Certificate "O" level pass were also accepted because of a shortage of candidates who passed the Advanced Grade Senior Certificate in the Transvaal. In the past it

was necessary to recruit such students even from Natal.(36) Additional accommodation and a hostel for students are nearing completion at the Springfield College of Education, and this will enable the College to increase its maximum student enrolment from 500 to 750. The Transvaal College of Education is expected to be replaced by the proposed Laudium College of Education, at Pretoria, which is a two million rand project. This proposed College is designed to carry a potential load of 300 students while the present Transvaal College of Education can have a maximum student enrolment of 200 students.(37)

The University of Durban-Westville supplies teachers for B.Paed. (Arts), B.Paed. (Science), B.Paed. (Commerce), B.Paed. (Primary Education), University Higher Diploma in Education (Post Graduate), Lower Secondary Teachers' Diploma, Primary Teachers' Diploma, Special Education, Primary Teachers' Certificate, University Diploma in Education, Diploma in School Counselling and Diploma for Teachers of Children Handicapped in Speech and Hearing, among others.(38)

The holding power of the teacher training institutions for the diverse courses has been very good. The number of students who abandoned their courses or were eliminated from these institutions during the year 1973 has been negligible. Further, the percentage passes of students in the final year of study at the colleges of education generally exceeded 90%.(39, 40)

3.6 SCHOOL ACCOMMODATION AND ITS INFLUENCE ON THE CHANGING PUPIL-TEACHER RATIOS

As a result of new schools opening during 1973/74 and additions to existing schools, there was a decrease in the number of pupils in

platoon/

platoon classes. However, by March 1974 there were still 14 754 pupils in platoon classes. This lack of sufficient school accommodation resulted in overloading of classrooms in many areas. It was not uncommon to see class units in excess of 40 pupils in primary schools because a number of principals preferred to overload the classrooms to avoid the institution of platoon classes. This resulted in a high pupil-teacher ratio especially in densely populated areas.(41)

In Chatsworth/Shallcross area there were 41 primary schools in 1974. The pupil-teacher ratio in that area for primary schools was 31,1:1 while the pupil-teacher ratio for primary Indian schools in South Africa was 29,2:1 in that year. Thus, with the availability of more classrooms accommodation, it is expected that the platoon classes will be eliminated and the loading on the classroom will be eased.(42)

The Department has programmed 68 high schools and 62 primary schools in Natal, Transvaal and the Cape for the present five year (1975-1979) building programme at an estimated cost of just over R40 million. These services will provide some 3 000 additional classrooms which will decrease the classroom loading considerably. This will inevitably improve the pupil-teacher ratio in both primary and high schools. The need for more high schools arises from the Departmental policy to accommodate all standard 6 pupils in high schools as soon as possible and also standard 5 pupils where accommodation is available in high schools. Further, the growth rate in high schools was much higher than for primary schools up to 1972, and this resulted in a serious shortage for high school accommodation.(43)

Thus/

Thus, if the implementation of the proposed staff-ration formula is to become meaningful, the need for more school accommodation becomes even more evident.

3.7 USE OF MODELS IN DECISION MAKING

The use of the model[44] in decision making is evaluated in terms of the adequacy of the model as a description of the past and a reliable predictor of the future. In order to improve the latter characteristic, it is necessary to understand not only *how* things changed in the past but *why*. As an example, the number of university entrances provided in the past will have a bearing on the flow of graduates. The decision to extend courses at colleges of education will affect the supply of adequately qualified teachers in certain specialist subjects.

Although a model can be enrichened by such factors as introduction of structural relationships and decision variables, it is still possible to adopt a naïve view of its relation to decision making. Once the decision maker has been provided with a forecast he had required, he may find that future patterns indicated an undesirable future. He may then conclude that it is not a good policy to pursue. It may then become necessary to devise another policy and construct a new model in the hope that it would show improvement.

The Department, in considering the educational objectives, ought to reflect the manpower needs of the economy, the needs of the society and the desires of the individuals. Further, it is necessary to reconcile any conflicts between the different objectives. Other problems that affect future educational planning embody the identification of decision variables. This soon becomes evident when alternate policies soon come to light. The presence of imponderables

always/

always presents a difficulty to the researcher who wishes to construct a model. For example, the researcher cannot estimate with certainty when an M+4 course (a four year post Senior Certificate diploma) will be instituted for Indian students at colleges of education.

3.8 BOTTLENECKS

According to Armitage, Smith and Alper[45], a bottleneck may be said to exist wherever a flow is not simply the result of the demand for places (or posts) but *may* be determined by the supply of places. It should be noted that this definition does not imply that the demand for places does not exceed the supply of places so that the flow would become determined by the supply. In practice the administrative policy will limit the number of places that are to be provided in each individual sector. However, there is no legal obligation to accept students who are in excess of the demand for teacher education and, consequently, students are turned away with the result that their interests will not be fully developed. For example, despite the fact that not all the best students avail themselves for teacher education, in Natal, students are admitted to colleges of education and the universities on a selective basis.

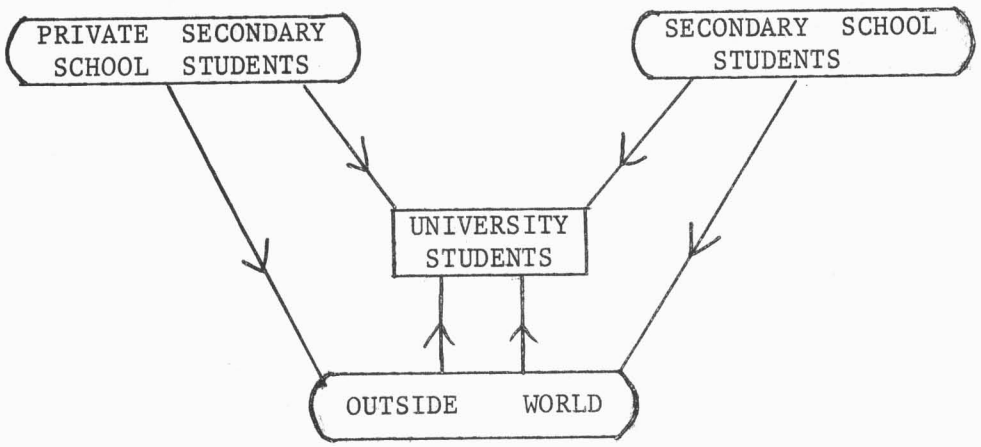
Thus the unsuccessful applicants enter the "outside world". It will be readily accepted that bottlenecks are a feature of the real educational system. One of the merits of projections for the anticipated numbers in the different posts is that decisions have to be made on the provision of places. For example, many suitably qualified Indian students cannot gain admission to the Medical College of the University of Natal because only a limited number of places are

reserved for Indians.

The diagram of a bottleneck situation is illustrated below. The maximum number of university places has been predetermined, and the flows from private schools, secondary schools and the outside world may be constricted. If this happens, the students must move to a college of education or to the outside world in the hope of moving in at a later stage.

FIGURE 3.1

AN EXAMPLE ILLUSTRATING SEVERAL BOTTLENECKS



N.B.:

= flows into these boxes are unconstricted

= flows into these boxes are constricted (bottlenecks)

The above diagram represents a more complex situation where there are several bottlenecks, some of which influence each other. If there are

too/

too many applicants for private secondary schools, then the overflow must go to other secondary schools, or, possibly, stay at primary schools for another year. If, however, there are too many applicants for university places, the overflow may affect the demand for places in another bottleneck. Thus, it becomes necessary for the Department to plan additional accommodation or restrict intake of students if supply exceeds the demand at institutions responsible for teacher training.

3.9 FLOW MECHANISMS

The flow mechanism can best be illustrated mathematically. Firstly, it will be necessary to define certain properties. If the boxes illustrated as bottlenecks in the diagram in paragraph 3.8 is denoted by r and the time by t, then the number of people in process r at time t may be denoted by n(r, t). The flow of people who are in process r at time t move to process s by time (t+1) is defined as f(r, s, t), for example, the flow of six year old boys next year will depend on the number of five year old boys this year.

There are various stages of development when a projection is to be made.

In the first stage, one can directly extrapolate n(r, t) for future values of t if one is given a stock n(r, t) for past values of t. These projections can be improved immediately. It is observed that the stocks were comprised of *flows* from other parts of the system, and hence calculation of future stocks involves extrapolating the various flows.

In the second stage if a stock $n(s, t+1) = \Sigma f(r, s, t)$ and past values of all f(r, s, t), the extrapolated values of f(r, s, t) are

summed/

summed to give future n(s, t). This extrapolation could also be improved since it is evident that the absolute flows, f(r, s, t), would depend upon the numbers in r at time t and would, in particular, fluctuate as age cohorts passed through the system. The flows then become proportions of the appropriate stocks. The projections are made not by directly extrapolating the flows but by extrapolating the transition proportions and multiplying by the appropriate stocks to get the future flows, and then summing to get the up-dated stocks.

In the third stage, if $n(s, t+1) = \Sigma f(r, s, t) = \Sigma p(r, s, t)\ n\ (r, t)$ and base year stocks and past values of p(r, s, t) are given, the future values of p(r, s, t) are now extrapolated to define forecast flows, and these are summed to give forecast stocks. It will be observed that flows are determined in terms of the number of people coming forward and the number of places that have been provided. The flow is the minimum of the demand and the supply, but neither of these quantities can be estimated with accuracy. The supply of places in s, for example, may have been predetermined by decision, but the number of places available to applicants from r depends upon the selection policy of the authorities in s. Thus a much greater possibility of inter-relationships within the model is permitted by building the supply and demand mechanisms of bottlenecks into a mathematical model.

Often, in the past, researchers plotted past data on a linear graph so that future values are changed at a constant rate. While this method of extrapolating for a short period of time may produce valid results, it would lead to absurd results over longer periods.

It is evident that it is a far more complex procedure in order to make a projection. The procedure may be described as follows:

(a) *Defining* how many places are to be provided in each bottleneck, *describing* the selection procedure and *specifying* a priority order for the bottlenecks;

(b) *Extrapolating* the desired flow proportions and defining the alternate behaviour of applicants who cannot get a place;

(c) *Comparing the demand and supply* to see which determines the flow in a particular year; and

(d) *Finding the up-dated stocks* by summing the appropriate flows.

3.10 SUPPLY AND DEMAND MECHANISMS

If a researcher desires to improve on the model described in the above paragraph, then it will be essential for the researcher to understand the underlying forces which provide the dynamics of the educational system, for example, special characteristics of past patterns and future policy of a department. One must search for explanations of phenomena and develop theories of why the system evolves as it does. These explanations must be expressed in mathematical relationships which can be incorporated into the model.(47)

Since there are many preponderables to consider when making a projection, it is often thought whether planning for the future is not futile. It must be borne in mind that it is essential to plan for the future, and such a projection may be of considerable value in understanding the behaviour of the real system *after* the event.

Supply/

Supply mechanisms can also be incorporated into mathematical models. In this respect it should be noted that the pupil-teacher ratios influence the maximum intake of students. The limited number of places in universities and colleges of education also affects the supply of teachers.

By introducing both bottlenecks and flow mechanisms into mathematical models, there unfolds a more refined model which depicts a richer representation of reality. This facilitates the process of decision-making.

Thus a computable model takes into consideration such factors as the collection of data, the working of the system, the formulation of objectives and the decision-making process. In spite of the fact that educational explosions continue and the system of education is a dynamic process, forecasting is essential in educational planning.

In the next chapter the principles outlined in this chapter have been used to arrive at the future demand for and supply of teachers in Indian schools in South Africa from 1975 to the year 2000.

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CHAPTER FOUR

THE DEMAND FOR AND SUPPLY OF TEACHERS IN INDIAN SCHOOLS IN SOUTH AFRICA FROM 1975 TO YEAR 2000

4.1 INTRODUCTION

In order to determine the demand for and supply of teachers in Indian schools in South Africa, it will be necessary to forecast pupil enrolments for both primary and secondary schools in Natal, Transvaal and the Cape separately and for the Republic of South Africa as a whole. It must be noted that all Indian schools in the Republic of South Africa are under the control of the Department of Indian Affairs, Division of Education.

It will be necessary to know statistics of pupil enrolments in the various standards in the past so that a more meaningful projection of pupil enrolments can be made. Demographic study of the Indian population is essential to gauge to what extent population trends influence future pupil enrolments at schools.

Pupil projections have been made by extrapolating on graphs, undertaking demographic study of trends in Indian population and using mathematical models. The mathematical models were arrived at by using past trends of pupil populations for Indians, the anticipated future patterns and the policy of the Department with regard to Indian education in this country.

It is hoped that this study will be considered as a contribution to the literature on futures research and in particular for purposes of

projection/

projection of Indian pupil populations; and that it will prompt other researchers in this area of study to re-examine the problem in the hope that an improved model for projecting Indian pupils will emerge.

4.2 PUPIL ENROLMENTS FROM 1967 TO 1974 IN NATAL, TRANSVAAL, THE CAPE AND THE REPUBLIC OF SOUTH AFRICA

The actual pupil enrolments for the different standards from 1967 to 1974 in the different provinces have been obtained from the records of the Department.(1)

Phase 1 (cl. (i) to std. 1) and phase 2 (stds. 2 to 4) are the junior primary and senior primary phases respectively. These phases constitute the primary school section. However, it must be noted that the majority of standard 5 pupils are still being accommodated in primary schools, but these pupils are expected to be transferred to secondary schools as soon as sufficient secondary school accommodation for such pupils becomes available. Phase 3 (stds. 5 to 7) and phase 4 (stds. 8 to 10) are junior secondary and senior secondary phases respectively, and they constitute the high school section.

The pupils in the nominal class, that is, those pupils who are not ready to be placed in class (ii) at the end of first year are put into a nominal class for a temporary period until they have made satisfactory progress to be placed in class (ii). These pupils have been put into class (ii) enrolments and are, therefore, part of phase 1.

The pupils in the special or adjustment class, that is, those primary school pupils who are in need of remedial education are drawn

from/

from standards 1 to 5 and accommodated in a special class until they are ready to go back to the normal class. The pupils in the special class (sp. cl.) have been allotted to phase 2.

The only Indian school at the Cape is the Woolhope State Indian High School in Port Elizabeth, which opened in 1971. The enrolment figures for Cape to-date are actually the figures for this one school. However, there were 3 740 Indian pupils attending Coloured schools at the Cape in 1974.(2) These pupils in Coloured schools have been taken into consideration in projecting pupil enrolments for the Cape.

The growth of Indian pupil enrolments has had a chequered effect but a more regular pattern is now emerging.

The pupil enrolments and percentage growth/decrease of total number of pupils in the different phases have been caluclated and indicated for Natal in Table 4.1, for Transvaal in Table 4.2, for the Cape in Table 4.3 and for the Republic of South Africa in Table 4.4.(3)

Using the compound growth rate formula $P_{t+4} = P_t (1 + i)^4$ for the period 1970 to 1974, it was found that in Natal the growth was 3,9% p.a. for phase 1; 1,2% p.a. for phase 2; - 0,03% p.a. for phase 3 (low point in standard 6 in 1974) and 10,1% p.a. for phase 4. The primary growth rate was 2,6% p.a. and that of high school was 3,0% p.a. while the total compound growth rate was 2,7% p.a. See Appendix A for caluclation of examples.

Similarly for the period 1970 to 1974 the compound growth rate per annum in the Transvaal for phase 1 was calculated to be 3,9%; phase 2 was -0,74%; phase 3 was -2,26% and phase 4 was 4,0%. The

primary/

primary school growth rate was 1,6% and the high school growth rate was 0% while the total growth rate was 0,09%.

Pupil enrolment for the Cape started from class (i) to standard 7 in 1971. The enrolment rose to standard 8 in 1972, to standard 9 in 1973 and standard 10 in 1974. The compound growth rate per annum from 1971 to 1974 for the total school population was 7,3%.(4)

On transfer of education from Natal Education Department to the Department of Indian Affairs in April 1966, a new age limitation was imposed for admission to schools. This resulted in a very low intake of class (i) pupils in 1967. This low point moved to class (ii) in 1968, standard 1 in 1969 and progressively to a higher standard. The low point moved out of phase 2 at the end of 1972 and it now is in standard 7 in 1975. Thus until 1972 the growth rate of high school population was much higher than that for primary school population in Natal.(5)

TABLE/

TABLE 4.1

NATAL : CLASS DISTRIBUTION OF ACTUAL PUPIL NUMBERS IN INDIAN SCHOOLS (1967 - 1974)

	1967	1968	1969	1970	1971	1972	1973	1974
cl. (i)	12 891	13 921	16 354	17 770	18 072	18 373	18 686	18 289
(ii)	18 454	12 284	13 437	15 039	17 076	17 512	18 641	19 339
std. 1	17 809	17 371	12 630	14 271	15 421	16 781	16 505	17 217
Phase 1	49 154	43 576	42 421	47 080	50 569	52 666	53 782	54 845
std. 2	18 007	16 880	16 583	12 746	13 254	14 902	16 280	16 165
3	16 096	17 623	17 377	17 230	13 409	13 800	15 366	16 910
4	14 270	14 102	15 943	16 068	15 855	12 575	12 790	14 210
Sp. cl.	-	-	-	-	-	435	738	806
Phase 2	48 373	48 605	49 903	46 044	42 518	41 712	45 174	48 081
PRIMARY TOTAL	97 527	92 181	92 324	93 124	93 087	94 378	98 956	103 026
std. 5	13 231	12 514	12 861	15 049	14 618	14 530	11 528	11 551
6	12 033	10 551	11 625	11 764	13 667	14 731	13 989	10 [illegible]
7	6 447	8 268	7 626	8 481	9 209	9 765	12 [illegible]	12 [illegible]
Phase 3	31 711	31 333	32 112	35 294	37 494	39 046	37 595	35 207
std. 8	4 231	5 270	6 525	6 514	7 130	7 219	7 671	9 [illegible]
9	2 714	2 933	3 252	4 170	3 822	4 641	5 [illegible]	6 [illegible]
10	1 617	2 177	1 926	2 154	2 964	3 224	3 626	3 571
Phase 4	8 562	10 380	11 703	12 838	13 916	15 084	16 [illegible]	18 [illegible]
HIGH TOTAL	40 273	41 713	43 815	48 132	51 410	54 130	53 [illegible]	54 178
TOTAL	137 800	133 894	136 139	141 256	144 497	148 508	152 954	157 272
% GROWTH:								
Phase 1	-	-11,37	-2,68	10,94	7,41	4,14	2,11	1,94
Phase 2	-	0,44	2,63	-7,77	-7,63	-1,88	8,24	6,85
Phase 3	-	-1,17	2,43	9,93	6,21	5,06	-3,77	-6,38
Phase 4	-	21,23	12,75	9,61	8,31	8,31	8,77	15,18
Primary Total	-	-5,48	0,16	0,87	-0,04	1,39	4,85	4,18
High Total	-	3,58	5,04	9,85	6,81	5,29	-0,25	0,30
TOTAL	-	-2,81	1,61	3,78	2,21	2,71	2,97	2,84

TABLE 4.2

TRANSVAAL : CLASS DISTRIBUTION OF ACTUAL PUPIL ENROLMENTS IN INDIAN SCHOOLS (1967 - 1974)

	1967	1968	1969	1970	1971	1972	1973	1974
cl. (i)	1 883	1 807	2 129	2 097	2 290	2 249	2 396	2 412
(ii)	2 227	1 872	1 759	2 046	2 135	2 289	2 311	2 281
std. 1	2 477	2 321	1 977	1 844	2 092	2 153	2 185	2 278
Phase 1	6 587	6 000	5 865	5 987	6 517	6 691	6 892	6 971
std. 2	2 331	2 431	2 293	1 941	1 853	2 083	2 112	2 141
3	2 324	2 299	2 423	2 279	1 958	1 858	2 052	2 080
4	2 202	2 301	2 269	2 259	2 311	1 930	1 827	1 995
sp. cl.	-	-	-	-	-	-	16	70
Phase 2	6 857	7 031	6 985	6 479	6 122	5 871	6 007	6 286
PRIMARY TOTAL	13 444	13 031	12 850	12 466	12 639	12 562	12 899	13 257
std. 5	2 007	2 098	2 138	2 108	2 220	2 195	1 857	1 738
6	1 905	1 967	2 036	2 146	2 162	2 299	2 213	1 811
7	1 522	1 608	1 661	1 786	1 909	1 786	1 920	1 963
Phase 3	5 434	5 673	5 835	6 040	6 291	6 280	5 990	5 512
std. 8	1 555	1 413	1 527	1 647	1 686	1 725	1 628	1 723
9	911	1 056	982	1 005	968	1 092	1 215	1 217
10	470	515	558	562	579	616	706	820
Phase 4	2 936	2 984	3 067	3 214	3 233	3 433	3 549	3 760
HIGH TOTAL	8 370	8 657	8 902	9 254	9 524	9 713	9 539	9 272
TOTAL	21 814	21 688	21 752	21 720	22 163	22 275	22 438	22 529
% GROWTH:								
Phase 1	-	-8,94	-2,27	2,05	8,83	2,65	3,03	1,13
Phase 2	-	2,53	-0,67	-7,26	-5,54	-4,08	2,40	4,63
Phase 3	-	4,35	2,83	3,58	4,13	-0,19	-4,65	-7,99
Phase 4	-	1,61	2,72	4,73	0,53	6,13	3,33	5,92
Primary Total	-	-3,08	-1,39	-2,99	1,39	-0,61	2,68	2,76
High Total	-	3,43	2,83	3,95	2,92	1,98	-1,79	-2,80
TOTAL	-	-0,55	0,22	-0,19	2,09	0,51	0,77	0,41

TABLE 4.3

CAPE : CLASS DISTRIBUTION OF ACTUAL PUPIL ENROLMENTS IN INDIAN SCHOOL (1971 - 1974)

	1971	1972	1973	1974
cl. (i)	87	74	88	115
(ii)	86	89	74	67
std. 1	103	85	89	83
Phase 1	276	248	251	265
std. 2	97	107	84	87
3	106	102	105	84
4	76	99	95	102
sp. cl.	-	-	-	-
Phase 2	279	308	284	273
PRIMARY TOTAL	555	556	535	538
std. 5	71	77	100	93
6	56	68	71	98
7	58	56	67	75
Phase 3	185	201	238	266
std. 8	-	47	34	57
9	-	-	39	24
10	-	-	-	29
Phase 4	-	47	73	110
HIGH TOTAL	185	248	311	376
TOTAL	740	804	846	914
% GROWTH:				
Phase 1	-	-10,18	1,22	5,52
Phase 2	-	10,33	-7,78	-3,82
Phase 3	-	8,69	18,42	11,72
Phase 4	-	-	55,39	50,66
Primary Total	-	0,18	-3,78	0,56
High Total	-	34,05	25,40	20,90

TABLE 4.4

REPUBLIC OF SOUTH AFRICA : CLASS DISTRIBUTION OF ACTUAL PUPIL ENROLMENTS IN INDIAN SCHOOLS (1967 - 1974)

	1967	1968	1969	1970	1971	1972	1973	1974
cl. (i)	14 774	15 728	18 483	19 867	20 449	20 696	21 120	20 816
(ii)	20 681	14 156	15 196	17 085	19 297	19 890	21 026	21 687
Std. 1	20 286	19 692	14 607	16 115	17 616	19 019	18 779	19 578
Phase 1	55 741	49 576	48 286	53 067	57 362	59 605	60 925	62 081
std. 2	20 338	19 311	18 876	14 687	15 204	17 092	18 476	18 393
3	18 420	19 922	19 800	19 509	15 473	15 760	17 523	19 074
4	16 472	16 403	18 212	18 327	18 242	14 604	14 712	16 387
sp. cl.	-	-	-	-	-	435	754	956
Phase 2	55 230	55 636	56 888	52 523	48 919	47 891	51 465	54 810
PRIMARY TOTAL	110 971	105 212	105 174	105 590	106 281	107 496	112 390	116 891
std. 5	15 238	14 612	14 999	17 157	16 909	16 802	13 482	13 390
6	13 938	12 518	13 661	13 910	15 885	17 118	16 273	12 584
7	7 969	9 876	9 287	10 267	11 176	11 607	14 068	15 091
Phase 3	37 145	37 006	37 947	41 334	43 970	45 527	43 823	41 065
std. 8	5 786	6 683	8 052	8 161	8 816	8 991	9 633	10 995
9	3 625	3 989	4 234	5 175	4 790	5 733	6 360	7 344
10	2 087	2 692	2 484	2 716	3 543	3 840	4 032	4 420
Phase 4	11 498	13 364	14 770	16 052	17 149	18 564	20 025	22 759
HIGH TOTAL	48 643	50 370	52 717	57 386	61 119	64 091	63 848	63 824
TOTAL	159 614	155 582	157 891	162 976	167 400	171 587	176 238	180 715
% GROWTH:								
Phase 1	-	-11,08	-2,65	9,97	8,05	3,96	2,29	1,86
Phase 2	-	0,72	2,23	-7,68	-6,88	-2,15	7,43	6,45
Phase 3	-	-0,30	2,52	9,00	6,33	3,52	-3,77	-6,27
Phase 4	-	16,23	10,53	8,61	6,85	8,29	7,81	13,61
Primary Total	-	-5,19	-0,04	0,40	0,65	1,14	4,55	4,00
High Total	-	3,55	4,66	8,86	6,51	4,86	-0,38	-0,04
TOTAL	-	-2,59	1,41	3,23	2,72	2,52	2,72	2,57

4.3 PUPIL PROJECTIONS BASED ON INDIAN POPULATION TRENDS

While pupil projections have often been attempted by studying past and present pupil enrolments, it is not adequate to forecast enrolments based on pupil population alone. A significant weakness of this method is that it does not take into account the "drop-out" rate of pupils who should have been at school. Further, as pointed out in the flow mechanisms in paragraph 3.9, the actual future intake of pupils will depend largely on the growth patterns of the various age-groups of the Indian population.

Professor J.L. Sadie of the University of Stellenbosch points out that, in order to make any meaningful projections of populations, it is necessary to have reliable statistics on:(6)

(a) a base population by sex and age; and

(b) the three ingredients of population growth and change, namely, fertility, mortality and migration rate of the population.

In order to appreciate the demographic movements of the Indian population in the past and formulate reasonable assumptions about its future trends, it is necessary for the researcher to have accurate information on the census, fertility, mortality and migration statistics. Herein lies the inherent weakness of this method of approach. While the statistics for the White population are reasonably accurate, the same cannot be said for the Indian population.(7)

A comparison of the Indian population by age and sex at successive census dates reveals inconsistencies.(8) It was found that the number of survivors aged x years in year t are in some cases found to be larger than the original cohorts aged x-5 years enumerated in the year t-5, even allowing for immigration. Immigration for Indian population really falls away since foreign Indians are prohibited from settling in South Africa. In other cases the number of survivors of a particular cohort was too small to reflect a realistic survival ratio. In all the censuses, the age group (0-4 years) was grossly undernumerated. For example, the 1970 census figures for the age group (1-4 years) in Natal revealed a total of 56 490 children.(9) This gives an arithmetic mean of 14 122 for each of the four years and yet the average intake of class (i) pupils in Natal from 1972 to 1974 was 18 423.(10) It is evident that the Indian population has been undernumerated.

Prof Sadie(11) used the well-known balancing equation $P_{t+n} = P_t + B - D + M$ in order to evaluate and adjust all other demographic data, where P_t and P_{t+n} stand for population size in year t and (t+n) respectively, B for births, D for deaths and M for net immigration (or immigrants less emigrants).

It is now evident that birth registration among Asians are unreliable. Only immigration and deaths which are registered by law are the controlling factors that may be used to determine the validity of an Asian population base and its fertility.(12)

4.3.1 Mortality

Using figures from previous censuses and survival ratios of the Indians, Sadie arrived at the following expectations of life/

life at birth:[13]

TABLE 4.5

LIFE EXPECTATIONS IN YEARS FOR INDIAN MALES AND FEMALES (1936 - 1970)

SEX	1936-41	1941-46	1946-51	1951-56	1955-60	1960-65	1965-70
MALE	52,73	51,30	54,87	58,31	59,03	59,90	59,58
FEMALE	50,88	49,94	55,05	59,87	61,21	62,85	63,69

From Table 4.5, the following deductions may be made:

(a) Up to 1946 the life expectation of males was higher than that of females. The probable explanation here is that the high maternal mortality rate is associated with females;

(b) The difference in life expectancy for males and females was becoming greater from 1946 onwards, that is, there was a difference of 0,18 years in the period 1946-51; 1,56 years in 1951-56; 2,18 years in 1955-60; 2,96 years in 1960-65 and 4,11 years in 1965-70;

(c) There has been no significant change in the life expectancy for males since 1955; and

(d) Since 1946 the life expectancy for females has been higher than those for males, and this difference tended to increase progressively over the years. The

change/

change in marriage habits together with the ability of the community to provide natal and post-natal medical facilities influenced the greater life expectancy of the females.

Thus the drop in the death rate affected the natural increase of the Asian population.

4.3.2 Fertility

Prof Sadie used past census figures to determine fertility projections.(14) Table 4.6 reflects the birth rate by age of mother per 1 000 births. Prof Sadie calculated the figures and the gross reproduction rates (G.R.R.) which measure the average number of daughters who will be born alive to each woman during the reproductive period of 15 to 49 years (assuming that she does not die before reaching the end of the cycle) from 1936 to 1965-70 using actual figures from censuses. The figures from 1970-75 to 1995-2000 are fertility projection figures.

TABLE/

TABLE 4.6

ASIAN FERTILITY : BIRTH RATE BY AGE OF MOTHER PER 1 000 BIRTHS - ACTUAL (1936 - 1970) AND PROJECTED (1970/75 TO 2000)

	AGE GROUPS							
YEAR	15-19	20-24	25-29	30-34	35-39	40-44	45-49	G.R.R.*
1936	135	354	354	322	205	71	18	3,611
1941	133	350	350	318	202	70	17	3,564
1946	124	325	325	296	189	65	16	3,317
1951	87	323	323	242	177	61	10	3,027
1956	72	285	303	212	155	51	12	2,698
1960	59	250	281	180	135	45	11	2,378
1960-65	52	241	259	184	111	43	10,5	2,228
1965-70	45	208	224	160	97	38	10,0	1,935
1970-75	43	195	210	147	86	33	9,4	1,790
1975-80	42	190	204	140	79	31	8,8	1,718
1980-85	41	184	197	132	73	29	8,3	1,644
1985-90	40	179	190	125	67	27	7,7	1,594
1990-95	39	172	183	117	62	25	7,2	1,498
1995-2000	38	167	176	110	57	23	6,8	1,430

*Gross Reproduction Rate

From Table 4.6 it is evident that the fertility rates at all ages of females have been decreasing steadily since 1936 when the Gross Reproduction Rate was 3,611 as against 1,935 in 1965-70. It is anticipated that this downward trend will continue. However, an assumption is made that no specific

fertility/

fertility rate should be lower than that projected for White females. Further, it will be observed that the fertility of Asian women has been diminishing at all ages between 15 and 50, but the most significant reductions occurred between 20 and 35, the period of highest fertility.

Table 4.7 shows that the Indian population is now ageing.[15,16] This table reflects a process of demographic juvenescence up to 1951, and thereafter the population becomes older. The reduction in the mortality rate was responsible for raising the percentage in the age group 0-14 years between 1936 and 1951. After 1951 the force of declining fertility has manifested itself.

TABLE 4.7

PERCENTAGE DISTRIBUTION OF THE ASIAN POPULATION IN 3 AGE GROUPS

AGE	1936	1941	1946	1951	1956	1960	1970
0-14	46,0	47,2	47,3	47,7	46,0	44,0	40,3
15-64	51,8	50,4	50,6	50,1	52,0	54,2	57,9
65+	2,2	2,4	2,1	2,2	2,0	1,8	1,8

Prof Sadie[17] found that the reproductive habits of Indian women have changed significantly, as illustrated by the data in Table 4.8 which reflects the percentage distribution of births by age of a cohort of women living through the fecund period (20 to 35 years).

TABLE/

TABLE 4.8

PERCENTAGE DISTRIBUTION OF ASIAN BIRTHS BY AGE OF A COHORT OF WOMEN

YEAR	AGES OF FEMALES							
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	TOTAL
1936	9,3	24,3	24,3	22,0	14,1	4,8	1,2	100,0
1960	6,2	26,0	29,2	18,7	14,0	4,7	1,2	100,0

From the above table it would appear that Asian women started the process of family-building at a later age in 1960 than those living in 1936. There was also a tendency to complete the family unit comparatively earlier. Further, this pattern becomes clearer when one observes the percentage of age distribution of married females in the fecund period calculated from the 1970 census statistics.(18)

TABLE 4.9

AGE DISTRIBUTION OF ASIAN FEMALES IN 1970

STATUS	15-19	20-24	25-29	30-34	35-39	40-44	45-49	TOTAL
MARRIED	3 980	17 370	20 410	16 990	14 200	10 580	8 300	91 830
%	4,3	18,9	22,2	18,5	15,5	11,5	9,1	100,0
WIDOWED	20	110	350	840	880	1 600	2 140	5 940

The/

The life styles of Asian women are in keeping with life styles of urbanisation. In 1970, out of a total of 620 436 Asians, only 81 900 or 13,2% lived in the rural areas of the Republic of South Africa.(19)

Prof Sadie also found that the Asian girl married much later. While in 1921, 10% of the females in the age group 10 to 14 years had already married, in 1960 only 0,05% out of a total of 33 910 in the age group had been married. Further, it was found that 92,8% of the females in age group 20-24 years were married in 1921 as against 52% of that age group in 1960. It would appear that the changing marriage patterns among Asian females has an adverse effect on the birth rates. Between 1921 and 1960 the expected average number of children who would be born to the Asian woman in the fecund period declined from 6,6 to 4,1. This was a reduction of 38%.(20)

4.3.3 Migration

During the period 1936-60 there was a total net immigration of 9 100 Indians. This made an insignificant contribution to the population growth, that is, 3,41% of a total increase of 266 540 in that period. However, it is known that the Indian population started initially as an immigrant group when the first contingent of 341 Indians arrived in Natal as indentured labourers in 1860. Between 1890 and 1914 the inflow of immigrants averaged 1 400 per annum. Large scale immigration came to an end when the Admission of Persons to the Republic Regulation Act, 1913 (Act No. 22 of 1913)

was/

was passed, stemming future immigration of Indians to South Africa. Further, of a net immigration of 5 272 Indians in the period 1936-48, 4 508 were females. For purposes of population projections, there is no point in providing for Indian immigrants. Thus population growth will consist purely of a natural increase.(21, 22)

82,98% of the Indian population is settled in Natal. The geographic distribution of the Asian population in 1970 was as follows:(23)

TABLE 4.10

ASIAN POPULATION DISTRIBUTION BY PROVINCES

PROVINCE	ASIANS	(%) OF TOTAL
Natal	514 810	82,98%
Transvaal	80 563	12,98%
Cape	21 617	3,49%
O.F.S.	5	0%
Other Areas	3 441	0,55%
TOTAL	620 436	100,0%

The population distribution is largely one of historic origins, legal enactments and economic opportunities. Natal was the first province of the indentured Indian immigrants but some of the free immigrants established themselves in the other provinces, particularly the traders who settled in the

Transvaal/

Transvaal. Just when the Indians started seeking residence outside Natal, a law of the Orange Free State in 1891 prohibited Indians into this province, and a South African law of 1913 further pegged the migration of Indians from Natal.(24)

The Asians are a highly urbanised community with 86,80% of the 1970 total population residing in urban areas. In Natal 143 836 or 27,94% of the Indian population in 1970 resided in the magisterial district of Pinetown alone, which includes Chatsworth, Shallcross, Mariannhill and Reservoir Hills. A quite extra-ordinary degree of demographic distribution is borne out by the fact that about two-thirds of the total population is concentrated in the Durban-Pinetown area, the Pietermaritzburg area, the Tongaat-Verulam area and the industrial complexes around the Witwatersrand. No other population group is concentrated to quite the same extent.(25)

Using future population projections and the "ratio method", one can estimate the future population by sex-and-age groups, for provinces, small areas, towns or districts. In the "ratio method" it is assumed that the ratio of population in each segment of the country to the country's total population will change at the same rate as it did in the past or according to an assumed pattern. For example, if a certain province had 35% of the total population in 1960 and 43% in 1970, one may infer by extrapolating on a graph that it will contain 45% in 1975 unless there is reason to assume otherwise.

This/

This method needs to be used with good judgement if absurd results are to be avoided when using progressions.(26)

4.4 POPULATION GROWTH RATES

The prediction of the future size and composition of a population cannot have any greater merit than the assumptions on which it is based. This implies that the validity of the results will depend on the assumptions. Population projections are generally presented in sets of three: a minimum, a medium and a maximum projection.(27) In this study the projected figures represent the author's judgement reflecting existing trends, peculiarities in Indian education and future trends inferred from experience.

In Table 4.11 the figures for Asian population from 1936 to 1960 have been taken from Prof Sadie's works,(28) the figure for 1970 from Population Census and the growth rate from 1960 to 1970 was calculated using the formula $P_{t+10} = P_t (1+i)^{10}$ while the figures from 1971 to the year 2000 are projected figures. The growth rates for the period 1936 to 1970 were plotted on a graph and the growth rates for the projected population was extrapolated graphically. Using the growth rate % per annum determined and the 1970 census figures, the projected populations for the different years were calculated.

TABLE/

TABLE 4.11

ASIATICS : POPULATIONS AND GROWTH RATES - ACTUAL (1936 - 1970) AND PROJECTED (1975 - 2000)

YEAR	POPULATION	GROWTH RATE % P.A.
May 1936	227 500	-
May 1946	314 990	3,31
May 1951	357 730	3,59
May 1956	436 810	3,06
Sept.1960	494 040	2,88
May 1970	620 436	2,32
1975	701 300	2,48
1980	780 000	2,15
1985	862 050	2,02
1990	948 050	1,92
1995	1 040 100	1,87
2000	1 138 250	1,82

Prof Sadie and van Rensburg, separately, recognise that there has been gross under-counting in census figures. They build-in correction factors to arrive at a more realistic population figure. The 1970 figures are actual figures taken from Population Census, and these figures are considered to be reputedly more accurate than previous censuses. Both Prof Sadie and van Rensburg corrected the estimated under-count by using formulae and adjusting the growth rates.(29, 30)

4.5 PUPIL PROJECTIONS FROM DEMOGRAPHIC STUDIES

In 1970 the total number of Indian pupils in schools under the control of the Department of Indian Affairs was 162 976.(31) However, this total excluded an estimated 3 750 Indian pupils who were attending Coloured schools at the Cape in 1970 but it included an estimated 750 Coloured pupils in attendance at Indian schools in the Transvaal. Thus in 1970 out of a total Indian population of 620 436, the estimated number of Indian pupils was 165 976 (or 26,75% of the total population).(32)

In 1974 the total number of Indian pupils in schools under the control of the Department of Indian Affairs was 180 715.(33) In that year the number of Indian pupils in Coloured schools at the Cape totalled 3 740(34) while there were 676 Coloured pupils in Indian schools in the Transvaal.(35) Thus in 1974 the total number of Indian pupils was 183 779 which represented 26,85% of an estimated Indian population of 684 325.

The norms and the principles on which pupil projections have been made are set out in 3.2 of *Chapter Three*. Using the "ratio-method" explained on page 166, pupil projections for the Republic of South Africa were determined from population projections. Prof Sadie, Steenkamp and van Rensburg used this approach, and their figures were used to construct Table 4.12 from 1955 to 1965.(36, 37) The figures for 1970 were obtained from Population Census and records of the Department as explained in this paragraph. The population figures from 1975 to 2000 are from Table 4.11. The pupil figures from 1975 to 2000 have been extrapolated on the assumption that the number of

pupils/

pupils expressed as a percentage of the total population will tend to increase until it reaches 28% in the year 2000. This assumption is based on the fact that the percentages of the total population will not be less than that for Whites.(38) The figures in column D were calculated using corresponding figures in columns B and C, excepting for 1970 figures which are taken from Department's records.

TABLE 4.12

PUPILS PROJECTIONS FOR THE REPUBLIC OF SOUTH AFRICA: ACTUAL (1955 - 1970) AND PROJECTED (1975 - 2000)

YEAR	A	B	C	D
1955	2,88	426 000	22,60	96 276
1960	2,68	494 030	26,90	132 894
1965	2,55	563 920	26,80	151 130
1970	2,48	620 436	26,93	167 069
1975	2,15	701 300	26,96	189 070
1980	2,02	780 000	27,20	212 160
1985	1,92	862 050	27,45	236 632
1990	1,87	948 050	27,62	261 851
1995	1,82	1 040 100	27,78	288 940
2000	1,80	1 138 250	28,00	318 710

KEY : A : Population increase expressed as a percentage increase per annum, for example, the estimated annual growth rate from 1960 to 1965 was 2,68% p.a.

B : Total South African Indian population.

C : Pupils expressed as a percentage of the total population; and

D : Total number of pupils in the Republic of South Africa.

Table/

Table 4.13 reflects the distribution of the pupils according to the three provinces - Natal, Transvaal and the Cape, that is, the figures from column D in Table 4.12 were re-distributed, based on past and present ratios of school populations in the different provinces. The Indian pupils attending Coloured schools at the Cape have been included for the Cape figures. The pupil distributions for Natal and Transvaal from 1968 to 1974 have been determined from Department's records, while the figures for the Cape in that period have been estimated by including Indian pupils in Coloured schools at the Cape. The figures from 1975 to the year 2000 are projected figures.

TABLE 4.13

DISTRIBUTION OF INDIAN PUPILS ACCORDING TO THE THREE PROVINCES: ACTUAL (1968 - 1974) AND PROJECTED (1975 - 2000)

YEAR	R.S.A.	NATAL	%	TRANSVAAL	%	CAPE	%
1968	159 425	133 894	83,99	21 688	13,60	3 843	2,41
1969	161 857	136 139	84,11	21 752	13,44	3 966	2,45
1970	167 069	141 256	84,55	21 720	13,00	4 093	2,45
1971	170 884	144 497	84,56	22 163	12,97	4 224	2,47
1972	175 143	148 508	84,79	22 275	12,72	4 360	2,49
1973	179 892	152 954	85,03	22 438	12,47	4 500	2,50
1974	184 455	157 272	85,26	22 529	12,21	4 654	2,52
1975	189 070	161 500	85,39	22 764	12,04	4 806	2,57
1980	212 160	181 500	85,55	25 120	11,84	5 540	2,61
1985	236 632	202 840	85,72	27 520	11,63	6 272	2,65
1990	261 851	224 878	85,88	29 903	11,42	7 070	2,70
1995	288 940	248 604	86,04	32 390	11,21	7 946	2,75
2000	318 710	274 728	86,20	35 058	11,00	8 924	2,80
	(1)	(2)	(3)	(4)	(5)	(6)	(7)

NOTE:/

NOTE:

Column (1) : The figures in this column from 1968 to 1974 are from the records of the Department, which includes Indian pupils in attendance at Coloured schools at the Cape. The figures from 1975 to 2000 are from column D of Table 4.12.

Column (2) : The number of pupils in this column from 1968 to 1974 was taken from the records of the Department, while the figures from 1975 to 2000 were calculated using columns (1) and (3). For calculation of an example, see Appendix B.

Column (3) : From 1968 to 1974 the actual enrolments of pupils in Natal were expressed as percentages of the total South African school population. The percentage distribution from 1975 to 2000 are projected figures obtained by extrapolation using the "ratio-method". The percentages tend to increase slightly because the growth rate of Indian population is higher in Natal than in the Transvaal.

Column (4) : The figures in this column from 1968 to 1974 are from the records of the Department. The figures from 1975 to 2000 are projected figures calculated by using "ratio-method" and corresponding figures in columns (1) and (5). See Appendix B for example.

Column (5) : From 1968 to 1974 the actual enrolments of pupils in the Transvaal were expressed as percentages of the total South African school population. The percentage distribution from 1975 to 2000 are projected figures obtained by extrapolation using the "ratio-method". The percentage distribution of Indian pupils in the Transvaal has been decreasing steadily as the Coloured pupils in Indian schools are being phased out gradually.

Column (6) : The figures from 1968 to 1974 are pupil enrolments at Woolhope State Indian High School (1971-1974) and Indian pupils in Coloured schools at the Cape. The figures from 1975 to 2000 have been calculated by subtracting figures in columns (2) + (4) from corresponding figures in column (1). See Appendix B for an example.

Column (7) : The percentages in this column were calculated by expressing pupil enrolments in column (6) as percentages of pupils in column (2). See Appendix B for an example.

4.6 GRAPHICAL REPRESENTATIONS OF SCHOOL POPULATIONS AND CLASS ENROLMENTS

The following graphs illustrate past, present and future trends in Indian school populations and class distributions. A comparison is also made of Indian school population with school population of the other three race groups, namely, the Whites, the Coloureds and the Bantu.

4.6.1. School populations of the four race groups

The figures in Table 4.14 below indicate the distribution of school populations of the Whites, Coloureds, Indians and the Bantu.

TABLE 4.14

SCHOOL POPULATIONS FOR THE DIFFERENT RACE GROUPS : ACTUAL (1955 - 1970) AND PROJECTED (1975 - 2000)

YEAR	WHITES	COLOUREDS	INDIANS	BANTU
1955	615 971	245 820	96 275	1 139 684
1960	692 436	304 830	132 894	1 499 844
1965	764 072	394 587	151 130	1 950 558
1970	843 200	477 400	167 069	2 546 700
1975	921 000	559 100	189 070	3 170 400
1980	999 000	640 900	212 160	3 869 700
1985	1 077 000	722 600	236 632	4 644 700
1990	1 154 000	804 400	261 851	5 495 300
1995	1 231 800	885 900	288 940	6 395 300
2000	1 309 600	967 400	318 710	7 400 000
	(8)	(9)	(10)	(11)

NOTE/

NOTE:

Column (8) : The figures used in this column have been extracted from a study by the South African Human Sciences Research Council.(39) The annual increment used for projected figures was 15 560.

Column (9) : The figures in this column have been extracted from a study by the South African Human Sciences Research Council.(40) The annual increment used for projected figures was 16 300.

Column (10) : The figures used in this column are extracted from column D of Table 4.12.

Column (11) : The figures in this column have been extracted from a study by the South African Human Sciences Research Council.(41)

It was found that in 1955 the Indian school population represented 4,59% of the total South African school population (all four races) of 2 097 750 pupils. By 1970 the Indian school population was 4,14% of the total South African school population of 4 034 369. In the year 2000 it is anticipated that the Indian school population will represent 3,19% of a projected South African school population of 9 995 710. These calculations were made by using figures in Table 4.14.

A graphic representation of Table 4.14 is made in Figure 4.1.

4.6.2 Promotion, retardation and drop-out rate pattern

This pattern for pupils in Natal has been traced graphically in Figure 4.2. The figures in Table 4.1 have been used to plot the graph of a cohort of class (i) pupils progressing to standard 10 taking cognizance of the failures in a particular class or standard returning to school. For example, there

were/

were 12 891 pupils in class (i) in 1967 and this group progressed to class (ii) in 1968 when the total enrolment dropped to 12 284. This group had then progressed to 10 675 in standard 6 in 1974. These graphs were used by the Department to project pupil enrolments for the different standards, for example, by studying the drop-out rate from standard 9 to standard 10 in the years 1968 to 1974, one can estimate the drop-out rate from standard 9 in 1974 to standard 10 in 1975. This method has been found to be unreliable and inadequate in many respects.

In Figure 4.2 the co-ordinates indicate the progress of a cohort of pupils year by year proceeding from class (i) and progressing to the standard attained by this cohort in 1974. 67 next to a co-ordinate on the class (i) ordinate means the intake of class (i) pupils in Natal in 1967. 68 means 1968, etc.

A similar graph for promotion, retardation and drop-out rate pattern for Indian pupils in the Transvaal has been illustrated in Figure 4.3. A comparison of graphs in Figure 4.2 and Figure 4.3 shows that, in the primary school section, the promotion, retardation and drop-out rate pattern is higher in Natal than in the Transvaal. In fact, this pattern has been accentuated for post-primary standards.

4.6.3 Growth rate of phases

There are four phases illustrated in Figure 4.4. Phase 1 is from class (i) to standard 1, phase 2 from standard 2 to

standard/

standard 4, phase 3 from standard 5 to standard 7 and phase 4 is from standard 8 to standard 10. The growth of phase 1 from year to year commencing from the year 1967 has been determined as percentage increase or decrease. Similar percentages have been calculated for each of the other three phases. The growth of the phases for Natal schools expressed in percentages is illustrated in Figure 4.4. A similar graph for the growth of the phases for the Transvaal schools expressed as percentage increase or decrease is illustrated in Figure 4.5.

In Natal schools there has been a sharp increase in growth rates of phase 1 school population from 1968 to 1970 and, thereafter, it has been decreasing. The pattern appears to be a decreasing one for the immediate future in Natal. In the Transvaal the growth rate for phase 1 decreased from 1971 to 1972 and again slightly from 1973 to 1974. Stability appears to be attained for the Transvaal schools in this phase. In Natal schools there has been decreasing percentage growth rates for phases 1, 2 and 3 while there has been a steady increase in growth rate for phase 4 from 1971 and a particularly sharp increase from 1973 to 1974. The growth rate for phase 4 is expected to drop sharply when the "low point" which was in standard 6 in 1974 must progress to standard 8 in 1976.(42) The growth rate for phase 4 is expected to become more stabilized after this "low-point" moves out of this phase in 1979. In the Transvaal schools a significant feature of the four phases illustrated in Figure 4.5 is that while stability appears to have been reached in phases 1, 2 and 4, the pattern of growth rates for phase 3 has been a decreasing one. This

drop/

drop in growth rate for phase 3 has been accentuated from 1971 to 1974. The growth rate for this phase is not expected to increase significantly until the "low-point" moves out of phase 3 in 1977.(43) For the next three years the growth rate for phase 4 is expected to be a decreasing one.

4.6.4 Projection of total pupil populations for Natal and the Transvaal

The growth of the total school populations, including primary and high school populations, is illustrated in Figure 4.6. The graphs in this figure have been drawn using figures extracted from Schedules A and B for Natal and Transvaal respectively. The graphs beyond 1974 are projected ones. Graph (A) illustrates the growth pattern for Natal schools while graph (B) illustrates the growth pattern for Transvaal schools.

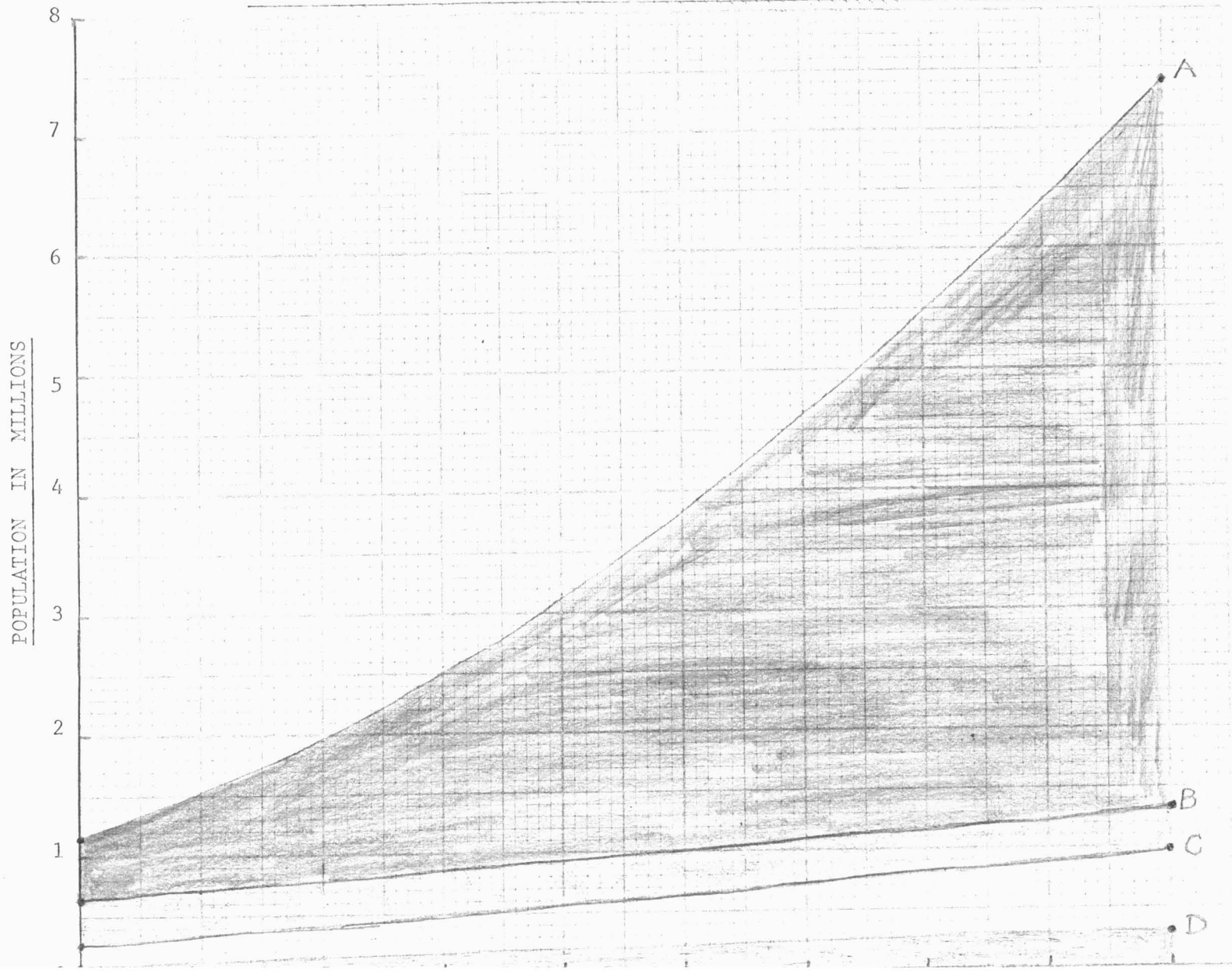
4.6.5 The method of graphical representation

Graphs have been drawn in respect of school populations in Natal and Transvaal. Graphs have not been drawn for the Cape school population because there was only one school in the Cape by 1974. No meaningful pattern for the whole of the Cape can be ascertained at this stage, excepting for the growth pattern at Port Elizabeth only. A number of schools for Indian pupils has been programmed in the Cape. It seems logical, therefore, to project the Cape pupil population under the control of the Department of Indian Affairs on a more-or-less ad hoc basis, increasing the total pupil population

as/

FIGURE 4.1

ACTUAL TOTAL SCHOOL POPULATIONS (1955 - 1970) AND PROJECTED SCHOOL POPULATIONS (1975 - 2000) FOR THE FOUR RACE GROUPS



N.B.: Population to the nearest 50 000.

KEY

School Populations

A : Bantu

B : White

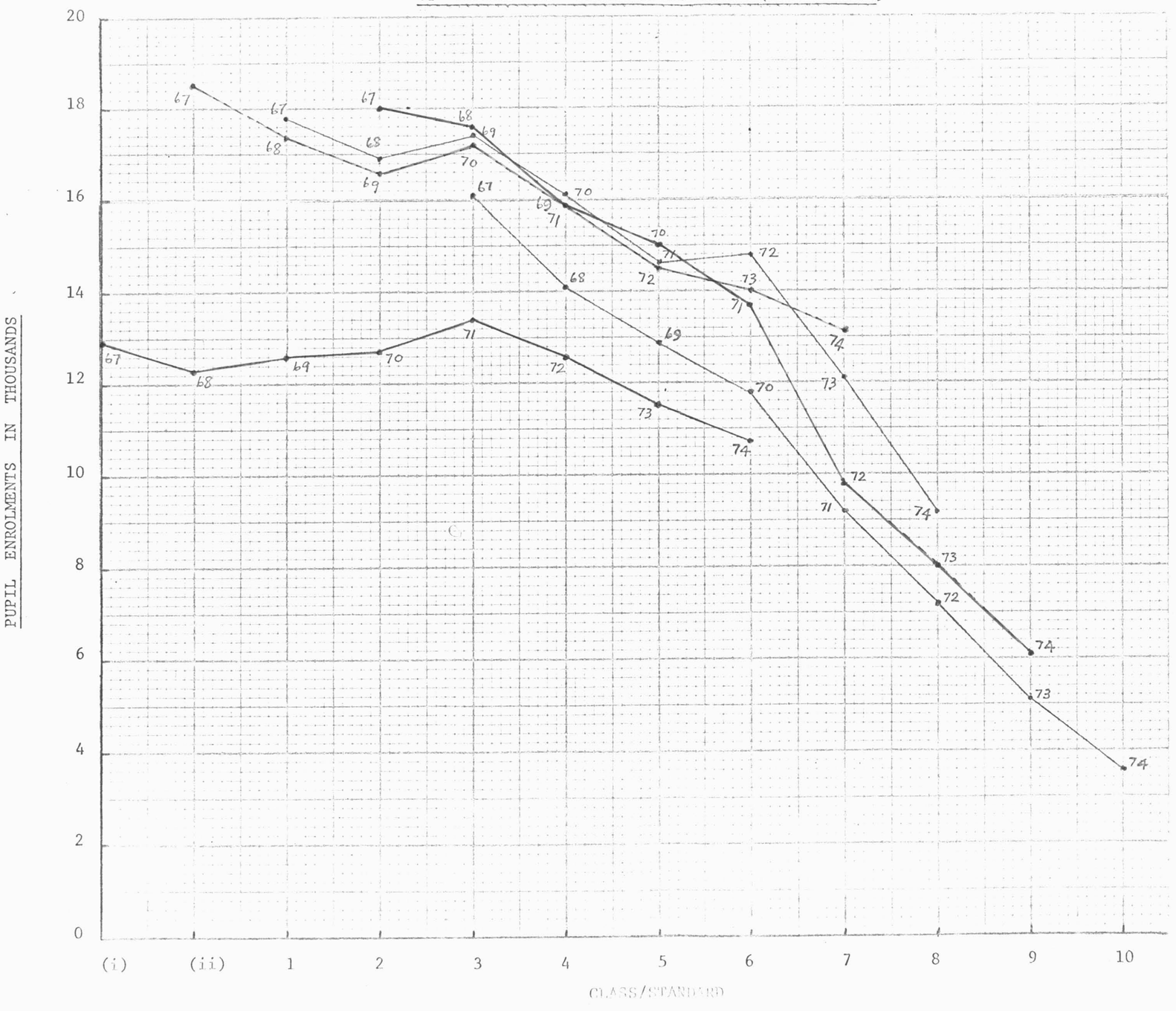
C : Coloured

D : Indian

FIGURE 4.2

NATAL : PROMOTION - RETARDATION - DROP OUT RATE PATTERN

OF PUPILS BY CLASS ENROLMENTS (1967 - 1974)



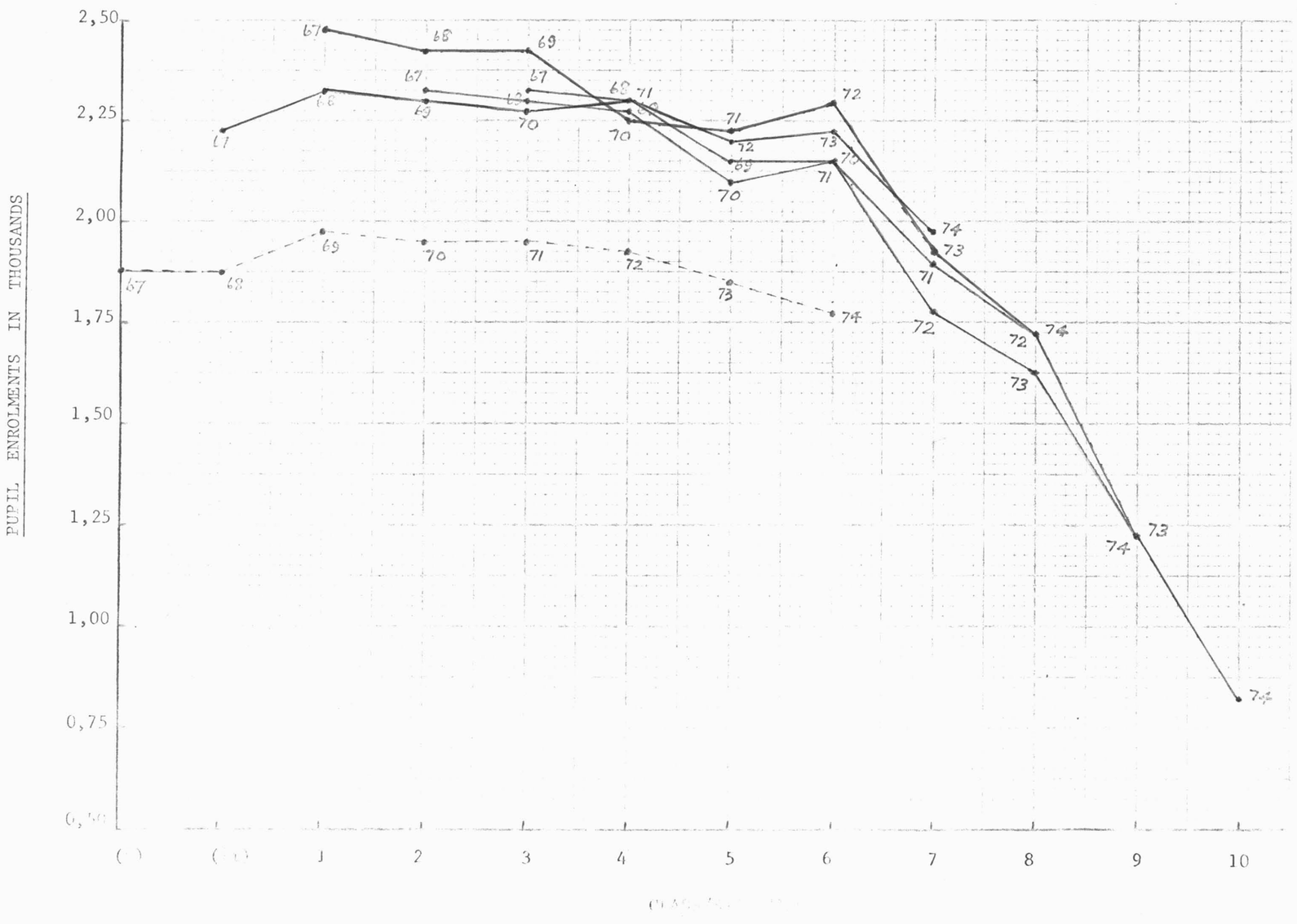
N.B.:

(i) Pupil enrolments are to the nearest hundred.

(ii) Year of pupil enrolment in a particular class/ standard is given next to the point, for example, 67 next to a point means 1967.

FIGURE 4.3

TRANSVAAL : PROMOTION - RETARDATION - DROP OUT RATE PATTERN OF PUPILS BY CLASS ENROLMENTS (1967 - 1974)



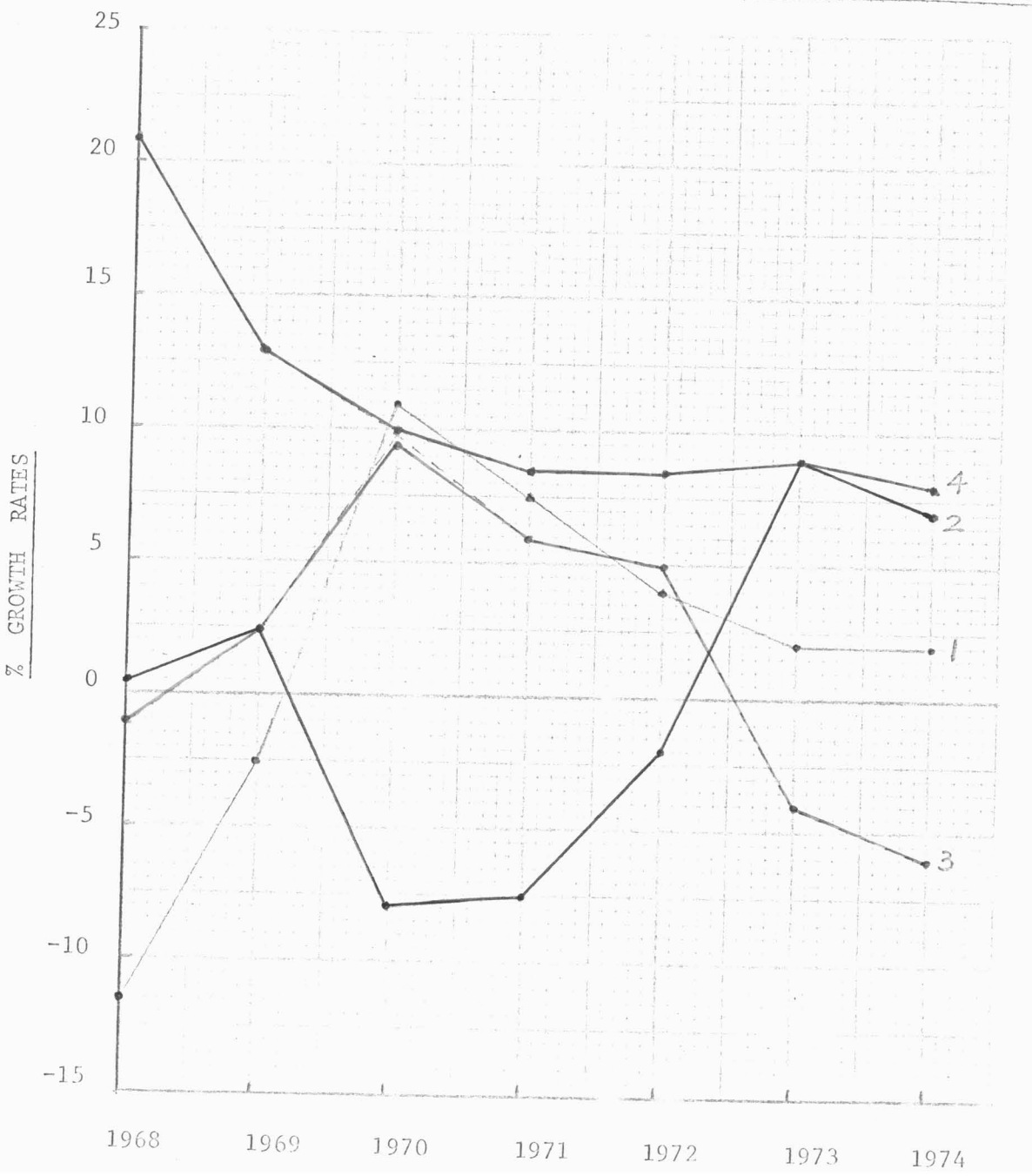
N.B.:

(i) Pupil enrolments are to the nearest 25.

(ii) Year of pupil enrolment in a particular class/standard is given next to the point, for example, 68 next to a point means 1968.

FIGURE 4.4

NATAL : ACTUAL PERCENTAGE GROWTH RATES OF PHASES (1968 - 1974)

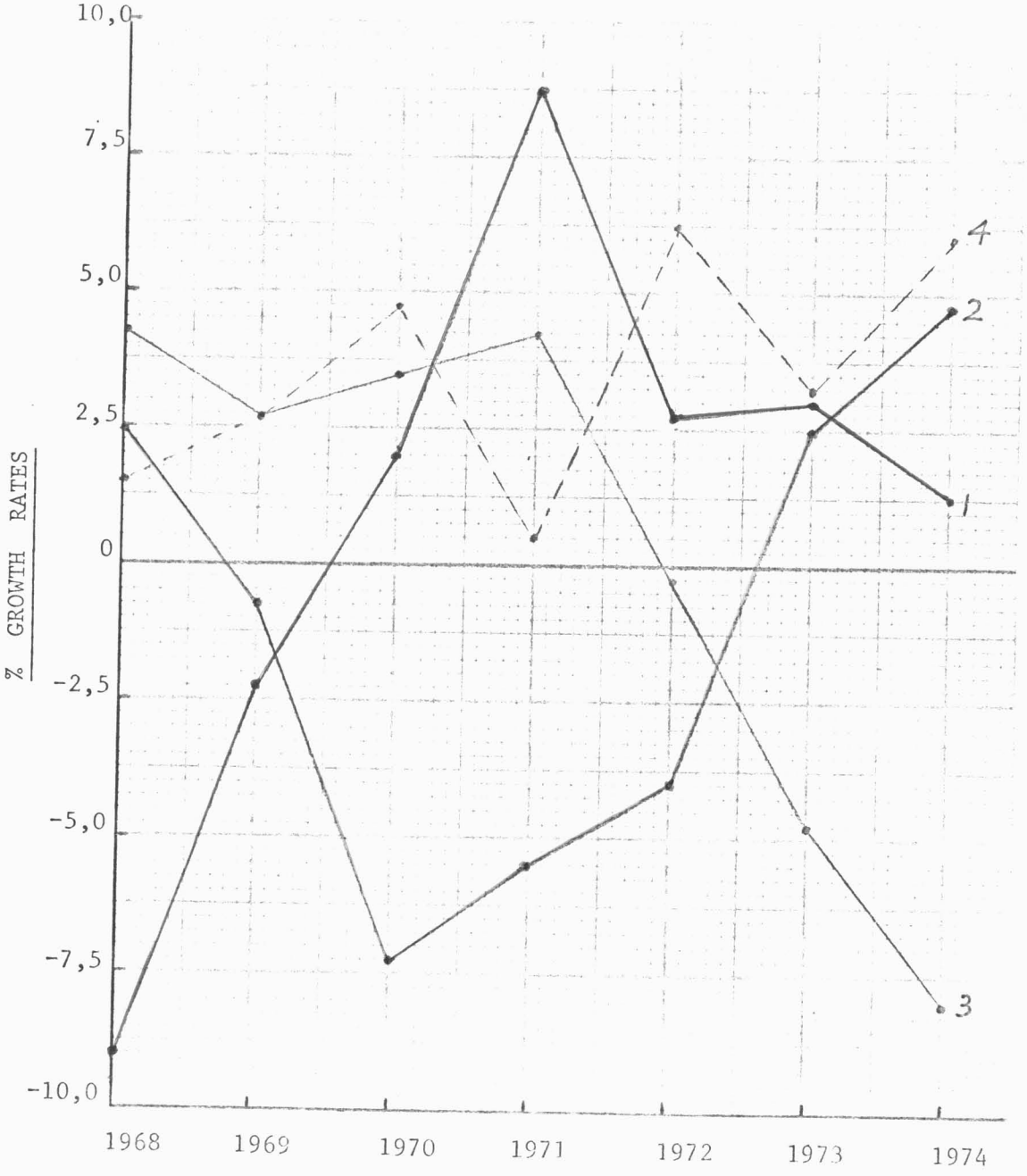


N.B.: % calculated to the nearest ½%

KEY

1 : Phase 1
2 : Phase 2
3 : Phase 3
4 : Phase 4

TRANSVAAL : ACTUAL PERCENTAGE GROWTH RATES OF PHASES (1968 - 1974)



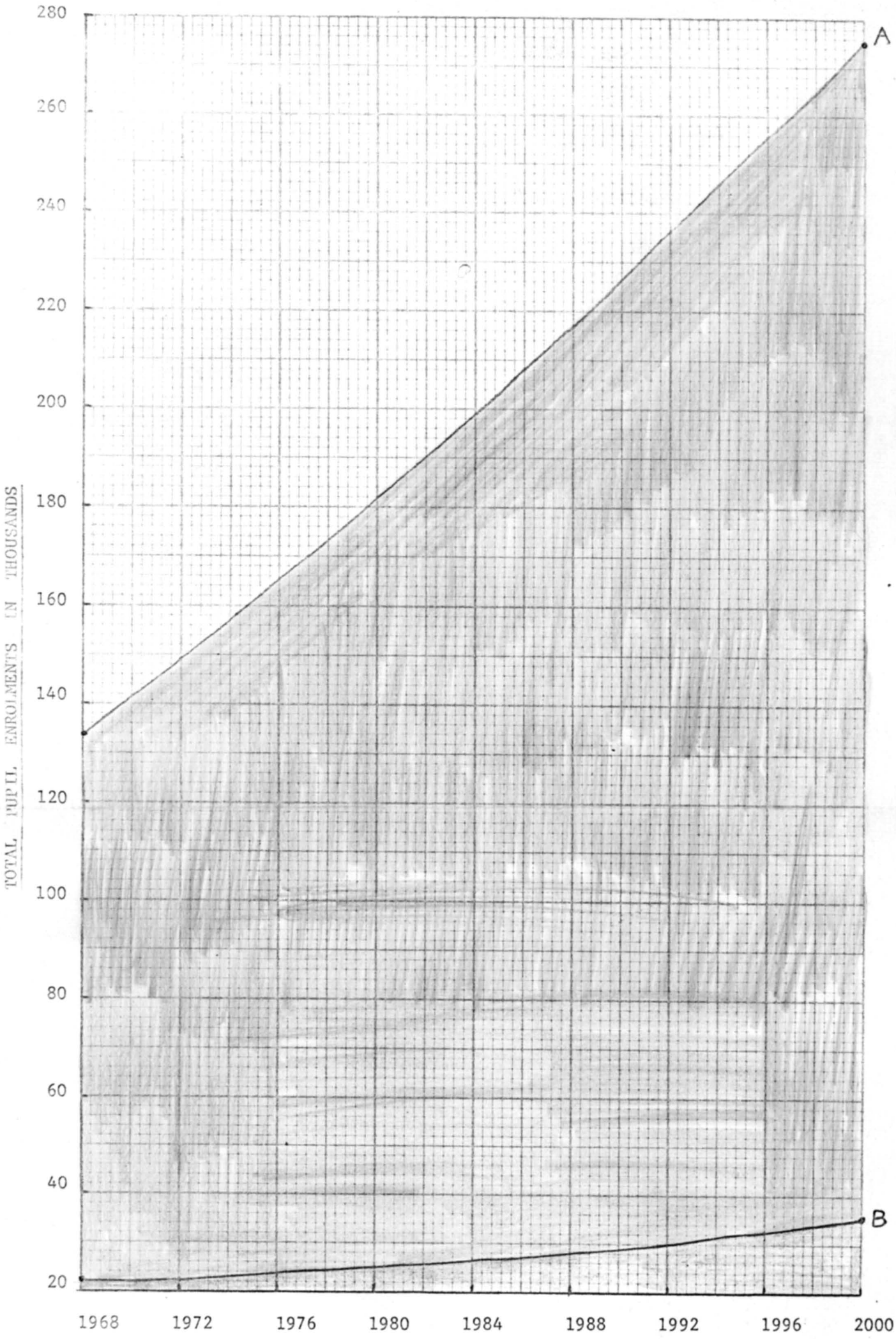
N.B.: % calculated to the nearest ¼%

KEY

1	:	Phase 1
2	:	Phase 2
3	:	Phase 3
4	:	Phase 4

FIGURE 4.6

ACTUAL TOTAL PUPIL POPULATIONS (1968 - 1972) AND PROJECTED TOTAL PUPIL POPULATIONS (1976 - 2000) FOR NATAL AND TRANSVAAL



N.B.: Population given to the nearest thousand.

KEY: A : Natal School Population

B : Transvaal School Population

as schools become ready for occupation. For example, when Rylands State Indian High School is completed for occupation in 1976, the high school pupils who are attending Coloured high schools in the Cape Town area are expected to be transferred to this Indian school in that year.

A major deficiency in the method of graphical representation is that a feature of the school population growth rates is its chequered pattern. Insufficient points on the graph make extrapolation of trend graphs difficult. For example, pupil enrolments for standard 2 in Natal schools tended to decrease from 18 007 pupils in 1967 to 12 746 pupils in 1970 and then there was an upward trend increasing to 16 280 pupils in 1973. The total enrolment for this standard then dropped slightly to 16 165 pupils in 1974. It is difficult to estimate whether this drop in enrolment for standard 2 will continue or if one can justify an upward trend. Thus it is apparent that grpahical methods in themselves are poor predictors.

4.7 FACTOR METHOD FOR PROJECTING PUPIL ENROLMENTS FOR THE DIFFERENT STANDARDS

The factor method was used to determine projected pupil enrolments for each standard from 1975 to 1980. By a factor is meant the quotient obtained by dividing the number of pupils in a specific standard in a year by the number of pupils in a lower standard in the previous year. For example, dividing the number of standard 2 pupils in 1974

by/

by the number of standard 1 pupils in 1973, one obtains a factor of 0,9794 (correct to 4 decimal places).

In the calculation of all the figures contained in Table 4.15 to Table 4.22, four-figure tables were used.(44) The advantage in using the factor method is that certain features such as the "low-points" and the actual pupil enrolments in the different standards are taken into account.

Table 4.15 indicates the factors for the various standards in Natal from 1974 to 1981. The factors for class (i) have been omitted because factors are calculated diagonally, and there is no formal class preceeding class (i). For purposes of projection, an arithemtic mean of 213 pupils has been added to each successive year of class (i) enrolment from 1975 to 1980. No factors have been used for special classes, but rather the present pattern has been maintained, that is, it is anticipated that the annual increase will be 200 pupils or 10 adjustment classes of 20 pupils each. The method by which the factors in this table have been obtained is explained in Appendix C(1).

The factors in Table 4.15 have been adjusted in order to arrive at the 1980 model (vide 3.2.3(b)). These adjusted factors are set out in Table 4.16. The method by which these factors have been adjusted is contained in Appendix C(2).

Table 4.17 indicates the projection of pupils in Natal from 1975 to 2000. The pupil projections are for each standard, each of the four phases, primary school total and high school total. Phases 1 and 2 constitute the primary school total while phases 3 and 4 constitute the high school total. Calculations from 1975 to 1980 have been

done/

done on an annual basis while the projected figures, thereafter, have been determined quinquennially. The growth rates per annum for primary school total, high school total and the total school population have been calculated, and these growth rates have been indicated at the foot of this table. The method by which the pupil figures in this table have been calculated is described in Appendix C(3). From this table it is evident that the high school growth rate is higher than that of primary school growth rate in Natal. Further, the growth rate is anticipated to be highest in the fourth phase which will be influenced by compulsory education for Indian pupils in South Africa. It is for this reason that the Department(45) is planning many more high schools in the next five year building programme in order to cope with anticipated high school accommodation.

Tables 4.18 and 4.19 indicate sets of factors which are to be used to determine number of pupils in a standard for Transvaal schools. The method adopted in constructing these tables has been the same as for construction of Tables 4.15 and 4.16 respectively.

Table 4.20 indicates the projection of pupils in the Transvaal from 1975 to 1980. See Appendix D for calculation of pupils for different standards. The totals for each of the phases, primary school total and high school total were also found. The growth rates for primary school total, high school total and total school population have been calculated and are given at the foot of the table. From the table it would appear that the high point in growth rate pattern for primary schools is in 1978 and, thereafter, the pattern appears to be a decreasing one. The "low-point" appears to affect the high school growth rate from 1978 to 1980 and, thereafter, the growth rate pattern

is/

is an increasing one. Excepting for 1977, the total growth rate is lower in Transvaal than in Natal. There are 676 Coloured pupils[46] in Indian schools in the Transvaal, and they are expected to be transferred to Coloured schools and, hence, the lower growth rate pattern in the Transvaal.

Table 4.21 reflects the distribution of pupils in the Cape Province from 1975 to 2000 for the different standards, phases, primary school totals and high school totals. There is only one school in the Cape at the beginning of 1975. The Cape pupil population has been projected on a more-or-less ad hoc basis, increasing the total pupil enrolment under the control of the Department of Indian Affairs, Division of Education, as schools are built. As at 3 July 1974, there were 3 740 Indian pupils attending Coloured schools at the Cape.[47] However, only Indian pupils already under the control of the Department and those pupils who are expected to fall under the control of the Department in due course have been considered for these pupil projections. In 1975 no new school is expected to open in the Cape. The only growth anticipated will be at Woolhope State Indian High School. At the beginning of 1976 Rylands State Indian High School with 30 classrooms and 14 specialist rooms together with Cravenby State Indian Primary School with 20 classrooms and 4 specialist rooms are expected to be ready for occupation. These two schools are expected to draw their primary and high school Indian pupils who are attending Coloured schools in Bellville and Wynberg. According to the Administration of Coloured Affairs, the anticipated pupil enrolment for these two schools in 1976 is 2 895. The class distribution for thes pupils is the same as for the 1976 Transvaal pattern. The same kind of projection pattern has been used because the Indians in the Cape are

of/

of the same cultural and socio-economic group as their counter-parts in the Transvaal.(48) In 1977 Kimberley State Indian Primary School with 10 classrooms and specialist rooms is expected to be ready for occupation. According to the Administration of Coloured Affairs the anticipated number of Indian pupils in Kimberley in 1976 is 330 pupils. In 1980 a primary school at Mafeking with 7 classrooms and specialist rooms and a twenty classroom primary-high school at East London are expected to be ready for occupation. After 1980 the growth is expected to be a natural one. Thus, it is evident from Table 4.21 that the growth rate increased sharply when new schools are expected to be opened.

Table 4.22 indicates the class distribution of pupils for the Republic of South Africa from 1975 to 2000. Tables 4.17, 4.20 and 4.21 were used to calculate the figures in Table 4.22. For example, the number of class (i) pupils in Table 4.22 is obtained by adding the number of class (i) pupils in Table 4.17 (Natal) to the number of class (i) pupils in Table 4.20 (Transvaal) and the number of class (i) pupils in Table 4.21 (Cape) for any one year. The growth rates at the foot of Table 4.22 have been calculated on an annual basis. Excepting for the year 1976, the total growth rate is expected to fluctuate from 2% per annum to 2,78% per annum. There appears to be a steady decrease in growth rate from 1979. This pattern is evident from Table 4.6 (Asian Fertility : Birth Rate by Age of Mother) and Table 4.11 (Asiatics : Populations and Growth Rates). Further, the high school growth rate is much higher than that of primary school. However, it must be noted that the growth rate is not entirely a natural one. The number of pupils who fall under the control of the Department of Indian Affairs has been influenced by the opening of new schools in the

Cape/

Cape and the consequent transfer of Indian pupils from Coloured schools to Indian schools.

TABLE 4.15

NATAL : FACTORS TO DETERMINE NUMBER OF PUPILS IN A STANDARD FROM 1974 TO 1981 USING ARITHMETIC MEAN

STD.	1974	1975	1976	1977	1978	1979	1980	1981
cl. (i)	-	-	-	-	-	-	-	-
(ii)	1,0377	1,0445	1,0513	1,0581	1,0649	1,0717	1,0785	1,0853
std. 1	0,9236	0,9186	0,9136	0,9085	0,9035	0,8985	0,8935	0,8885
2	0,9794	0,9790	0,9785	0,9780	0,9775	0,9770	0,9765	0,9760
3	1,0387	1,0432	1,0478	1,0523	1,0568	1,0614	1,0659	1,0704
4	0,9300	0,9205	0,9110	0,9015	0,8920	0,8825	0,8730	0,8635
5	0,9038	0,8946	0,8854	0,8762	0,8670	0,8578	0,8486	0,8394
6	0,9262	0,9290	0,9319	0,9347	0,9376	0,9404	0,9433	0,9461
7	0,9331	0,9792	1,0253	1,0715	1,1176	1,1637	1,2098	1,2559
8	0,7628	0,7971	0,8315	0,8658	0,9001	0,9345	0,9688	1,0031
9	0,7657	0,7717	0,7777	0,7838	0,7898	0,7958	0,8019	0,8079
10	0,6994	0,7216	0,7437	0,7659	0,7881	0,8102	0,8324	0,8546
sp. cl.	-	-	-	-	-	-	-	-

TABLE/

TABLE 4.16

NATAL : ADJUSTED FACTORS TO DETERMINE NUMBER OF PUPILS IN A STANDARD FROM 1975 TO 1980 USING GEOMETRIC MEAN

STD.	1975	1976	1977	1978	1979	1980
cl. (i)	-	-	-	-	-	-
(ii)	1,0300	1,0400	1,0470	1,0531	1,0600	1,0653
std. 1	0,8968	0,9005	0,8982	0,8939	0,8886	0,8833
2	0,9603	0,9550	0,9636	0,9668	0,9690	0,9656
3	1,0360	1,0280	1,0270	1,0420	1,0490	1,0550
4	0,9202	0,9048	0,8841	0,8708	0,8696	0,8634
5	0,9194	0,8851	0,8704	0,8502	0,8373	0,8362
6	0,9694	0,9576	0,9342	0,9313	0,9223	0,9206
7	0,9779	1,0690	1,1010	1,1170	1,1560	1,1869
8	0,7949	0,8305	0,9036	0,9249	0,9342	0,9625
9	0,7811	0,7756	0,7829	0,8241	0,8179	0,8017
10	0,7419	0,7528	0,7637	0,7870	0,8461	0,8555
sp. cl.	-	-	-	-	-	-

TABLE/

TABLE 4.17

NATAL : PROJECTION OF PUPILS BY STANDARDS, PHASES, PRIMARY AND HIGH SCHOOLS (1975 - 2000)

STD.	1975	1976	1977	1978	1979	1980	1985	1990	1995	2000
cl. (i)	18 502	18 715	18 928	19 141	19 354	19 567	20 913	22 128	23 245	24 451
(ii)	18 838	19 242	19 595	19 933	20 289	20 618	21 684	22 555	23 244	23 901
std. 1	17 345	16 964	17 283	17 516	17 713	17 922	19 108	20 217	21 206	22 253
Phase 1	54 685	54 921	55 806	56 690	57 356	58 107	61 705	64 900	67 695	70 605
std. 2	16 533	16 565	16 346	16 709	16 973	17 106	18 438	19 699	20 909	22 253
3	16 747	16 996	17 012	17 033	17 528	17 904	19 168	20 306	21 380	22 528
4	15 561	15 153	15 027	14 814	14 812	15 217	17 039	19 025	21 181	23 625
sp. cl.	1 090	1 290	1 490	1 690	1 890	2 090	2 778	3 531	4 400	5 495
Phase 2	49 931	50 004	49 875	50 246	51 203	52 227	57 423	62 561	67 870	73 901
PRIMARY TOTAL	104 616	104 925	105 681	106 836	108 559	110 334	119 128	127 461	135 565	144 506
std. 5	13 138	13 773	13 189	12 776	12 404	12 378	14 746	17 316	20 236	23 627
6	11 205	12 581	12 866	12 283	11 783	11 416	13 874	16 618	19 714	23 352
7	10 439	11 978	13 852	14 372	14 199	13 976	15 862	17 855	20 037	22 528
Phase 3	34 782	38 332	39 907	39 431	38 386	37 770	44 482	51 789	59 987	69 507
std. 8	10 376	8 670	10 824	12 812	13 426	13 667	15 761	18 013	20 510	23 352
9	7 198	8 047	6 787	8 920	10 479	10 763	13 002	15 539	18 645	21 704
10	4 528	5 418	6 146	5 342	7 547	8 966	10 467	12 076	13 897	15 659
Phase 4	22 102	22 135	23 757	27 074	31 452	33 396	39 230	45 628	53 052	60 715
HIGH TOTAL	56 884	60 467	63 664	66 505	69 838	71 166	83 712	97 417	113 039	130 222
TOTAL	161 500	165 392	169 345	173 341	178 397	181 500	202 840	224 878	248 604	274 728
GROWTH RATE	(%p.a.)									
Pr. Total	1,47	0,30	0,72	1,09	1,61	1,64	1,60	1,40	1,30	1,30
High Total	5,00	6,30	5,29	4,46	5,01	1,90	3,30	3,00	3,00	2,90
TOTAL	2,69	2,41	2,39	2,36	2,92	1,74	2,30	2,10	2,10	2,10

TABLE 4.18

TRANSVAAL : FACTORS TO DETERMINE NUMBER OF PUPILS IN A STANDARD FROM 1974 TO 1981 USING ARITHEMTIC MEAN

STD.	1974	1975	1976	1977	1978	1979	1980	1981
cl. (i)	-	-	-	-	-	-	-	-
(ii)	0,9520	0,9671	0,9822	0,9973	1,0125	1,0276	1,0427	1,0578
std. 1	0,9857	0,9744	0,9631	0,9518	0,9405	0,9291	0,9178	0,9065
2	0,9799	0,9804	0,9810	0,9815	0,9821	0,9826	0,9832	0,9837
3	0,9848	0,9967	1,0086	1,0205	1,0324	1,0443	1,0562	1,0681
4	0,9722	0,9566	0,9410	0,9254	0,9098	0,8942	0,8786	0,8630
5	0,9513	0,9434	0,9355	0,9275	0,9196	0,9116	0,9037	0,8958
6	0,9752	0,9711	0,9670	0,9629	0,9588	0,9548	0,9507	0,9466
7	0,8870	0,9362	0,9854	1,0346	1,0838	1,1330	1,1822	1,2314
8	0,8974	0,8995	0,9015	0,9036	0,9057	0,9077	0,9098	0,9119
9	0,7475	0,7544	0,7613	0,7682	0,7751	0,7820	0,7889	0,7958
10	0,6749	0,6989	0,7229	0,7469	0,7709	0,7949	0,8189	0,8429
sp. cl.	-	-	-	-	-	-	-	-

TABLE/

TABLE 4.19

TRANSVAAL : ADJUSTED FACTORS TO DETERMINE NUMBER OF PUPILS IN A STANDARD FROM 1975 TO 1980 USING GEOMETRIC MEAN

STD.	1975	1976	1977	1978	1979	1980
cl. (i)	-	-	-	-	-	-
(ii)	0,9668	0,9847	1,0020	1,0150	1,0310	1,0526
std. 1	0,9696	0,9631	0,9541	0,9448	0,9311	0,9210
2	0,9721	0,9761	0,9813	0,9845	0,9872	0,9856
3	0,9963	1,0000	1,0160	1,0310	1,0470	1,0610
4	0,9614	0,9406	0,9173	0,9053	0,8939	0,8808
5	0,9561	0,9399	0,9270	0,9118	0,9069	0,9037
6	1,0190	0,9800	0,9677	0,9585	0,9466	0,9458
7	0,9788	1,0340	1,0480	1,0890	1,1320	1,1710
8	0,9532	0,9423	0,9484	0,9177	0,9120	0,9095
9	0,6928	0,8071	0,8030	0,8136	0,7925	0,7927
10	0,6680	0,6636	0,7914	0,8060	0,8343	0,8301
sp. cl.	-	-	-	-	-	-

TABLE/

TABLE 4.20

TRANSVAAL : PROJECTION OF PUPILS BY STANDARDS, PHASES,

PRIMARY AND HIGH SCHOOLS (1975 - 2000)

STD.	1975	1976	1977	1978	1979	1980	1985	1990	1995	2000
cl. (i)	2 454	2 496	2 538	2 580	2 622	2 664	2 804	2 928	3 042	3 120
(ii)	2 332	2 416	2 501	2 576	2 660	2 760	2 873	2 957	3 025	3 050
td. 1	2 212	2 246	2 306	2 363	2 399	2 451	2 576	2 682	2 779	2 840
hase 1	6 998	7 158	7 345	7 519	7 681	7 875	8 253	8 567	8 846	9 010
td. 2	2 214	2 159	2 204	2 270	2 333	2 364	2 510	2 634	2 754	2 840
3	2 133	2 214	2 193	2 272	2 376	2 474	2 603	2 712	2 811	2 875
4	2 000	2 006	2 031	1 986	2 031	2 092	2 320	2 548	2 789	3 015
pl. cl.	90	130	160	200	230	270	358	458	570	700
hase 2	6 437	6 509	6 588	6 728	6 970	7 200	7 791	8 352	8 923	9 430
RIMARY OTAL	13 435	13 667	13 933	14 247	14 651	15 075	16 044	16 919	17 770	18 440
td. 5	1 907	1 880	1 860	1 852	1 801	1 836	2 105	2 389	2 701	3 015
6	1 771	1 869	1 819	1 783	1 753	1 703	1 990	2 297	2 633	2 980
7	1 773	1 831	1 959	1 981	2 018	2 055	2 257	2 461	2 672	2 875
hase 3	5 451	5 580	5 638	5 616	5 572	5 594	6 352	7 147	8 006	8 870
td. 8	1 871	1 670	1 737	1 798	1 806	1 836	2 028	2 222	2 426	2 980
9	1 194	1 510	1 341	1 413	1 425	1 432	1 726	2 045	2 400	2 770
10	813	792	1 195	1 081	1 179	1 183	1 370	1 570	1 788	1 998
hase 4	3 878	3 972	4 273	4 292	4 410	4 451	5 124	5 837	6 614	7 748
IGH OTAL	9 329	9 552	9 911	9 908	9 982	10 045	11 476	12 984	14 620	16 618
OTAL	22 764	23 219	23 844	24 155	24 633	25 120	27 520	29 903	32 390	35 058
ROWTH TE	(% p.a.)									
. Total	1,34	1,73	1,95	3,44	2,84	2,89	1,30	1,10	0,90	0,70
h Total	0,61	2,39	3,76	-0,04	0,75	0,63	2,70	2,50	2,40	2,60
TAL	1,04	2,00	2,69	1,99	1,98	1,98	1,90	1,70	1,60	1,60

TABLE 4.21

CAPE PROVINCE : PROJECTION OF PUPILS BY STANDARDS, PHASES,

PRIMARY AND HIGH SCHOOLS (1975 - 2000)

STD.	1975	1976	1977	1978	1979	1980	1985	1990	1995	2000
cl. (i)	120	416	459	470	477	587	639	693	746	794
(ii)	90	403	452	469	484	609	655	699	742	776
std. 1	83	374	417	429	437	541	587	634	682	723
Phase 1	293	1 193	1 328	1 368	1 398	1 737	1 881	2 026	2 170	2 293
std. 2	68	354	394	412	425	521	572	623	675	723
3	83	363	393	413	433	546	593	641	690	732
4	75	328	364	360	370	461	529	602	684	767
sp. cl.	20	40	40	40	42	59	82	108	140	178
Phase 2	246	1 085	1 191	1 225	1 270	1 587	1 776	1 974	2 189	2 400
PRIMARY TOTAL	539	2 278	2 519	2 593	2 668	3 324	3 657	4 000	4 359	4 693
std. 5	107	313	336	337	328	405	480	565	663	767
6	89	311	329	324	319	376	454	543	646	759
7	93	305	354	361	367	453	514	582	656	732
Phase 3	289	929	1 019	1 022	1 014	1 234	1 448	1 690	1 965	2 258
std. 8	57	278	314	327	329	405	462	525	595	759
9	45	251	243	257	259	316	393	484	588	705
10	24	132	216	198	214	261	312	371	439	509
Phase 4	126	661	773	782	802	982	1 167	1 380	1 622	1 973
HIGH TOTAL	415	1 590	1 792	1 804	1 816	2 216	2 615	3 070	3 587	4 231
TOTAL	954	3 868	4 311	4 397	4 484	5 540	6 272	7 070	7 946	8 924
GROWTH RATE	(% p.a.)									
Pr. Total	0,19	322,63	10,58	2,94	2,89	24,59	2,00	1,80	1,70	1,50
High Total	10,37	283,13	12,70	0,67	0,67	22,03	3,40	3,20	3,10	3,40
TOTAL	4,38	305,45	11,45	1,99	1,98	23,55	2,50	2,40	2,30	2,30

TABLE 4.22

SOUTH AFRICA : PROJECTION OF PUPILS BY STANDARDS, PHASES,

PRIMARY AND HIGH SCHOOLS (1975 - 2000)

STD.	1975	1976	1977	1978	1979	1980	1985	1990	1995	2000
cl. (i)	21 076	21 627	21 925	22 191	22 453	22 818	24 356	25 749	27 033	28 365
(ii)	21 260	22 061	22 548	22 978	23 433	23 987	25 212	26 211	27 011	27 727
std. 1	19 640	19 584	20 006	20 308	20 549	20 914	22 271	23 533	24 667	25 816
Phase 1	61 976	63 272	64 479	65 477	66 435	67 719	71 839	75 493	78 711	81 908
std. 2	18 815	19 078	18 944	19 391	19 731	19 991	21 520	22 956	24 338	25 816
3	18 963	19 573	19 598	19 718	20 337	20 924	22 364	23 659	24 881	26 135
4	17 636	17 487	17 422	17 160	17 213	17 680	19 888	22 175	24 654	27 407
sp. cl.	1 200	1 460	1 690	1 930	2 162	2 419	3 218	4 097	5 110	6 373
Phase 2	56 614	57 598	57 654	58 199	59 443	61 014	66 990	72 887	78 982	85 731
PRIMARY TOTAL	118 590	120 870	122 133	123 676	125 878	128 733	138 829	148 380	157 694	167 639
std. 5	15 152	15 966	15 385	14 965	14 533	14 619	17 331	20 270	23 600	27 409
6	13 065	14 761	15 014	14 390	13 855	13 495	16 318	19 458	22 993	27 091
7	12 305	14 114	16 165	16 714	16 584	16 484	18 633	20 898	23 365	26 135
Phase 3	40 522	44 841	46 564	46 069	44 972	44 598	52 282	60 626	69 958	80 635
std. 8	12 304	10 618	12 875	14 937	15 561	15 908	18 251	20 760	23 531	27 091
9	8 437	9 808	8 371	10 590	12 163	12 511	15 121	18 068	21 633	25 179
10	5 365	6 342	7 557	6 621	8 940	10 410	12 149	14 017	16 124	18 166
Phase 4	26 106	26 768	28 803	32 148	36 664	38 829	45 521	52 845	61 288	70 436
HIGH TOTAL	66 628	71 609	75 367	78 217	81 636	83 427	97 803	113 471	131 246	151 071
TOTAL	185 218	192 479	197 500	201 893	207 514	212 160	236 632	261 851	288 940	318 710
GROWTH RATE	(% p.a.)									
Pr. Total	1,45	1,92	1,04	1,26	1,78	2,27	1,50	1,40	1,30	1,30
High Total	4,39	7,48	5,25	3,78	4,37	2,19	3,20	3,00	3,00	2,80
TOTAL	2,49	3,92	2,61	2,22	2,78	2,24	2,20	2,10	2,00	2,00

TABLE 4.23

PROJECTED TEACHER POPULATION (1975 - 2000) FOR NATAL, TRANSVAAL AND THE CAPE

NATAL

PHASES	1975	1976	1977	1978	1979	1980	1985	1990	1995	2000
Phase 1	1 873	2 107	2 141	2 171	2 200	2 229	2 577	2 711	2 828	2 949
Phase 2	1 710	1 918	1 913	1 927	1 964	2 003	2 399	2 613	2 835	3 087
Primary Total	3 583	4 025	4 054	4 098	4 164	4 232	4 976	5 324	5 663	6 036
Phase 3	1 415	1 747	1 819	1 797	1 750	1 722	2 208	2 570	2 977	3 449
Phase 4	899	1 009	1 083	1 234	1 434	1 522	1 947	2 264	2 633	3 013
High Total	2 314	2 756	2 902	3 031	3 184	3 244	4 155	4 834	5 610	6 462
TOTAL	5 897	6 781	6 956	7 129	7 348	7 476	9 131	10 158	11 273	12 498

TRANSVAAL

PHASES	1975	1976	1977	1978	1979	1980	1985	1990	1995	2000
Phase 1	237	271	278	285	291	298	341	354	365	372
Phase 2	218	247	243	255	264	273	322	345	368	389
Primary Total	455	518	521	540	555	571	663	699	733	761
Phase 3	281	288	291	290	288	289	328	369	413	458
Phase 4	200	205	221	222	228	230	265	301	341	400
High Total	481	493	512	512	516	519	593	670	754	858
TOTAL	936	1 011	1 033	1 052	1 071	1 090	1 256	1 369	1 487	1 619

CAPE

PHASES	1975	1976	1977	1978	1979	1980	1985	1990	1995	2000
Phase 1	11	49	55	56	58	72	83	90	96	102
Phase 2	9	45	49	50	52	65	79	88	97	106
Primary Total	20	94	104	106	110	137	162	178	193	208
Phase 3	11	39	43	43	43	52	67	78	90	104
Phase 4	5	28	33	33	34	42	54	63	75	91
High Total	16	67	76	76	77	94	121	141	165	195
TOTAL	36	161	180	182	187	231	283	319	358	403

N.B.: The number of teachers has been calculated to the nearest whole number.

TABLE 4.24

PUPIL - TEACHER RATIOS IN PRIMARY SCHOOL AND HIGH SCHOOL DIVISIONS IN NATAL, THE TRANSVAAL AND THE CAPE

YEAR(S)	NATAL		TRANSVAAL		CAPE	
	PRIMARY SCHOOL	HIGH SCHOOL	PRIMARY SCHOOL	HIGH SCHOOL	PRIMARY SCHOOL	HIGH SCHOOL
1971	28,59	24,66	32,87	16,16	31,30	16,29
1972	27,98	27,50	28,65	21,36	31,65	19,00
1973	28,62	25,93	28,00	20,54	33,42	21,10
1974	29,20	24,58	29,58	19,37	27,43	25,73
1975	29,20	24,58	29,58	19,37	27,43	25,73
1976-1980	26,07	21,94	26,40	19,37	24,27	23,58
1981-2000	23,94	20,15	24,22	19,37	22,54	21,77

N.B.: (i) The above ratios indicate the number of pupils (correct to two decimal places) per teacher.

(ii) The ratios from 1971 to 1974 are actual ratios while the ratios from 1975 to 2000 are projected ratios.

TABLE/

TABLE 4.25

ACTUAL TEACHER POPULATION (1974) IN NATAL, THE TRANSVAAL AND THE CAPE

PHASES	NATAL	TRANSVAAL	CAPE
Phase 1	1 878	236	10
Phase 2	1 652	213	10
Phase 3	1 362	253	10
Phase 4	768	194	4
TOTAL	5 660	896	34

TABLE/

TABLE 4.26

FUTURE DEMAND FOR TEACHERS BY PHASES IN NATAL, TRANSVAAL, THE CAPE AND SOUTH AFRICA

(A) NATAL

YEAR	DEMAND FOR ANNUAL GROWTH PHASE 1	PHASE 2	PHASE 3	PHASE 4	TOTAL	WASTAGE FACTOR	TOTAL DEMAND
1975	-5	58	53	131	237	130	367
1976	234	208	332	110	884	142	1 026
1977	34	-5	72	74	175	139	314
1978	30	14	-22	151	173	143	316
1979	29	37	-47	200	219	147	366
1980	29	39	-28	88	128	149	277
1985	70	79	97	85	331	183	514
1990	27	43	72	63	205	203	408
1995	23	44	81	74	222	225	447
2000	24	50	94	76	244	250	494

(B) TRANSVAAL

YEAR	DEMAND FOR ANNUAL GROWTH PHASE 1	PHASE 2	PHASE 3	PHASE 4	TOTAL	WASTAGE FACTOR	TOTAL DEMAND
1975	1	5	28	6	40	70	110
1976	34	29	7	5	75	71	146
1977	7	-4	3	16	22	67	89
1978	7	12	1	1	21	63	84
1979	6	9	-2	6	19	59	78
1980	7	9	1	2	19	55	74
1985	9	10	8	7	34	63	97
1990	3	5	8	7	23	68	91
1995	2	5	9	8	24	74	98
2000	1	4	9	12	26	81	107

TABLE/

(C) CAPE

YEAR	DEMAND FOR ANNUAL GROWTH PHASE 1	PHASE 2	PHASE 3	PHASE 4	TOTAL	WASTAGE FACTOR	TOTAL DEMAND
1975	1	-1	1	1	2	0	2
1976	38	36	28	23	125	0	125
1977	6	4	4	5	19	4	23
1978	1	1	-	-	2	4	6
1979	2	2	-	1	5	4	9
1980	14	13	9	8	44	5	49
1985	2	3	3	2	10	6	16
1990	1	2	2	2	7	6	13
1995	1	2	2	2	7	7	14
2000	1	2	3	3	9	8	17

(D) REPUBLIC OF SOUTH AFRICA

YEAR	DEMAND FOR ANNUAL GROWTH PHASE 1	PHASE 2	PHASE 3	PHASE 4	TOTAL	WASTAGE FACTOR	TOTAL DEMAND
1975	-3	62	82	138	279	200	479
1976	306	273	367	138	1 084	213	1 297
1977	47	-5	79	95	216	210	426
1978	38	27	-21	152	196	210	406
1979	37	48	-49	207	243	210	453
1980	50	61	-18	98	191	209	400
1985	81	92	108	94	375	252	627
1990	31	50	82	72	235	277	512
1995	26	51	92	84	253	306	559
2000	26	56	106	91	279	339	618

TABLE/

TABLE 4.27

(A) THE SUPPLY OF INDIAN TEACHERS AND THE CUMULATIVE SHORTAGE FROM 1975 TO 2000

YEAR	SUPPLY OF TEACHERS SPRINGFIELD COLL. OF ED.	TRANSVAAL COLL. OF ED.	UNIV. OF DBN.-WEST.	TOTAL SUPPLY	TOTAL DEMAND	CUMULATIVE SHORTAGE
1975	183	85	93	361	479	118
1976	88	43	85	216	1 297	1 199
1977	146	56	113	315	426	1 310
1978	181	69	140	390	406	1 326
1979	209	80	161	450	453	1 329
1980	250	96	194	540	400	1 189
1985	417	160	323	900	627	916
1990	514	197	399	1 110	512	318
1995	556	213	431	1 200	559	* 323
2000	649	249	502	1 400	618	*1 105

*Indicates excess number of teachers

(B) PERCENTAGE OF SENIOR CERTIFICATE CANDIDATES TAKING TEACHING AS A PROFESSION : ACTUAL (1970 - 1973) AND PROJECTED (1974 - 2000)

YEAR	SEN. CERTIFICATE CANDIDATES	ENTERING TEACHING PROFESSION NO.	%
1970	2 605	548	21,04
1971	3 350	504	15,04
1972	3 494	277	7,93
1973	3 773	331	8,77
1974	4 420	380	8,60
1975	5 365	459	8,55
1976	6 342	539	8,50
1977	7 557	639	8,45
1978	6 621	556	8,40
1979	8 940	746	8,35
1980	10 410	864	8,30
1985	12 149	1 002	8,25
1990	14 017	1 149	8,20
1995	16 124	1 314	8,15
2000	18 166	1 471	8,10
	(1)	(2)	(3)

TABLE 4.28

INDIAN TEACHERS' QUALIFICATIONS AS AT 30 JUNE 1973

QUALIFICATION	PRIMARY SCHOOLS	HIGH SCHOOLS	TOTAL
1. Degree with prof. qualification	300	705	1 005
2. Degree without prof. qualification	5	27	32
3. Prof. qualification without degree	3 608	1 420	5 028
4. Other qualifications	2	6	8
5. Non-grad. without prof. qualification	286	66	352
Prof. qualified	3 915	2 158	6 073
Prof. unqualified	286	66	352
Total	4 201	2 224	6 425

4.8 TEACHER DEMAND FOR INDIAN SCHOOLS (1975 - 2000)

Table 4.23 reflects the anticipated teacher population in Indian schools in Natal, the Transvaal and the Cape from 1975 to 2000. The number of teachers expected have been determined for each of the four phases, primary school total, high school total and the total school population. The anticipated teacher population for any one category in a particular year has been calculated using projected pupil-teacher ratios. These pupil-teacher ratios have been explained in Chapter Three, paragraph 3.3.6, and summarized under Table 4.24. It should be noted that the pupil-teacher ratio used for phases 1 and 2 is the same as for primary school pupil-teacher ratio. For example,

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by dividing the 54 685 pupils in 1975 in phase 1 in Natal (Table 4.17) by the corresponding pupil-teacher ratio of 29,20 : 1 (Table 4.24), one obtains the teacher population of 1873 (to the nearest whole number) as contained in Table 4.23. Similarly, the pupil-teacher ratio used for phases 3 and 4 is the same as for high school pupil-teacher ratio. Probably, the pupil-teacher ratio for each of the four phases would have produced better results but no relevant statistics were available from the records of the Department of Indian Affairs, Division of Education, for this purpose.

The actual pupil-teacher ratios for primary and high schools from 1971 to 1974 have been used to determine future patterns in Table 4.24. The pupil-teacher ratio is expected to become much more liberal in 1976 when the proposed staff-ration formula is implemented. (Vide Chapter Three, Table 3.7). The pupil-teacher ratio is expected to become even more liberal over the years as more and more school accommodation becomes available. It will be observed that the pupil-teacher ratio for high schools in the Transvaal has been far more liberal in 1974 than those of its counterparts in Natal and the Cape. It is assumed that this ratio will not improve in order to maintain parity in ratios for all the provinces at some future date. There was no significant improvement in the pupil-teacher ratios from 1971 to 1974, particularly in Natal, because of a pressure for school accommodation. Principals preferred to "load" the classrooms rather than institute two or three platoon classes at their school.(49)

Table 4.26 indicates the future demand for teachers in each of the phases and the total demand for Natal, the Transvaal, the Cape and the Republic of South Africa, including the "wastage factor" as

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described in Chapter Three, paragraph 3.4. The demand for teachers has been calculated by subtracting the actual number of teachers under the control of the Department of Indian Affairs from the anticipated teacher population for the corresponding phases. For example, the demand for teachers in phase 2 in 1975 in the Transvaal has been obtained by subtracting 213 teachers (Table 4.25) from 218 teachers (Table 4.23). The negative quantity reflected in Table 4.26 indicates that there is an over-supply of teachers for that particular phase. However, in actual practice, the over-supply of teachers in any one phase is used to make up for the shortage of teachers in another phase, usually phase 1 being co-ordinated with phase 2 and phase 3 with phase 4. The biggest demand for teachers is expected in 1976 when the proposed staff-ration formula is anticipated to be implemented by the Department of Indian Affairs. (Vide Chapter Three, paragraph 3.3.6). Excepting for the year 1980 when there is a relative drop in the growth of high school population in South Africa, there is a greater demand for high school teachers (phases 3 and 4) than for primary school teachers (phases 1 and 2). The figures for the years 1985, 1990, 1995 and 2000 were obtained by calculating the arithmetic mean for the demand for teachers in the periods 1981-1985, 1986-1990, 1991-1995 and 1996-2000 respectively. The Department of Indian Affairs will be responsible for meeting the total demand for teachers in the Republic of South Africa. The figures for the Republic of South Africa in Table 4.26 have been obtained by adding the corresponding figures for Natal, the Transvaal and the Cape. For example, the wastage factor of 210 teachers for South Africa in 1977 is found by adding 139 teachers (Natal), 67 teachers (Transvaal) and 4 teachers (Cape).

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With the increasing number of trained teachers available, the demand for unqualified teachers has been decreasing significantly over the last few years. The number of professionally unqualified teachers as at June 1973 was 352 (vide Table 4.28) while the number of unqualified teachers has been reduced from 900 teachers in 1968 to 151 teachers by the end of 1973.(50, 51)

There is a significant shortage of suitably qualified teachers in Afrikaans (for high and primary schools), in Junior Primary Education (Infant Teaching), in Mathematics and in Physical Science (the latter two for the fourth phase in high schools).(52) The acute shortage of graduates for Afrikaans, Physical Science and Mathematics is borne out by the fact that the minimum requirement for the post of Senior Assistant Teacher (High School) for these subjects is a matriculation plus three years teachers' diploma specialising in that particular subject.(53)

The Director of Indian Education,(54) reporting on the subject Afrikaans, stated that in the primary school phases, the biggest single problem that still remains is the lack of teachers with a good command of spoken Afrikaans. Owing to an increase in the pupil enrolment at high schools and a more liberal time allocation in 1973 for Afrikaans in the secondary classes, a considerable number of experienced primary school teachers had to be transferred to secondary schools. This created problems in the staffing of primary schools in that subject, and this set-back is being overcome by more intensive guidance by the inspectorate. Senior assistants in Afrikaans are still urgently required to supplement supervision, particularly in schools where the management staff cannot supervise the teaching of Afrikaans.

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The Director of Indian Education pointed out that, with the higher standard of mathematics required in the new differentiated system (of Higher and Standard Grade), the national shortage of suitably qualified graduate teachers became more significant in the senior high school. On the subject of Physical Science, he reported that the demand for suitably qualified graduates in the subject is now affecting the quality of teaching in this area moreso now than in the past. The demand for more biology graduates is emphasised by the fact that, in a number of schools, teachers from colleges of education are responsible for all the senior work. Although guidance and counselling services form part of the curriculum of every child in Indian schools, there were no qualified or trained personnel in the schools by the end of 1974 to provide these specialized services.(55)

Thus it is apparent that in the general demand for teachers, the greatest need is in the areas of Afrikaans, Junior Primary Education, Mathematics, Guidance and Counselling, Physical Science and Biology. No statistics are available from the Department of Indian Affairs with regard to the number of teachers required in the future for all the subjects taught at Indian schools. Research in this area would be both interesting and invaluable for Indian education.

Perhaps what is of paramount importance to Indian education is not only meeting the demand for teachers numberwise but the placement of suitably qualified teachers in special areas of teaching. Progress in Indian education in the nineteen seventies will depend upon how expeditiously this shortage of suitably qualified teachers in the different fields and subject areas of the new differentiated system of education can be overcome.

4.9 THE SUPPLY OF INDIAN TEACHERS FROM THE INSTITUTES RESPONSIBLE FOR TEACHER EDUCATION FROM 1975 TO 2000

Table 4.27 indicates the supply of Indian teachers from the institutes responsible for teacher education from 1975 to 2000. As explained earlier in Chapter Three, paragraph 3.5, the supply of Indian teachers will come from the Springfield College of Education (Durban), the Transvaal College of Education (present one is in Johannesburg and the proposed one is in Laudium) and the University of Durban-Westville. As from 1 January 1974 the teacher education division has been transferred from the M.L. Sultan College for Advanced Technical Education to the Springfield College of Education.

Table 4.27 (B) shows the percentage of Senior Certificate candidates who pursue teaching as a profession. The figures from 1970 to 1973 are actual figures obtained from the records of the Department.(56) This pattern together with the one outlined in Chapter Two, paragraph 2.5.13 have been taken into consideration for projecting the figures from 1974 to 2000. Column (1) figures were obtained from Table 4.4 and Table 4.22 (standard 10 enrolments). Having extrapolated column (3), column 2 was calculated using columns (1) and (3). The figures from column (2) were used to determine anticipated total supply of teachers in Table 4.27 (A). It should be noted that the present enrolments in the various years of study at the colleges of education and the University of Durban-Westville have already predetermined the supply of teachers for 1975, 1976 and 1977. Some of those students, who have registered for a four year B. Paed. course for the first time in 1974, are expected to enter the teaching profession in 1978.(57) Further, as soon as the M+4 Teachers' Diploma is offered

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at colleges of education, it will take the students a year longer to qualify. The supply of teachers from the Springfield College of Education, the Transvaal College of Education and the University of Durban-Westville from 1978 to 2000 has been maintained in the same ratio as for 1977 which has already been predetermined. The number of teachers qualifying at an institution has been calculated to the nearest whole number.

From Table 4.27 (A) it is evident that the cumulative shortage of teachers is expected to increase from 1975 to 1979, and the shortfall is expected to be eliminated after 1990. In the meanwhile the Department is expected to resort to the employment of locum tenentes and unqualified teachers. A surplus supply of teachers is expected from 1995 to 2000. If the projected figures materialise, the surplus supply of teachers will be of great advantage to the Department in that more classroom accommodation can be programmed and the staff-ration formula can be revised in order to make it more liberal.

The University of Durban-Westville provides teachers mainly for high schools. It offers degrees in education (B.Ed., M.Ed., and D.Ed.), B. Paed. (Arts), B. Paed. (Science), B. Paed. (Commerce), B. Paed. (Primary Education), University Higher Diploma in Education (post-graduate course), Lower Secondary Teachers' Diploma, Primary Teachers' Diploma, Special Education, Primary Teachers' Certificate, B.A. degree plus University Higher Diploma in Education, B. Comm. degree plus University Higher Diploma in Education, B.Sc. degree plus University Higher Diploma in Education, University Diploma in Education, Diploma in School Counselling and Diploma for Teachers of Children Handicapped in Speech and Hearing. The Springfield College of Education supplies

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the schools in Natal with primary and most of the junior secondary phase teachers. This College offers Education Diploma in Junior Primary, Senior Primary and Junior Secondary. The Transvaal College of Education also offers the same diplomas as does the Springfield College of Education, but it caters for schools in the Transvaal.

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31. FIGURE EXTRACTED FROM *TABLE 4.4.*

32./

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CHAPTER FIVE

PROGNOSIS AND RECOMMENDATIONS IN THE LIGHT OF PROJECTION TECHNIQUES AND CURRENT POLICY IN THE DEPARTMENT OF INDIAN AFFAIRS, DIVISION OF EDUCATION

5.1 RELEVANCE OF THE PRESENT STUDY

The object of this investigation is to review futures research methods, to compare what has been done in the past, what is being considered for the present and what proposals are made for the future in regard to forecasting pupil populations, future demand for and supply of teachers in Indian education.

The results of the present study have practical values in that it has revealed that the supply of teachers for Indian schools does not meet the anticipated demand. It is hoped that the cumulative shortage of teachers will be met after 1990 (vide Table 4.27). This shortage of teachers persists in other countries as well, including Britain where the authorities are familiar even with staff "working-to-rules".(1) In a mass meeting of over a thousand teachers in Glasgow, the teachers made it abundantly clear that they are unable to tolerate the imposition of unfair burdens or deterioration in their general conditions of service any further in their school staffing crisis. This, undoubtedly, affected the morale of the teachers and the quality of instruction in the classroom.

Further, no one method, for example, graphical representations, is adequate for purposes of pupil projections.

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5.2 GENERAL CONCLUSIONS

5.2.1 In Natal, the growth rate of school populations in the last seven years has been greatest in phase 4 (vide Table 4.1). This pattern is expected to be maintained until 1980, and even beyond (vide Table 4.17). In the Transvaal, the growth rate in the school population has been minimal in the last seven years. In fact, there has been a drop in the primary school population from 13 444 pupils in 1967 to 13 257 in 1974 (vide Table 4.2). However, it is anticipated that the growth rate will be higher in primary schools than in the high schools in the Transvaal from 1975 to 1980 as the 676 Coloured pupils[2] attending Indian primary schools are gradually phased out (vide Table 4.20). The school population in the Cape, falling under the control of the Department of Indian Affairs, is expected to increase rapidly especially in the years 1976, 1977 and 1980 when new schools become ready for occupation and the Indian pupils attending Coloured schools are expected to be transferred to the proposed Indian schools (vide Table 4.21) and Chapter Four, paragraph 4.7). The demand for teachers in the Cape especially in the above-mentioned years will be much greater (vide Table 4.26). Further, more than 60% of the 1974 staff at the only Indian school in the Cape (Woolhope State Indian High School) was recruited from Natal.[3] In general, the introduction of compulsory school attendance in Indian education from 1973, the implementation of the policy of the differentiated education, coupled with a growth rate in the order of 2,7% p.a. from 1970 to 1974 and an anticipated average growth

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rate of 2,8% p.a. from 1974 to 1978 in the school population (vide Table 4.22 and paragraph 4.2) makes evident that in the future the demand for teachers will be greater.

5.2.2 According to projected figures, a surplus supply of teachers is anticipated after 1990, based on the proposed staff-ration formula (vide Table 4.27). However, the proposed staff-ration formula itself may be revised in due course and made more liberal. Then, this anticipated surplus of teachers can easily fall away.

5.2.3 In 1974, the Natal teacher population was 5 660. This number is expected to double itself in about 20 years from now, based on anticipated growth of pupil population (vide Table 4.23). In the Transvaal, the teacher population is expected to increase by 21,65% from 1974 to 1980, or by 58,87% from 1975 to 1995. The increase in teacher population in the Cape is expected to be phenomenal. There is only one school at the Cape in January 1975, and as schools become ready for occupation, the demand for teachers will grow rapidly. In 1974 there were 34 teachers in the Cape, and this number is expected to grow to 231 teachers in 1980 and 403 teachers in 2000.

5.2.4 It is evident that while the Department of Indian Affairs, Division of Education, appears to be blessed with an adequate supply of teachers, there is a shortage already of suitably qualified teachers in Afrikaans, in Junior Primary Education,

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in Guidance and Counselling, in Mathematics, in Physical Science and in Biology.[4] This shortage is expected to become worse when the number of high school pupils grows (vide Table 4.22). It should be noted that Afrikaans is now a compulsory examination subject up to and including standard 10. Further, compulsory school attendance for Indian pupils is expected to minimise the drop-out rate and increase the holding power of high schools.

5.2.5 The existing pupil-teacher ratios in Indian schools are high when compared with White schools in South Africa (particularly in the Natal Education Department and the Transvaal Education Department) and with schools in Britain.[5, 6] A shortage of school accommodation and the institution of platoon classes were obstacles in the revision of existing staff-ration formula.[7]

5.3 RECOMMENDATIONS

In the light of the findings of this investigation and current policy in the Department of Indian Affairs, Division of Education, the following recommendations are suggested:

5.3.1 Senior Certificate Results

The future intake of teacher trainees will come from potential Senior Certificate candidates. While it is desirable that the minimum entrance qualification for a student to offer a diploma in education should be at least a Senior Certificate (Advanced Grade), the Department was compelled to enrol selected Senior Certificate candidates with "O" level passes

because of a shortage of candidates who passed the Advanced Grade Senior Certificate.(8) Further, a study of the percentage passes of standard 10 candidates, who gained at least the Advanced Grade Senior Certificate, was 29% in 1971, 30% in 1972 and 46% in 1974. (vide Chapter Two, Table 2.4). There has been a significant improvement in percentage passes in this category over the last three years, but it is essential to improve the results even further when it is realized that just about one-twelfth of the candidates actually sought admission to the University and Colleges in 1974. The shortage of graduates becomes of greater concern when one studies the percentage passes of standard 10 candidates who gained matriculation exemption, which is the minimum qualification for a student who wishes to enrol for a degree. This pass was 14% in 1970, 12% in 1971, 14% in 1972 and 13% in 1973 (vide Chapter Two, Table 2.4). Herein, lies the dearth of graduates for high schools. Realising that just about 10% of the candidates who qualify take up teaching as a profession, it is necessary not only to improve the quantity but the quality of passes at the Senior Certificate level. The Department needs to investigate ways and means of attaining this objective.

5.3.2 Wastage Factor

The high wastage factor accounts for practically half the total demand for teachers, and, in some years (1978, 1980, 1990 - 2000), it is expected even to exceed the demand for natural increase in the school population (vide Table 4.26D). In 1973 this wastage factor in the area of resignations alone was 72,06%

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of the total wastage of 204 teachers in Natal and Transvaal (vide Table 3.9). It is essential to stem this wastage in the teaching establishment by offering the teachers higher salaries and improved conditions of service commensurate with their status in society. The control of this drift of teachers will certainly influence the future demand for teachers.

5.3.3 In-service Training

In-service teachers who are inadequately qualified or unqualified should be encouraged to improve their qualifications by greater financial rewards, possibilities of promotions or by other means. This approach is strongly recommended rather than terminating the services of such teachers (vide Table 3.9). Further, in-service training should be a continuous process so that even adequately qualified teachers do not fall behind both in present trends in education and methodology. It is suggested that all teachers involved should be entitled to release from schools on full pay for in-service training for about one school term every seven years.(9) For this purpose, additional teachers need to be considered when determining the future demand for teachers.

More crash courses should be offered to in-service teachers to overcome the shortage of teachers in Afrikaans, in Junior Primary Education, in Guidance and Counselling, in Mathematics, in Physical Science and in Biology. In this respect it is recommended that provisions be made for in-service teachers to offer degrees in pure sciences at the University of Durban-Westville on a part-time basis so as to overcome the shortage

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of science graduates. Some in-service courses enable selected teachers to branch out into new specialisms, especially in fields such as school counselling and guidance, remedial education and education of the handicapped children, which require specialised training within a specific classroom context.

5.3.4 Research Bureau

A research bureau will be invaluable to the Department. Presently, the planning of Indian education is very much the responsibility of the Educational Planning Section under the control of the Director of Indian Education. This research bureau can work on projects such as determining the demand for teachers in the various subjects, investigating how the demand for teachers can be met with an adequate supply of teachers, planning improved instruction and supervision of work in the classroom context and designing economic and yet adequate facilities in school plants. In this way, in projecting its future development, Indian education can provide a basis for consistent planning of education, and thus aid the discussion of education policy for purposes of making administrative decisions on matters such as determining the future demand for teachers in Indian schools.

5.3.5 Conditions of Service

It is essential for the Department to embark on a vigorous campaign to recruit sufficient number of Senior Certificate candidates to take up teaching as a profession if the proposed

staff/

staff-ration formula is to be implemented shortly and meaningfully. In this respect, it may be pointed out that the South African Indian Teachers' Society[10] has reiterated the need to improve salaries and conditions of service if the best of the Senior Certificate candidates are not to be lost to education.

In particular, the conditions of service and salary of women teachers should be on par with their male counterparts. In January 1964, of the total teaching force of 3 925 teachers in Natal under the control of the Natal Education Department, 1 095 (or 27,90%) were women teachers.[11] As at 30 September 1974, of a total of 6 616 teachers in Indian primary and high schools in South Africa, 2 159 (or 32,63% of the total) were women teachers.[12] According to the Director of Education in Natal, more than 70% of Natal's school teachers in 1973 were women teachers.[13] Since it has been assumed that Indian education will follow the White pattern in the future, it is reasonable to expect that the male-female ratio of teachers will become increasingly greater in favour of women teachers especially when more job opportunities become available to the Indian male. In the light of this assumption, it is necessary to improve the conditions of service, particularly those of women teachers. Women teachers who marry should not forfeit their permanent status in the public service.

5.3.6 School Accommodation

The pupil-teacher ratio and the demand for teachers will be influenced by the provision of more school accommodation. In

1974 there were 14 754 pupils who were accommodated in 395 platoon classes. In fact, the number of platoon classes would have been greater had it not been for principals of schools exceeding the Department's approved norm of 35 pupils in a classroom especially in densely populated areas. The latter problem is preferred to instituting one or two additional platoon classes at a school.(14)

The growth rate of school populations has been the highest in phase 4 from 1968 to 1974 (vide Table 4.4). The growth rate is expected to be higher in high schools than in primary schools from 1975 to 2000 (vide Table 4.22). Further, by March 1974, there were 15 231 junior secondary pupils (comprising 10 502 standard 5 pupils, 3 623 standard 6 pupils and 1 106 standard 7 pupils) who were enrolled in primary schools in Natal and Transvaal because of a lack of secondary school accommodation.(15)

Based on projected figures (vide Table 4.22) and the existing backlog for secondary school accommodation, it is estimated that no fewer than 44 new high schools comprising 30 classrooms each need to be provided by 1980. This estimate has been derived by using an average pupil enrolment of 800 pupils per high school, but the estimate does not include the movement of high school pupils affected by the Group Areas Act, 1957 (Act No. 77 of 1957) as amended. Thus the provision of more school accommodation, with higher priorities being given to high schools, is recommended with a view to relaxing the staff-ration formula further. Consequently, this will increase the demand for teachers in the future.

5.3.7 Accommodation at Colleges of Education and University

Based on projected figures, the institutes responsible for teacher education need to be planned to accommodate a larger student population. As it is, the Springfield College of Education has been designed (including the additions which are presently in progress) to accommodate an optimum of 500 students while the proposed Laudium College of Education is expected to carry a maximum enrolment of 300 students. All the demand for graduates is expected to come from the University of Durban-Westville. The outflow of students in the final year alone is expected to be about 350 in 1975 and 550 in 1980. Thus, in order to cater for students in the various years of study (especially in the case of colleges of education when the proposed M+4 course would imply that there would be students in four different years of study as against the present three), the authorities concerned need to plan ahead to meet the future demand for teachers in Indian education. In this respect, it is suggested that closer co-operation between the University and the Colleges should be sought throug the establishment of an Institute of Education on lines similar to the British educational system,[16] especially to resolve the problem of shortage of teacher in all areas.

5.3.8. Relief Teachers

Presently, the normal staff generally provides relief for teachers who are absent. Often such teachers are not qualified to teach a particular subject or standard, and the work in these classrooms is unproductive. It is recommended that the

Department/

Department, in determining the future demand for teachers, considers a pool of teachers, including specialist teachers, who could be allocated "relief duty". Possibly, such teachers may be based in geographical zones in order to minimise travelling. The necessity for relief teachers in a permanent capacity is evident when one considers staff absenteeism. For example, in 1971, the Department recorded that teachers were absent for 32 311 days on sick, occasional and examination leave, but excluding accouchement leave and long leave.(17) If the average number of pupils per class is taken as 30, then 969 330 pupil days were lost. More and more teachers are taking examination leave in the crucial period when teachers are expected to be involved with revision before pupils' examinations. Universities could alleviate this problem by organising their examination time-tables, possibly in January, so that they do not clash with end-of-year pupils' examinations. Thus, a pool of relief teachers could not only assist to fill the temporary and yet crucial vacuum in the classroom situation but it could also make it possible for specialist teachers in subjects such as Afrikaans and the Sciences to obtain long leave more readily.

5.3.9 Teaching Aids

Research shows that teaching aids such as closed-circuit television and a computer-assisted teaching system can be of significant help in a teacher shortage crisis.

Educational closed-circuit television can have vast possibilities in Indian education in areas such as in-service

training/

training, follow-up work in team teaching and teaching which can be supplemented in subjects where there is a shortage. Closed-circuit television is used on an increasing scale as a medium of instruction in British schools. The Educational Institute of Scotland has asked that the projected fourth television channel be allocated for education exclusively.(18) The provision of higher education in Britain through the medium of television is done at a cost per student which is only a fraction of the cost of the orthodox university course with its highly specialised staff.

A computer-assisted teaching system has been installed in Chicago, U.S.A., to overcome teacher shortages in the city. There is also a move afoot to follow a similar system in Glasgow, Scotland. However, the Glasgow Local Association is sceptical about the use of computers as substitutes for teachers.(19) It is being contended that the computers should be used as aids until the expiry of a period of experimentation before the advantages of such a scheme could be properly evaluated.

5.3.10 Mathematical Model

From this study of forecasting procedures, it is evident that the construction of a model demands a clarification of the objectives of the system of Indian education and a clearer understanding of the role of decision-making. The model can be used to select the sequence of decisions and, in the light

of/

of experience, the model can be reconstructed so that it can be related more closely to the real system.[20] It is hoped that this investigation will spur researchers to improve on the model described, for purposes of predicting future demand for and supply of teachers in Indian schools in South Africa.

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14/

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APPENDIX A

COMPOUND GROWTH RATES FOR NATAL IN THE PERIOD 1970 TO 1974

The formula used to calculate the compound growth rate was

$P_{t+4} = P_t\ (1+i)^4$

PHASE 1:

$$54\ 845 = 47\ 080\ \left(1 + \frac{r}{100}\right)^4$$

$$r = 100\left[\left(\frac{54\ 845}{47\ 080}\right)^{\frac{1}{4}} - 1\right] \%\ \text{p.a.}$$

$$= 100\ \left(1{,}1649^{\frac{1}{4}} - 1\right) \%\ \text{p.a.}$$

$$= \underline{3{,}9\%\ \text{p.a.}}$$

PHASE 2:

$$48\ 251 = 46\ 044\ \left(1 + \frac{r}{100}\right)^4$$

$$r = 100\left[\left(\frac{48\ 251}{46\ 044}\right)^{\frac{1}{4}} - 1\right] \%\ \text{p.a.}$$

$$= 100\ \left(1{,}0479^{\frac{1}{4}} - 1\right) \%\ \text{p.a.}$$

$$= \underline{1{,}2\%\ \text{p.a.}}$$

PRIMARY SCHOOL POPULATION:

$$103\ 096 = 93\ 124\ \left(1 + \frac{r}{100}\right)^4$$

$$r = 100\left[\left(\frac{103\ 096}{93\ 124}\right)^{\frac{1}{4}} - 1\right] \%\ \text{p.a.}$$

$$= 100\ \left(1{,}1071^{\frac{1}{4}} - 1\right) \%\ \text{p.a.}$$

$$= \underline{2{,}6\%\ \text{p.a.}}$$

APPENDIX/

APPENDIX B

CALCULATION OF EXAMPLES FROM TABLE 4.13

1. Column (2): In 1995 the anticipated number of pupils in Natal was calculated as 86,04% of the estimated total pupil population in the country then.

   No. of pupils = 86,04% of 288 940
   = 248 603,97
   = 248 604 (to the nearest unit)

2. Column (4): In 1990 the anticipated number of pupils in the Transvaal was calculated as 11,42% of the estimated total pupil population in the country then.

   No. of pupils = 11,42% of 261 851
   = 29 903,384
   = 29 903 (to the nearest unit)

3. Column (6): In 1975 the anticipated number of pupils in the Cape was calculated by subtracting the total of figures in columns (2) and (4) from corresponding figures in column (1).

   No. of pupils = 189 070 - (161 500 + 22 764)
   = 189 070 - 184 264
   = 4 806

4. Column (7): The percentage for 1980 was calculated by expressing 5 540 pupils in column (6) as a percentage of 212 160 pupils in column (1).

$$\% = \frac{5\ 540}{212\ 160} \times \frac{100}{1}$$

$$= 2{,}61123$$

= 2,61 (correct to 2 decimal places)

APPENDIX C

CALCULATION OF EXAMPLES FROM TABLE 4.15, TABLE 4.16 AND TABLE 4.17

1. TABLE 4.15

For example, the factors for class (ii) from 1974 to 1981 were calculated in this manner.

1.1 The class (ii) pupil enrolment of 19 339 in 1974 was expressed as a factor of class (i) pupil enrolment of 18 636 in 1973, that is, 1,0377 (correct to four decimal places).

1.2 Using the 1980 class distribution model (vide 3.2.3 (b)) and the anticipated Natal total school population of 181 500 in 1980, the number of pupils for class (ii) was calculated, that is, 11,36% of 181 500 pupils.

1.3 The class (i) pupil enrolments were increased by an average growth of 213 pupils per annum from 1974 to 1980.

1.4 Using the 1980 class distribution model and extrapolating the figures contained in column (2) of Table 4.13, the pupil enrolments for the different standards in 1981 have been determined.

1.5 By expressing class (ii) pupils in 1981 as a factor of class (i) pupils in 1980, 1,0853 was calculated.

1.6 The difference between the 1974 class (ii) factor and 1981 class (ii) factor was 0,0476. There are 7 intervals between 1974 and 1981. The arithmetic mean was obtained by dividing 0,0476 by 7. This arithmetic mean of 0,0068 was then added to 1,0377 to obtain a factor for 1975, another 0,0068 was added to obtain the factor for 1976, and so on until one arrives at 1,0853 for 1981. (It sometimes happens that the arithmetic mean is subtracted from a factor to arrive at a factor for the following year, for example, the factors for standard 1.)

2./

2. TABLE 4.16

The factors in this table were obtained by adjusting the factors contained in Table 4.15.

It was found that if one uses the actual class distribution of pupils in 1974 and the factors contained in Table 4.15 and progressed diagonally by standards, one does not arrive at the 1980 class distribution as anticipated. The factors were corrected in the following manner:

2.1 For example, the set R of diagonal factors commencing from standard 2 (1974), standard 3 (1975) and proceeding to standard 8 (1980) are 0,9794; 1,0432; 0,9110; 0,8762; 0,9376; 1,1637 and 0,9688. If one uses these factors and the actual pupil enrolment of 16 165 (standard 2), one does not arrive at the anticipated pupil enrolment of 13 667 (standard 8) in 1980.

2.2 The factor from 16 165 to 13 667 is 0,8455. Excluding the factor for 1974, the product of the factors contained in set R should be equal to 0,8455. Since this is not so, an adjustment is made for the factors in set R.

FACTOR	LOGARITHM	DIFFERENCE	ADJUSTED LOGARITHM	ADJUSTED FACTOR
1,0432	0,0182	0,0029	0,0153	1,0360
0,9110	$\bar{1}$,9595	0,0029	$\bar{1}$,9566	0,9048
0,8762	$\bar{1}$,9426	0,0029	$\bar{1}$,9397	0,8704
0,9376	$\bar{1}$,9720	0,0029	$\bar{1}$,9691	0,9313
1,1637	0,0660	0,0029	0,0631	1,1560
0,9688	$\bar{1}$,9863	0,0029	$\bar{1}$,9834	0,9625
Product	$\bar{1}$,9446			
0,8455	$\bar{1}$,9272			
$(0,8455)^{\frac{1}{6}}$	0,0174 ÷ 6			
	0,0029			

2.3/

2.3 The difference of the logarithms, that is, 0,0174, is divided by 6 because there are six intervals between the factors in set R. Since the product of the factors is in excess of 0,8455, the difference is subtracted from the logarithm of each factor in order to obtain an adjusted logarithm. The anti-logarithm of this adjusted logarithm is then the adjusted factor. (Note the difference would have been added to the logarithm of each factor if the product of the factors was short of 0,8455).

2.4 Using the adjusted factors and calculating diagonally commencing from standard 2 in 1974 and proceeding to standard 8 in 1980, one arrives at the anticipated pupil enrolment of 13 667.

3. TABLE 4.17

3.1 Using the actual pupil enrolments from class (i) to standard 10 in 1974 and the adjusted factors set out in Table 4.16, the number of pupils for the different classes from 1975 to 1980 were calculated. For example, the class (i) pupils in 1974 x the factor 1,0300 = 18 838 (to the nearest whole number) pupils in class (ii) in 1975. 18 838 x the factor 0,9005 = 16 964 in standard 1 in 1976. Proceeding in this manner, one arrives at 12 378 pupils in standard 5 in 1980.

3.2 The total pupil enrolments from 1975 to 1980 have been extrapolated using Table 4.13. The total pupil enrolments from 1980 to 2000 have been extracted from Table 4.13. The class distributions from 1985 to 2000 have been determined on the assumption that the model for White pupils will be reached by Indian pupils in the year 2000. The following table was arrived at by working out the arithmetic mean between 1980 and 2000 for a particular standard and adding or subtracting this mean continuously until the 2000 model is reached.

CLASS DISTRIBUTIONS FOR NATAL PUPILS FROM 1980 TO 2000 PERCENTAGEWISE

STD.	1980	1985	1990	1995	2000
cl. (i)	10,78	10,31	9,84	9,35	8,90
(ii)	11,36	10,69	10,03	9,35	8,70
std. 1	9,88	9,42	8,99	8,53	8,10
2	9,42	9,09	8,76	8,41	8,10
3	9,87	9,45	9,03	8,60	8,20
4	8,33	8,40	8,46	8,52	8,60
sp. cl.	1,15	1,37	1,57	1,77	2,00
std. 5	6,82	7,27	7,70	8,14	8,60
6	6,29	6,84	7,39	7,93	8,50
7	7,70	7,82	7,94	8,06	8,20
8	7,53	7,77	8,01	8,25	8,50
9	5,93	6,41	6,91	7,50	7,90
10	4,94	5,16	5,37	5,59	5,70
TOTAL	100,00	100,00	100,00	100,00	100,00

3.3 The growth rate has been worked out in terms of percentage increase per annum. For example, the high school growth rate (r) from 1980 to 1985 has been worked out using the formula:

$$83\,712 = 71\,166\,(1 + \frac{r}{100})^5, \text{ where}$$

$$r = \underline{3,30\%} \text{ (correct to 2 decimal places)}$$

APPENDIX/

APPENDIX D

TABLE 4.20

The table has been contructed in the following manner:

1. The 1974 pupil enrolments in the different standards together with the factors contained in Table 4.19 have been used to calculate pupil enrolments for the different classes from 1975 to 2000.

2. The arithmetic mean of 42 pupils for class (i) enrolment between 1974 (actual enrolment) and 1980 (anticipated according to mathematical model) has been added to the successive year's class (i) enrolment to obtain the figures from 1975 to 1980.

3. The total pupil enrolment for the adjusted classes in Transvaal schools is anticipated to increase by 30 pupils per annum alternated by 40 pupils in the following year. This has been based on the actual experience by the Department for schools in the Transvaal. (Department of Indian Affairs, Division of Education, Special Education, *File No. 19/1/3/2*).

4. The class distribution for Transvaal school population from 1980 to 2000 has been indicated in the table below. It is assumed that the pattern for Indian education in the Transvaal will be the same as for Natal by the year 2000, that is, the pattern will be the same as for Whites when instruction and facilities will be on par for both these race groups. The percentage of the total for a particular standard between 1980 and 2000 has been estimated using the arithmetic mean, the total for a particular phase and the growth pattern in the Transvaal.

CLASS DISTRIBUTIONS FOR TRANSVAAL PUPILS FROM 1980 TO 2000 PERCENTAGEWISE

STD.	1980	1985	1990	1995	2000
cl. (i)	10,60	10,19	9,79	9,39	8,90
(ii)	10,99	10,44	9,89	9,34	8,70
std. 1	9,76	9,36	8,97	8,58	8,10
2	9,41	9,12	8,81	8,50	8,10
3	9,85	9,46	9,07	8,68	8,20
4	8,33	8,43	8,52	8,61	8,60
sp. cl.	1,07	1,30	1,53	1,76	2,00
std. 5	7,31	7,65	7,99	8,34	8,60
6	6,78	7,23	7,68	8,13	8,50
7	8,18	8,20	8,23	8,25	8,20
8	7,31	7,37	7,43	7,49	8,50
9	5,70	6,27	6,84	7,41	7,90
10	4,71	4,98	5,25	5,52	5,70
TOTAL	100,00	100,00	100,00	100,00	100,00

5. The 1980 model for Transvaal is used by the Department. The model is based on past and present trends in each of the four phases in Indian education in the Transvaal. (Department of Indian Affairs, Division of Education, Teacher Training, *File No. 19/45/3*).

6. Class (i) to standard 1 constitute phase 1, standards 2 to 4 and including the special class constitute phase 2, standards 5 to 7 constitute phase 3, and standards 8 to 10 constitute phase 4.

7. The totals from 1975 to 1980 have been extrapolated using Table 4.13 and the principle of decreasing growth rate.