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*the implementation of television
in teacher training in the rsa*

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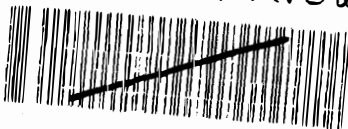
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SOUTH AFRICAN HUMAN SCIENCES RESEARCH COUNCIL

***THE IMPLEMENTATION OF TELEVISION
IN TEACHER TRAINING IN THE RSA***

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PREFACE

Research with regard to the integration of television in an educational context was originally requested by the National Education Council under the blanket heading: "The role and place of television as a teaching and learning aid in schools of the RSA." On account of the particularly wide scope of the research request as well as the fact that the Administration of Coloured Affairs and the Department of Indian Education in particular experience problems with regard to the training of teachers, it was decided to launch this part-investigation into the implementation of television in teacher training in the RSA.

This research request came as no surprise, since in present-day formal and formative education it has become commonplace to make pronouncements on the demands which the modern, complex, technological society makes on education. This is why it was considered meaningful to study the fairly common view, namely that the dictates of technology - in this case television - can no longer be ignored in education.

This study devoted particular attention to the almost world-wide appeal for a breaking away from the conventional, verbal way of theoretical training of teachers to a more practically oriented training based on innovation strategies that are made possible by the integration of this acoustic-optic apparatus.

In addition there is the well-known fact of a world-wide shortage of teachers. In South Africa it is not only a question of a shortage of White teachers for specific school subjects, but more particularly a quantitative and qualitative shortage in general among the other population groups that requires a solution. Together with this, the report does not deal only with the way in which television can be integrated as an aid in the training of teachers, but also, and more specifically, with the scope that the physical equipment of a television service should cover to be utilised accountably in full-time as well as in-service training and retraining of teachers for the different population groups of the RSA.

It is hoped that in respect of the latter problem this report will have real significance, especially for organizations that until now have made no start with the implementation of television in teacher training.

Furthermore, a cordial word of thanks is hereby extended to various educational organizations that rendered assistance during the numerous visits to their existing television services.

A. L. Kotzue
PRESIDENT

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OPSOMMING

Die belangrikste doelstellings met die navorsing wat in die onderhawige verslag saamgevat word, was om ondersoek in te stel na die verantwoordbaarheid van die inskakeling van televisie by onderwysersopleiding, die mees effektiewe wyse waarop dit benut kan word en om met inagneming van die algemene stand van die volkshuishouding, by wyse van deurdagte beplanning, gestalte te gee aan die omvang van 'n diversiteit van onderwystelevisiedienste. Aan hierdie verskeidenheid van stelsels word ooreweging geskenk omdat verder beoog word dat die aanbevelings wat gemaak word nie slegs vir Blanke onderwysersopleiding sal geld nie maar dat dit ook vir die opleiding van onderwysers van ander bevolkingsgroepe in die RSA segwaarde sal he.

Gesien in die lig van die besondere omvang van finansiële koste verbonde aan die daarstelling van televisiedienste aan die opleidingskolleges van die verskillende onderwysdepartemente, was dit noodsaaklik om in die inleidende hoofstukke uitsluitel te verkry oor die spesifieke omstandighede by onderwysersopleiding waarin televisie wel 'n belangrike rol kan speel en dus of daar werklik 'n behoefte is aan die inskakeling van so 'n medium. Met die oog hierop is aandag gegee aan die wesen aard van televisie en onderwystelevisie as sodanig sodat tot 'n slotsom gekom kan word oor die plek wat dit kan inneem by die handeling van aanskouing in opleidingsituasies.

Nadat dit geblyk het dat hierdie gesofistikeerde, elektroniese medium 'n hoogs waardevolle bydrae by onderwysersopleiding kan maak wat wesenlik eiesoortig van aard is, is daartoe oorgegaan om te soek na moontlike variasies van situasies in die opleidingspraktyk van onderwysers waar televisie met die meeste onderrigseffektiwiteit benut kan word, juis omdat dit as hulpmiddel die suksesvolle verloop van sodanige situasies moontlik maak. Met ander woorde daar was ondersoek ingestel na onderrigse sukses wat met televisie bereik kan word wat nie tot dusver met die inskakeling van ander tegniese hulpmiddele moontlik was nie. Sodoende is indringend aandag gegee aan die idee van mikro-onderwys en mikro-onderwys gekombineerd met interaksie-analises by onderwysersopleiding. Die benutting van televisie in die mikro-onderwysituasie bied uiteraard geleentheid tot verbetering op die tradisionele wyse van onderwysersopleiding in die sin dat studente se wyse van optrede tydens die oefening van onderwysvaardighede, aan hulle

teruggespeel kan word aan die hand van die videobandmasjien, en wel vir doeleindes van analise, evaluering en verbetering.

'n Vraagstuk wat hom egter hierna nog voorgedoen het, was watter faktore alles in oorweging geneem moet word by die beplanning van 'n televisiediens vir onderwysersopleiding. In hierdie verband is die volgende fasette in aanmerking geneem:

1. Die vraagstuk met betrekking tot wat werklik met onderwys-televisie beoog word.
2. Die daarstelling van 'n koördinerende komitee deur elke onderwysdepartement met die oog op beplanning.
3. Die diversiteit van behoeftebepaling.
4. Die aangeleentheid van reeds bestaande fasiliteite wat by beplanning in berekening gebring moet word.
5. Die diversiteit en kwaliteit van onderwys-televisiepersoneel.
6. Die keuse tussen 'n geslotebaanstelsel en 'n openetstelsel.
7. Die voordele van 'n geslotebaanstelsel vir onderwysersopleiding.

Afsluitend ten opsigte van die voorgaande faktore is 'n uiteensetting gegee van die oorweldigende voorkeur wat aan geslotebaantelevisiedienste in oorsese lande gegee word, asook 'n verkenning van die wêreldwye, baie aktuele probleem van outeursreg met spesiale verwysing na die vloeibare toestand ten opsigte van hierdie saak in die RSA.

Hierna is ingegaan op die onderrigsmoontlikhede en voordele van die vernaamste fisiese fasiliteite vir 'n stelsel van onderwys-televisie sodat uiteindelik uitgekam kon word by aanbevelings in hierdie verband en waarvan die volgende die belangrikste is:

1. In aanmerking geneem die kwessie van meertallige kolleges wat sommige onderwysdepartemente onder hulle beheer het, is tot die slotsom gekom dat dit vanuit 'n besparingsoogpunt geregverdig sal wees om aan te beveel dat sodanige departement sal moet beplan om, wat die gebouekompleks betref, 'n sentrale kleurateljee aan die grootste

of mees sentraal geleë kollege in te rig, terwyl aan die resterende kolleges subateljees sal funksioneer wat toe=gerus word met 'n swart/wit televisie-eenheid om sover as moontlik in eie behoeftes te voorsien. Met betrekking tot die swart/wit tegniese uitrusting vir subateljees, is die omvang van 'n verskeidenheid van moontlike stelsels, vanaf die minder tot die meer gesofistikeerde stelsel oorweeg met 'n aanduiding van die minimum koste daaraan verbonde.

2. Origens is aanbevelings gemaak met betrekking tot sake soos die verspreiding van opleidingsprograminhoud na lesinglokale, interkollege-programproduksie en die vraagstuk van standaardisering en uitruilbaarheid van hierdie programme, die noodsaaklikheid van 'n interkollege mobiele televisie-eenheid met die oog op gesofistikeerde programproduksie en proefonderwys en laastens die versorging en instandhouding van tegniese apparatuur.

Die verslag word afgesluit met enkele spekulatiewe gedagtes insake die toekoms van onderwys televisie in die RSA rakende die implementering van hierdie medium in gewone skoolverband wat 'n moontlike herbesinning, -beplanning en -organisasie van televisiefasiliteite by onderwysersopleiding sal verg.

SUMMARY

The main objectives of the research summarised in this report were to establish whether there was any justification for incorporating television into teacher training, to determine the most effective way in which it could be exploited, and, through well-considered planning, and after taking into account the general state of the national economy, to shape the range and diversity of educational television services. These various systems are being considered, since it is envisaged that the recommendations will not only be valid for teacher training for Whites, but will also have a part to play in the training of teachers from the other ethnic groups in the RSA.

In view of the considerable costs involved in establishing television services at the training colleges of the various education departments, it became necessary in the introductory chapters to reach clarity on the specific circumstances of teacher training in which television may play a significant part, thus determining whether a real need for the incorporation of such a medium existed. With this in mind, attention was given to the basic characteristics of television and educational television in particular with a view to reaching a decision on the part it could play in audio-visual activity in training situations.

When it had become apparent that this sophisticated electronic medium might make a truly unique contribution of great value to teacher training, a search was initiated for possible types of situations in teacher training practice in which television could be utilised with the greatest educational effect, particularly because, as a training aid, it makes it possible to bring such situations to a successful conclusion. In other words, a start was made with an investigation into possible training successes through the medium of television, which to date could not be attained by incorporating other technical aids. Thus penetrating consideration was given to the concept of microteaching, as well as to microteaching in conjunction with interaction analysis in teacher training. The use of television in microteaching inevitably provides scope for improvement on the traditional methods of teacher training in the sense that students' action procedures in the course of practising teaching skills may be played back on video tape machines, particularly for purposes of analysis, evaluation and improvement.

A problem which subsequently still recurred was the question of determining which factors still had to be considered in planning a television service for teacher training. In this connection the following aspects were taken into account:

- (1) The question of the actual aim of educational television.
- (2) The founding of a co-ordinating planning committee by each education department.
- (3) Diversity of requirement determination.
- (4) The question of existing facilities which must be taken into account in planning.
- (5) The diversity and quality of educational television staff.
- (6) The choice between a closed circuit system and an open network system.
- (7) The advantages of a closed circuit system for teacher training.

In rounding off the aforementioned, an exposition was given of the overwhelming preference accorded overseas to closed circuit television services, and the world-wide, very topical problem of copyright was examined, with special reference to the fluid situation of this matter in the RSA.

Training possibilities and advantages pertaining to the most important material facilities involved in a system of educational television were then considered with a view to making recommendations, the following being the more important ones:

- (1) Since a given education department might have several colleges under its control, it was concluded that from an economic point of view it would be justifiable to recommend that such a department should, as far as the building complexes were concerned, plan a central colour studio at the largest or most centrally situated college, with substudios at the rest of the colleges, each equipped with a black and white unit to meet the individual requirements of these colleges to the greatest extent. As far as the black and white technical equipment for substudios is concerned, a variety of possible

systems, ranging from less to more sophisticated ones, was considered, with an indication of the minimum costs involved.

- (2) For the rest recommendations were made regarding such matters as the relaying of training programme contents to lecture halls, intercollege programme production, including the question of standardization and the interchangeability of these programmes, the need for an intercollege mobile television unit for sophisticated programme production and practice teaching, and, lastly, the care and maintenance of technical equipment.

The report ends with a few speculative thoughts on the future of educational television in the RSA in the usual school context, which would possibly call for rethinking, replanning and reorganising television facilities in teacher training.

CHAPTER 1

GENERAL ORIENTATION AND STATEMENT OF PROBLEM

1.1 GENERAL ORIENTATION

Current literature on the integration of television in education reveals that until very recently few countries in the world considered it necessary to plan thoroughly beforehand by scientifically examining the necessity of such integration. In fact, when the implementation of television in education was first introduced during the late fifties and early sixties of this century, most countries relied merely on suppositions and phenomenal expectations with regard to this powerful medium. So many enthusiastic champions of television in education qualified its introduction as a Copernican revolution that would eclipse the application of the art of printing (33, p. 433). In some cases interest in this respect took on such dimensions that television was regarded as the universal solution to all deficiencies in education (2, p. 215).

On the surface it showed various attractive possibilities, namely -

- (a) the fact that all audio-visual aids in the educational context could be combined in this one single, existing medium;
- (b) the potential of utilising the skill of top quality teachers on the television screen;
- (c) the possibility of replacing unqualified and/or less capable teachers by means of television equipment;
- (d) to ensure uniform standards of teacher training throughout the country, and
- (e) the possibility of exchanging teacher training programmes with other countries.

Unfortunately, as Hays and Sun (1974) put it, most of this enthusiasm came from politicians and individuals on the perimeter of education who relied on unproven assumptions (15, p. 215). And it was soon discovered in many countries that television equipment was gathering dust, since no consideration had been given beforehand to careful planning and organization (30, p. 137).

There can be no doubt, however, that television is a powerful and effective medium of communication and education. According to Haye and Sun the 1974 data are proof of this, namely that in that year 350 million television sets were in use throughout the world. What is uncertain, is the accountability of the way(s) in which this powerful medium can be optimally utilised for educational purposes. This implies that if television is to be integrated as effectively as possible in formal class instruction, such implementation will require scientific planning and development in order to satisfy educational requirements in particular.

For the purpose of these educational requirements any authority that is contemplating the implementation of television in education will have to ensure that educational television will be considered in its own right and not merely as an addition or appendix to a national television service. It must indeed be comprehended that the fundamental characteristic of television which gives it the prominence it is receiving today, such as its immediacy and its country-wide and today even world-wide covering of events by means of the satellite system, does not necessarily contribute towards educational effectivity. Effectivity of this nature is attained only when the teacher or lecturer treats the medium in an educationally accountable manner in educational and training context and realises his intended aim. When this happens and the instruction is preceded by the necessary motivation of pupils and students in that specific responses in the form of a specific task are expected of them upon completion of the lesson, then this will also ensure that such a lesson has no entertainment connotations for them, in which case they will merely have to relax.

1.2 AIM OF THE PROJECT

The aim of the research is -

- (a) to find scientific justification for the implementation of television in teacher training,
- (b) to examine didactically accountable practical strategies in teacher training in which television can be utilised to good effect,
- (c) to plan a system of television implementation in an economically meaningful way, that is, with due consideration for the national economy, and to make recommendations that will also be valid for teacher training in

population groups other than the White group.

1.3 STATEMENT OF PROBLEM

1.3.1 The appeal for innovation in teacher training

- (a) In modern formal and formative education it has become commonplace to make pronouncements on the demands made on education by the modern, complex, technological society. Justification for these pronouncements is found in the fact that the formal school and educational institutions — with regard to the aims as well as the way in which assistance is rendered — are directed in their activities by the specific image of maturity that applies in a dynamically changing society (12, p. 1). Since education is consistently supposed to account to society for this image on which it is working, it is assumed that it will be meaningful to examine the supposition that technology, on account of its incisive dictates to society, can make a significant contribution to formal and formative education.
- (b) In conjunction with what has been introduced in the foregoing paragraph there are also the ever bigger and more comprehensive innovation demands that are made on teacher training. Innovation of this kind will inevitably require reconsideration and planning with regard to accountable methods and techniques in teacher training. And this will in turn require a reconsideration of the integration of educational aids in the training of teachers, especially audio-visual aids.
- (c) It is a generally acknowledged fact that on account of the final aim that is intended with it, education is at most conservative, but there is no reason why this act of accompaniment in respect of methods and techniques for achieving the aim should reveal an unwillingness to change. Thus the call that is heard for breaking away from the preponderantly verbal presentation of education science as theory to a more practically directed training of teachers is becoming more pronounced at present. The question also arises which role acoustic-optic apparatus such as television can play in a multimedia approach when prospective teachers are expected to give proof in their lesson presentations that educational theory is reflected in the practical situation.

- (d) To teach implies a specific dynamism. It is an action and as such relies on various teaching skills which can definitely be acquired more effectively in authentic teaching situations in which the prospective teacher is directly and completely involved by being cast in a role and having to practise that role, than in situations in which he merely has to listen to and learn theories (12, p. 14). To know the required action by no means implies that it can be done, whereas the desired way of doing is largely made possible by the individual actually doing it and thus gaining personal experience of the way it should be done.
- (e) With regard to practising teaching skills, it is surmised that the integration of television ought to be a positive step in this direction, especially in situations in which the teaching student can obtain an idea of his own personal performance by means of video tapes which can be played back, thus offering him an opportunity of self-analysis and self-criticism under the guidance of the lecturing staff. By this method the highly necessary bridge between theory and practice can be established in a meaningful way.

1.3.2 The target group

During the last few decades there has been a growing awareness of human dignity among the various population groups in the Republic of South Africa. This awareness is related to the training and personality development with a view to a willingness of the peoples here to co-exist harmoniously. This development inevitably requires the most effective training, also of the teachers of the population groups other than the Whites. This country now has a widely known shortage of teachers - not only a shortage in certain subjects such as Mathematics and the natural sciences, but especially a quantitative and qualitative shortage in general. The question is therefore not only how didactically accountably television can be integrated as an aid in the full-time training of teachers, but especially also as to the way in which it can be implemented to add momentum to in-service training and retraining of teachers of all population groups in the RSA. Although this study is chiefly concerned with the training of White teachers, it is also intended that when this report is studied it will have significance for the training of Non-White teachers.

1.3.3 The dictates of the national economy in planning and recommendation

In accordance with the exposition in the previous paragraph, which throws light on the wide spectrum of the target group that is concerned with this study, it is assumed that in planning and recommendations with regard to the implementation of television, careful consideration will have to be given to economic aspects. There is obviously no sense in having television equipment installed of which the quality (or sophistication) and extent are of such a nature that the costs attached to the installation will be too prohibitive for the national budget.

It is understandable that the necessary equipment is important for the most successful training of teachers, but in teacher training for the various population groups there will definitely be a diversity of training requirements, in which case situations will arise in which at first small-scale experimentation can be carried out. In such cases a start can therefore be made with as much qualitatively effective equipment as is necessary to provide temporarily for the most urgent needs, but with provision made for accountable future expansion.

1.3.4 The problem of the ideal system versus the immediately feasible system

In any study that is to do justice to scientifically accountable research, planning and recommendations, the researcher is always confronted with the ideal set-up, that is, that which must be, and that which must be striven for to ensure optimal effectiveness. On the other hand, a study such as this one is also concerned with the problem of a system of educational television which, in view of the conditions of the country, will immediately be feasible for the training of teachers. Consequently, in addition to the fact that this study will be an objective examination, without any personal preferences, into the root of the matter, an attempt will also have to be made in the final recommendations to take into account the factors and conditions which, at least at the moment, necessitate a specific television implementation practice for teacher training.

1.3.5 The problem of control over and localization of a television service for teacher training

Since control over education for Whites and subsequently also over teacher training in the RSA is the responsibility of the

provincial education departments and the Department of National Education, a television service for teacher training inevitably has to be the responsibility of a local department only. Even more: in view of the fact that the national television service of the SABC functions by means of an open network system and does not broadcast on a provincial basis, the installation and utilization of a television service for teacher training must be more specifically localised at the various teacher training institutions themselves, so that in view of the particular nature of teacher training a start can be made with the production of training programmes that will satisfy the particular requirements of every institution.

1.4 METHOD OF STUDY

- 1.4.1 In the first instance the research is conducted on the basis of an exploration of the most recent literature in connection with the implementation of television in education with special emphasis on the training of teachers.
- 1.4.2 Secondly, much reliance is put on experience gained during an overseas study tour in connection with educational television in the school context and in so far as it has validity for teacher training.
- 1.4.3 Thirdly, liberal use is made in the study of findings during personal visits to existing educational television services in the RSA where attention is chiefly devoted to problems experienced in the material planning (especially the technical equipment) and training methods.

1.5 FURTHER COURSE OF THE RESEARCH

Whereas the first chapter deals with some introductory remarks and an exposition of the specific problem regarding the implementation of television in teacher training, the second chapter explores the accountability of the integration of this medium. In Chapter 3 attention is devoted to a strategy of innovation in the methods of teacher training made possible by the integration of television, whereas Chapter 4 offers a reflection on the question of practical planning and implementation of television in teacher training in the RSA. The last chapter contains recommendations in connection with this matter which may serve as guiding principles for the planning of a system of closed circuit television by South African education departments.

CHAPTER 2

THE ACCOUNTABILITY OF THE INTEGRATION OF TELEVISION IN TEACHER TRAINING

2.1 THE BASIC CHARACTERISTICS OF TELEVISION AND EDUCATIONAL TELEVISION IN PARTICULAR

2.1.2 Television as an implement

In a reflection on the concept 'television' it is generally known that etymologically it implies to be able to 'see far'. But it still remains a fact that 'seeing far' supposes the visual act which is a human activity made possible by technical equipment brought about by the initiative and creative power of man. Undeniably this is therefore a question of technology in the service of man, in which case the result, namely the apparatus itself, is nothing other than an implement, and it can therefore be qualified as an aid to assist man.

It must be acknowledged, however, that as an implement, as opposed to other aids in an educational context, it functions in a specifically unique position in the sense that this apparatus reveals the capacity that on the strength of it man can reveal himself in sound and image to the world and announce himself in the totality of the person he is. This fact in particular has specific significance for teacher training.

2.1.3 The immediacy of television

Unlike other aids (with the exception of films), the significance of television lies in its distant-representation, that is, in bringing into focus (audio and video) a section of reality that is introduced somewhere else (tele=far) for man to be seen by man (video=see) in the present situation. This essential capacity is generally qualified as the immediacy of television. But the idea of immediacy extends even further, namely to the very act of viewing, whereby hearing or listening to, as cognitive function of man, is included. No attention will be devoted here to the functioning of the eye, since that is the field of physiology, but what can be mentioned here is that the eye reveals such a sensory nature that it enables man to enjoy a much more immediate and direct perception than is the case with hearing by ear. In this way one can listen on the radio to a description of a tennis match that is in progress, and one depends on the seeing and interpretation of it by the commentator before one can actually appreciate the game, but

by means of television one immediately fulfils that role oneself without a word having to be said.

What has been said until now amounts to the fact that by means of television man can serve himself, since this medium speaks only in so far as it is allowed to speak by man, that is, to serve as an instrument. In this sense television is, and will always remain a means to an end, and that is why it can never be regarded as a substitute for man, capable of solving all human problems so that an earthly Utopia will await everyone. This does not deny, however, that television, on account of its particular nature and potential as a medium of instruction and communication, can be used to very good effect in the present, complex, changing cultural reality.

2.1.4 The intrusive quality of television

The serviceability that was mentioned in the previous paragraph is related to the following fundamental characteristic of television, namely its intrusive nature. It is especially on the strength of the visual aspect as well as the factor of movement, that this medium caters for, that it invites the viewer to participate, that it captivates him and involves him to a specific degree. It may be for this reason that Mc Luhan (1971) states that so many people get the impression that their identity is threatened. The aforementioned author is of the opinion that: "This charge of the light brigade has heightened our general awareness of the shape and meaning of lives and events to a level of extreme sensitivity" (29, p. 125).

Some other fundamental aspects underlying the intrusive or demanding character of television are the much more illogical and evocative effect which it arouses in the viewer - much more than all other educational and communication aids. This will inevitably lead to the fact that the learning and/or communicative effect of that which is viewed will result to a large extent in fluctuations in the attention that is paid. In the integration of television in education and training, television will therefore make the specific demand of uninterrupted eye-contact on teachers and lecturers in order to obtain attentive behaviour from pupils and students.

2.1.5 The dual nature of educational television

In the light of the project title according to which the request for research is implied, namely the implementation of television in teacher training, it is essential to realise that fundamental

ly one is concerned here with two supplementary facets that have to be taken into account. With reference to the concept 'educational television' there is first of all the facet of television itself that has developed as a science discipline on the strength of the pursuit of technology. On the other hand, there is the educational and training aspect of which the aim is the academic and professional shaping of people (education students) who will one day have to hold their own professionally by educating and giving guidance in an accountable manner in the lives of others, in this case the children of the country. For the purpose of this study a synthesis must be arrived at of these two facets in which the machine will serve man and his education, but in which man may never be replaced by his own creation or surrendered to it.

2.2 THE VISUAL PRINCIPLE IN TEACHER TRAINING

2.2.1 Introduction

With a view to examining the visual aspect in teacher training, it must be indicated that only some situations in teacher training will be briefly elucidated in which the integration of television for visual purposes is of particular importance. The ways in which these situations take their course, that is, the methods that will be applied, the reasons why the situations proceed as they do, the variety of equipment and other physical facilities that will be required, as well as the training and availability of quality personnel, will be discussed in subsequent chapters.

2.2.2 The visual aspect in the presentation of subject contents

- (a) With a view to a reflection on the accountability of the integration of television in teacher training, the implementation of this medium in the instruction of certain subject contents will inevitably be at issue, since they are particularly suitable for viewing. What comes to mind in this respect is, for example, the subject-matter regarding natural science subjects such as Biology and Physical Science. In other words, the main issue will be how far viewing can be conducive to acquiring knowledge regarding the specific subject contents, and not primarily simply viewing the way these subject contents are presented, although the specific method that is used cannot be seen completely isolated from the subject-matter that is presented.

As far as the aforementioned subject contents are concerned, microscopic and molecular structures which cannot be observed with the naked eye under normal conditions can be enlarged to such an extent with the aid of television that they are made available for viewing. In fact, as far as Biology is concerned, it is of particular significance that an image of the living and entire moving reality of nature can be brought into the classroom, whereas the application of the theory of Physical Science can be introduced into the classroom or lecture hall by means of television which provides an exact image of technology and industry in the normal course of events, that is, outside the school context.

- (b) In addition to this it can also be mentioned that the demonstration of dangerous experiments can be viewed at a distance. Normally, that is, without the integration of visual aids, a close-up study is unavoidable and this can be dangerous. By means of television all students who are present can observe an experiment at the same time, without the danger of explosions, and much time can be saved, since large classes no longer have to watch an experiment in groups.
- (c) Of equal importance is the fact that television makes possible the visual studying of subject contents in times of revision of specific contents recorded on video tapes. This can be done individually, or students may meet in groups to refresh their knowledge of certain parts of the syllabus.

2.2.3 Viewing the individual style of instruction

On account of the uniqueness of every person as an individual, which at the same time admits to the inequality of people, it is an undeniable fact that every person will also reveal a unique style of life as a way of living. It is also true that such a life-style will inevitably be expressed in every teacher's style of instruction. In addition to specific personality qualities such as a sense of responsibility and an independent way of acting, which underlie a life-style, for the purpose of this exposition there are also superficially perceptible ways of doing things which in interpersonal associations can either arouse feelings of disapproval in people, or may lead to spontaneous attraction between people. This is a matter of the utmost importance with regard to the teacher and his class, since it is related to his specific style

of instruction. In fact, his entire personal appearance and way of doing things may soon lead to his pupils or students qualifying him as someone who has a cultivated background and a refined spirit and who is worth emulating. The reverse may also be true. Since this externally perceptible way of doing in most cases can be explained in terms of a complete historical background from which it developed, it is normally expressed in the unconscious acts of people which have sometimes led to the most woeful failures in their careers, but which in other cases explained their immediate success. Indeed, it is logical that his immaculate personal appearance, his punctuality, clear speech, refined use of language and generally civilised conduct, all constitute aspects which contribute to the success of the teacher's work in the classroom (36, p. 289).

To return to teacher training and the integration of television which makes it possible for a person to study his own personal performance, self-inspection is of the utmost importance for every student in order to evaluate his own style of instruction. In the case of a positive image, lecturers may utilise that highly suitable moment to express their appreciation. In the case of a negative performance, however, it is a situation in which corrective assistance with a view to being sensitive for a polished style of instruction in the classroom situation, will have to be treated with the utmost delicacy on account of its highly personal nature.

2.2.4 Viewing demonstration lessons

- (a) It has already been stated as an introductory reflection in Chapter 1 that teaching is above all a dynamic matter which presupposes action. Since everyone does not possess at the outset the skill to conduct such an action effectively, it is obvious that a demonstration and visual study of specific skills required for accountable action are of the utmost importance, especially as far as first-year students are concerned.

In this way students can study demonstration lessons given by top-quality teachers in the profession who have been temporarily seconded to a college or by lecturers attached to the training institution. In this way students are enabled, for example, to obtain a realistic idea of the way in which the question-and-answer method is implemented in an accountable manner.

- (b) Worth mentioning in this respect is the essential role of television in studying demonstration lessons with regard to the ways in which the gap can be bridged between theoretical training and the practical situation in the school. The point that is being made here is that it is one matter to give students a lecture on Didactic Pedagogics on a highly verbal abstract level regarding the form and content of the lesson structure, but it is altogether a different matter to initiate these students by means of a demonstration on television into the practical actualization of the various steps of the aforementioned structure. In other words, if play-back facilities are available (video tape recorders), highlights from the demonstration lesson can be rerun repeatedly so that by means of group discussions practical insights can be obtained into the way, for example, in which pupils are motivated and appealed to by the question-and-answer method to activate their experienced knowledge with a view to solving a specific problem.

2.2.5 Viewing personal teaching skills in feedback situations

- (a) Television is also pre-eminently suitable for implementation in the visual study of trial lessons by students during their period of practice teaching at schools, in a television studio or in a specially equipped classroom in the training institution itself where pupils are brought from schools in the neighbourhood. In this case a student watching a replay of his lesson presentation is enabled to make a critical evaluation of the way he handled teaching skills, so that during further presentations he can practice at improving on his previous attempt. This activity in teacher training by means of television is known in current literature as mirror showing. Viewed in this light, the significance of the integration of television in the professional training of teachers lies in the idea of replay or feedback.
- (b) It is readily admitted that teaching skills can also be observed without the integration of television. In that case, however, there will probably be a much less successful discussion and evaluation of a student's lesson presentation by a lecturer and/or fellow-students, since in such cases, as Kieviet explains it, there is no possibility of replaying a lesson presentation and the student under discussion will then still be able to resist certain criticisms by denying that he had acted in this or that manner (19, p. 14) (38, p. 34).

2.2.6 Viewing methods of innovation and guidance situations in in-service training

- (a) There is probably sound justification for saying that in view of the eminence and urgency of the educational task in a rapidly changing world, the training of the individual teacher is never really completed. The result is that matters such as in-service training as well as further training of teachers are referred to in all recent literature.

Visual study by means of television gains special prominence in in-service training during orientation and regional courses for serving teachers in connection with innovation of curriculum contents and accountable methods in this respect.

The integration of television is also of inestimable value in demonstrating problem situations in the school context. During a course in this connection, for example to young heads of schools, they may gain valuable insights into the way in which such situations should be dealt with.

- (b) It must, however, be pointed out once again that these problem situations can just as well be presented and described verbally during regional and orientation courses, in which case the integration of television is not essential. But the description cannot have nearly the same impact as will be obtained when a group of teachers or principals is given an audio-visual picture of a problem situation in which a principal and pupil are involved and which is depicted step by step by means of a video tape recording. A descriptive image remains an abstract one, whereas an audio-visual image is more true to life and at a faster pace and therefore more immediately amenable to interpretation. However, to keep these demonstration situations as pure and true to life and yet as technically and didactically accountable as possible, it will be necessary to arrive at a final answer on the nature and extent of a system of educational television for practical implementation in teacher training in the RSA. Attention is devoted to this aspect in Chapter 4.

CHAPTER 3

THE POSSIBILITY OF A STRATEGY OF INNOVATION IN TEACHER TRAINING WITH THE INTEGRATION OF TELEVISION

3.1 SOME THOUGHTS ON THE IDEA OF INNOVATION

It is remarkable to what extent, according to the literature dealing with the period when television was first integrated in teacher training, almost throughout the world, but especially in Western countries, resistance built up against the existing methods of training and appeals were heard in favour of innovation.

Since this study is concerned with the integration of this highly sophisticated electronic medium, it must be clearly underlined that it will be extremely unaccountable to talk of a new approach to teacher training for the sake of implementing television. It will inevitably be a case of putting the cart before the horses. One should rather think in terms of the heartening contribution of technology towards making innovation possible. On the other hand, it must also be remembered that the contribution that television can make in teacher training inevitably necessitates innovation, or otherwise the purchasing, installation and implementation of television will be nothing more than a status symbol, or merely the whim of some enthusiast or other.

As far as the implementation of a new educational medium is concerned, it is essential that planners and implementers should be open-minded with regard to a strategy of innovation, otherwise, as Hancock (1973) puts it "... the traditional aspects of the educational system will merely be fighting the new; and the newer forms will, initially at least, be the losers" (13, p. 15). Reed (1976) is also of the opinion that the most significant contribution that television can make to the training of teachers "... will be not that it helps to train teachers better in old ways, but that it helps us to train teachers in ways that were not possible before" (31, p. 123).

3.2 THE DISTINCTIVENESS OF THE CONTRIBUTION OF TELEVISION TO TEACHER TRAINING

With the idea of a strategy of innovation for teacher training which is made possible by the integration of television, it is probably assumed that this medium can make a completely

distinct contribution to such training which is characteristic of its specific nature. This means -

- (a) that the integration of television allows for that which until now could not be realised by other media,
- (b) that the use of it, specifically in teacher training, deviates to some extent from the application in other kinds of education (20, p. 374).

With regard to (a), it is a fact that in the training of teachers there are many requirements for which no satisfactory solutions can be offered. Cyphert and Andrews, as quoted by Kieviet, state the following requirements:

- (a) A commonly shared experience of situations which students can jointly analyse and discuss in the classroom context.
- (b) The seeing in action of carefully selected, meaningful educational situations.
- (c) The demonstration of changing professional performances by students based on knowledge and general insight into a specific child or a specific educational situation.
- (d) The need for immediate feed-back for a view of the personal performance, that is, the possibility for every student to see himself as others see him, immediately after his presentation in order to sharpen his evaluation of his self-image and to try to improve on this.
- (e) Recordings of widely different approaches, personalities and strategies with a view to analysis and comparison.

With regard to the second point, namely that the application of television in teacher training deviates in part from its application in other kinds of education, for example in school teaching or in occupational training in industries, it must be stated that in teacher training it deviates or it is different because of the idea of feed-back in which people are confronted with their own performance and are instructed so that eventually they will instruct other people (children), and that this performance does not only require instruction effectivity and learning gain, but that interwoven with it is also the idea of the exemplary personal image which must be embodied in this situation.

In the previous paragraph mention was deliberately made of partial deviation from other types of education, since the use of television in teacher training partly corresponds to its application in other forms of education as well. This is found especially in what is known as academic training or direct instruction, particularly in the instruction of subject contents. In this case the activities revolve round the presentation of subject knowledge with a view to formal learning and eventual evaluation. But since the main issue in the integration of television is the professional moulding of students by means of demonstrations of various accountable teaching methods and the inculcation of teaching skills, attention will be given chiefly to this aspect in the further exposition of this chapter.

3.3 THE BRIDGE BETWEEN THEORY AND PRACTICE

It is a well-known phenomenon that during the past decade or so more and more voices have been heard, also in overseas countries, with regard to the problem of integrating the theoretical and practical training of teachers. Quite rightly Kieviet writes on this particular matter which is consistently occupying the attention of pedagogical academies in the Netherlands, thereby referring to the integration of theory and practice. In his opinion there is a lack of practical didactics in the professional training of teachers which can offer a solution to the way in which education students can be taught to instruct (19, p. 12) (20, p. 374).

As long ago as 1963 N.A. Flanders writes in his article 'Intent, Action and Feedback', as quoted by Wragg (1974), on the serious accusation against the profession of teacher training that so many lecturers in education are of the opinion that their students only really gain insight into that which they are learning, once they have gained practical experience. According to him, it is nothing other than downright hypocrisy to make such a statement and then to give a lecture on the importance of the presentation of lesson contents in such a way that the immediate needs and interests of pupils will be taken into consideration. Although he expresses it very strongly, it is clear that it testifies to an enormous problem with regard to putting the theory into practice. "To be understood" Wragg (1974) avers, "concepts in education must be efficiently conceptualised to gain insight. With most present practices the gorge between theory and practice grows deeper and wider, excavated by the very individuals who are pledged to fill it" (39, p. vii).

The Swedish author Brusling (1974) also writes on the integration of theory and practice by the inculcation of teaching skills, since there are serious shortcomings in the crystallization of theoretical pronouncements and student performance in the classroom context (4, pp. 16-17).

Turney (1973) reports from Australia that education students are expected to enter a teaching practice which in many cases they regard as a threat - a practice in which there is a possibility that scientifically accountable concepts will be replaced by methods on the strength of which resistance is building up against a situation which is getting beyond their control (34, p. 1). As far as the USA is concerned, it can be said that most of the complaints in connection with the lack of an effective integration between theory and practice in teacher training originated in this country, especially since 1963 at the Stanford University in California.

A reflection on the state of affairs in the RSA clearly shows that the same need has always been felt at the various training institutions in this country, but generally speaking the intention towards change and innovation has remained dormant. Gresse (1975) mentions a survey undertaken in this country in 1969 by A.M. van den Berg who involved nine teacher training institutions in the Transvaal, and who indicates that education students receive very little (more often not any) systematic, theory-integrated practice in skills, except during the somewhat isolated periods of so-called practice teaching at schools (12, p. 15).

Since the problem of integration of theory and practice is no more than a facet in the frame of this study, the author did not purposely collect more recent data in this connection. But after visits to various universities and training colleges in the RSA, it can definitely be said that by 1977 the situation had improved considerably, precisely on account of the introduction of television, even though in many cases the implementation of this medium is still in the initial stage.

No person in his right mind will deny that the theory of formal and formative education has, and will always have, a particular place in teacher training, since it enables every qualified teacher (who has also acquired professional status through recent legislation) at least to have certainty with regard to -

(a) knowledge of the child in education,

- (b) the meaning of the values and norms that must be conveyed to pupils,
- (c) how the teaching situation should be conducted, and especially
- (d) why teaching must be conducted as it ought to be conducted.

But since all these theoretical pronouncements are eventually reflected in the teacher's performance, it is obvious that such actions will be accompanied by specific skills, and a skill is and always has been something which must be practised. In this case television can play an important role as an aid to which is closely linked the enthusiasm and responsible awareness of their task by the lecturing staff, since no aid, no matter how effective according to its specific characteristics, used by an unwilling person can guarantee an effective lesson presentation and learning gain. To summarise, television enables the education student to observe (hear and see) during replays how his fellow-students and/or lecturers as well as himself succeed in a practical situation in realising a didactically theoretical matter such as the statement of a problem and presenting the solution to a problem.

3.4 TRADITIONAL WAY OF PRACTICE TEACHING

By its very nature it is customary in all cases of teacher training to make provision for longer or shorter periods of practice teaching, in which case it is a world-wide tendency in training institutions largely to retain traditionalism. As recently as 1970 Kieviet still talks of the imitative method of training during practice teaching in the Netherlands (19, p. 13). A complaint often heard, according to Kieviet is that there is not enough continuity in traditional practice teaching, which means that what is introduced in the theoretical training of students is rarely encountered by the student in the practical situation. In fact, he goes further by stating that what the practice student experiences in the ordinary school, is sometimes directly opposed to what is presented in the training institution. Neither must it be forgotten that the practical skills expected of a student are extremely complex (19, p. 13), as will be seen from the following exposition.

The traditional method of practice teaching amounts to the fact that a student, especially the one who is beginning with

his teacher training, must handle a group of children (sometimes large classes) which, to him, is an unusually complex experience, especially if it is taken into consideration that in his handling of the teaching situation he must show signs that in the first instance he must not only involve the group as a group, but also as individuals. He must take into account the level of development of the pupils in the sense that his planning, presentation and aim of the lesson must conform to this level. And this still does not include the matter of maintaining discipline as well as unexpected critical and well-conceived questions from pupils for which he cannot possibly make provision in his preparation of the lesson. This is indeed a situation which can become so overloaded, that in order to cope with it, teaching will be more of a threat to him than a meaningful interpretation of a future task for which specific expectations are entertained. To many students practice teaching is a matter of changing situations in which they dare not fail. Mistakes may not be made in front of the pupils, and if it should happen, the result may be that students have more and more difficulty in holding their own. Combined with all this there is also a problem which is so easily overlooked, namely that in the practice teaching situation pupils are supposed to learn, while the student must learn to teach (3, p. 7).

In a critical discussion after the traditional practice lesson it is an equally complex task for the lecturer to give detailed criticism, that is, step by step, on the course of the lesson. In fact, a detailed systematic discussion after the lesson is impossible, since completeness in this situation will then assume that the lecturer must be able to depend entirely on his memory. There is also the further problem that students often do not recognise themselves in the image presented by the lecturer in his criticism, exactly because they had been so intensively involved in the teaching situation.

There is much uncertainty at present in the RSA with regard to the effectivity of teacher training and the concomitant question of practice teaching. Isolated studies for doctoral theses are known, such as those of Van den Berg (1969) regarding the practical training of teachers in the Transvaal (35) and of Korrubel (1972) dealing with the training of primary school teachers in the Orange Free State (23). But generally speaking it is a field which for the RSA as a whole is still relatively untouched. The reason for this may lie in the conservative nature of education in respect of the idea of innovation, so that as recently as 1975 Gresse came to the following conclu=

sion:

"For some reason or another teacher training is a matter on which strongly subjective opinions are usually maintained, the validity of which is rarely questioned and for which empirical verification is seldom considered necessary. In this way the value of the traditional period of practice teaching is accepted without anyone ever having studied why it is so good, or what is so good about it, or when it is good, et cetera. It is merely accepted that it must be there, perhaps on account of a feeling of reverence for the tradition and the valuable contribution it made in the past" (12, p. 16).

This statement is a tremendous challenge to training institutions, since the question that must be answered is whether the traditional practice teaching can really provide as effectively as possible in an accountable manner for the need for practising teaching skills in teaching situations. Training criteria on the strength of which prospective teachers must be practically prepared for their profession, must be devised with reference to an exploration of the task a teacher has to do. And, in view of the very fact that a task is mentioned in this connection it surely implies action which, by its nature, is different from the action of reflection, discovery and description (pursuit of science). Viewed in this light, a teacher's professionalism will not be exclusively dependent on his knowledge of and insight into educationally and pedagogically valid pronouncements and therefore irrefutable truths, but also on his skill in applying this knowledge and insight in an accountable manner to further the aims of education in teaching (12, p. 17). It is in this connection that a strategy of innovation, as in the case of microteaching, can make a valuable contribution in the practical training of teachers. An exposition of this is offered in the next paragraph.

3.5 MICROTEACHING AS STRATEGY OF INNOVATION IN TEACHER TRAINING AND THE ROLE OF TELEVISION

3.5.1 What is microteaching?

An extensive exposition of the historical development or origin of the idea of microteaching at the Stanford University in California, USA, in 1963 (6, p. 9) and its application, to the best of the author's knowledge, in all European countries as well as in Japan and at present in many developing countries of the Third World (7, p. 59) is surely unnecessary for the

purpose of this report. For this reason, only a brief look will be taken at what microteaching comprises.

It may be said in introduction that microteaching can be seen in different shapes or variations (cf. 17, p. 7 and 5, p. 122). But fundamentally it is a variant of training practices reflected in the establishment of a specific type of situation, namely a microsituation. As a situation it reveals itself fundamentally -

- (a) firstly, as a reduced situation, and
- (b) secondly, as a simulated (imitated) situation.

A reduced situation type implies a situation in which a variation of teaching facets or components is made 'less', that is, reduced to a smaller size. As such it boils down to -

- (a) decreasing the number of students or pupils ($\frac{1}{2}$ 4 to 7) to whom a lesson is given,
- (b) restricting the duration of the lesson to between 5 and 20 minutes, and
- (c) reducing the lesson content, that is, the subject-matter to be treated.

The microteaching situation is, however, also qualified as a simulated situation, since a student in training is expected to give a lesson presentation in the presence of his fellow-students (contemporaries) to make a critical evaluation of a given lesson. It is also possible to bring some ordinary pupils to the training institute for a microlesson presentation. Whichever method is used, the fact remains that it is no ordinary formal school situation, since the student actually begins on a 'small scale' and he is not surrendered to the complexity of the ordinary school situation, as previously described.

3.5.2 The outline and course of the microteaching situation

To explain the structure of the microteaching situation in which can be realised the idea of practising teaching skills, the author fully agrees with Kieviet when he says that specific didactic principles will have to be used as the point of departure. Basically, in the practical situation lecturers will therefore have to ensure -

- (a) that relevant information, conveyed beforehand by means of oral instructions and/or by the demonstration of model lessons, is given with regard to the required performance with a view to the acquisition of a specific skill,
- (b) that opportunity will be given for practising, and
- (c) that after this, information will once again be given, but now in connection with the student's achievement after evaluation.

In order to provide more information with regard to the above, the following didactical aspects in the course of microteaching are isolated:

1. The instruction aspect.

In the first instance the lecturer must provide guidance in connection with a specific skill or skills which he wants the student to practice. He may supply information in connection with the skills required, for instance, for a narrative lesson -

- (a) by means of written data or oral indications in the wider classroom context, or
- (b) by demonstrating a model lesson with the aid of television, in which case such a lesson must be recorded beforehand on video tape.

It is also possible, of course, that the lecturer can give a combined presentation of (a) and (b). In giving guidance, the lecturer must obviously take into account the quantity of information concerning those specific skills that are relevant to a narrative lesson as well as the nature of the information. With the latter is meant that the lecturer will have to decide whether he wants to pass on information which is merely an indication of how the teaching act should proceed, or whether it will also cover mistakes that may be made. In fact, after visits to some universities in the RSA, it was determined that highly successful use is being made of the demonstration of unprepared television presentations of lessons deliberately recorded to demonstrate to students how the teaching act should not proceed.

2. The lesson aspect

When one proceeds to the presentation of a lesson in the microteaching situation, the following aspects come to the fore in the course of the lesson:

- (a) The student will have to fit his presentation in the period of 5 to 20 minutes.
- (b) The number of persons to whom it is presented must vary from 4 to 7.
- (c) The student presenting the lesson is expected to take into account the nature of the pupils in the microclass. In other words, with whom is he dealing? Are they fellow-students or pupils from a nearby school, and if the latter, what is their level of development?
- (d) If the microgroup consists of fellow-students they should be informed beforehand as to what skill is to be critically evaluated.
- (e) It is of special importance to decide beforehand on the presence of additional students in the class, that is, in addition to the microgroup and a lecturer. Such a situation may have hampering implications, especially for the student who is a beginner and may cause the micro-idea to come to naught.

What is important, however, is that in this instruction aspect attention must always be concentrated on the idea of forming a bridge between theory and practice. Whereas the microteaching situation is supposed to be chiefly concerned with the practice of teaching skills in the lesson aspect, attention can be given to the initial phase of an accountable lesson procedure (26, p. 186) as a matter of theory. Here one thinks of what is known in modern didactics as the actualization of fore-knowledge and in traditional education as linking up with the knowledge the child has acquired through experience. Since this contact cannot be established by other means than through questioning, in this stage of the lesson the student can exercise some teaching skills with a view to effective questioning in the practical situation, such as -

- (a) clear formulation of questions (unambiguousness),
- (b) one question may not contain two subquestions,

- (c) the student must react positively to right as well as wrong answers,
- (d) the student must show his willingness and tact in asking leading questions when pupils have difficulty in answering a question.
- (e) Types of question: does the student ask only rhetorical questions or also questions requiring reproductive and productive thought?
- (f) does he repeat the pupils' answers unnecessarily? et cetera.

In the application of television in the course of the lesson there are different possible methods that can be used, especially with regard to working the camera and manipulating the video tape recorder. Since this matter is discussed in more detail in Chapter 4, a distinction is now made only between the following possible methods:

- (a) Use can be made of a remote-controlled camera mounted on the wall and which is focused for the duration of the lesson on the student presenting the lesson, or
- (b) Preference can be given to a single tripod camera handled by an ordinary student or lecturer, or
- (c) There is the possibility of a portable camera complete with microphone and attached to a portable video tape recorder which is suspended from a shoulder strap, or
- (d) If a more sophisticated method is to be used, a two-camera system can be implemented, in which case one camera is focused on the student for the duration of the lesson and the other on the microclass group in order to observe their reactions.
- (e) In conjunction with any of the aforementioned systems of camera utilization there must naturally also be the necessary video tape machine and monitor for replay purposes. These components of the television equipment are indispensable in the microteaching situation, since they are the basic facilities round which the whole idea of feedback, observation and critical evaluation revolves, while it can be averred that the significance of the application of television with a view to professional

training lies in these three facets of action.

3. The valuation aspect

As implied at the end of the previous paragraph, the integration of television in teacher training provides the possibility of audio-visual feedback. This means that when a video tape recording is made of a student's microlesson presentation, it can be played back for evaluation. With regard to this aspect of evaluation there are also different possible facets that have to be taken into consideration:

- (a) In the first place, by using a table of evaluation the evaluator(s) will have to pay careful attention when indicating the positive as well as negative aspects of the microlesson presentation.
- (b) Where possible, feedback must occur immediately after the lesson has been presented.
- (c) Evaluation is done by the student who presented the lesson and/or fellow-students in conjunction with the lecturer in didactics during a step-by-step feedback with the aid of the video tape machine.

The German, Zifreund, is devoting much attention to the question of evaluation of the microlesson presentation and he recommends that a lesson given to fellow-students should sometimes be discussed evaluatingly in the presence of the lecturer without the latter necessarily enforcing his assessment on the students. Moreover, he makes a highly meaningful suggestion that while the presentation is going on, the microgroup should devise other methods of exercising the skill, and, for practice, they should perhaps demonstrate these methods. In this way the first student, who is being evaluated, has an opportunity of preparing himself for the repetition of the given lesson in front of another group of students (see Paragraph 4).

4. The repetition aspect

Sometimes a lesson given in a microteaching situation is of such a high standard that further practice of a specific teaching skill is not considered necessary. But if the lecturer or the student himself requires a repetition of the lesson presentation, the student must prepare himself for that within 15 minutes. The lesson is now presented in the presence of a second group of students, but the contents remain the same.

This practice is called the 'teach-reteach-cycle' at the Stanford University, USA.

5. The second evaluation aspect

Once the lesson has been repeated to another group of students or pupils, a second evaluation takes place. If it appears necessary, relevant parts of the presentation are played back to him via a video tape recording to assist him to improve on his achievement.

In conclusion it can be stated that many different forms of microteaching are implemented throughout the world. However, since Kieviet goes into detail with regard to the different ways of practising this method, cf. his work: "Microteaching als methode in de opleiding van leerkrachten" (21, Chapter 4), no further attention will be devoted to it here.

3.6 THE PRESENCE OF FELLOW-STUDENTS IN THE MICROTEACHING SITUATION

In the foregoing exposition it has been shown by implication that ordinary school pupils can be brought to a training college to serve as a microclass group for instruction of this kind, but that fellow-students may also play this part. The question as to which of the two teaching groups is the more accountable and the more effective, has given rise to various studies in the past. For instance, Ward (1970), quoted by Turney, established with his research that 52 per cent of the training institutions for secondary teachers use fellow-students for 76 to 100 per cent of their time, whereas 12 per cent of the institutions use ordinary school pupils for 76 to 100 per cent of the time (34, pp. 14, 15). Nevertheless, in their studies Lewis et al. (1973) established that students who presented microlessons with questioning as theme for secondary school pupils, fared significantly better in respect of teaching skills than students who were confronted with fellow-students. On the other hand, they found that with regard to fluency of presentation and skill in questioning there were no significant differences in the achievement of the two groups (25, p. 15). In an investigation of Kieviet (1971), a microclass group of fellow-students found it very disturbing to play the role of primary school pupils, whereas the students presenting the lessons rely on the subject-matter contents of the primary school (22, p. 212).

Many studies in this connection can be pointed out on which people have different views. The fact remains, however, that

the data are chiefly based on the likes and dislikes of the students themselves, and these are not always accountable. Lewis et al. (1973) who carefully studied this matter of fellow-students as microclass group, and who produced additional highly significant data, found -

- (a) that although students prefer to do their microteaching with ordinary school pupils, the presence of fellow-students as a microclass did not hamper their performance,
- (b) that fellow-students in the class situation experienced no problems in playing the role of 'pupils',
- (c) that the contribution made by microclasses consisting of fellow-students with regard to critical evaluation during feedback is of a much higher quality, and thus more valuable, than that of school pupils, and
- (d) that fellow-students in their role as pupils in the microsituation become more sensitive to the meaning and significance of the teaching skills that are practised (25, p. 16).

The author is of the opinion that the success of the microteaching act in which only fellow-students are involved, will depend mainly on the disciplining and motivating role played by the lecturing staff. Students must be made to realise that they are present to assist one another with purposive and positive criticism and to help establish a professional group climate. During visits to various universities and training colleges where this kind of training has been implemented, lecturers confirmed that fellow-students in the microteaching situation co-operate extremely well, since, in addition to a praiseworthy loyalty to one another, they are all aware of the fact that soon it will be their turn to present a lesson. Moreover, fellow-students who find the teaching situation boring, since the subject-matter presented is not nearly at their level, are completely wrongly oriented, since what is at issue is not the subject-matter, but a didactical evaluation of the skill (expertise) revealed by the presenter, and which they have to do under orders.

3.7 INTERACTION ANALYSIS COMBINED WITH MICROTEACHING

Very strikingly Gresse (1975) discusses the fact -

- (a) that few or none of the theoretical objectives ever penetrate to the heart of the teaching act,

- (b) that few ideas of innovation are ever operationalised and proceed to didactical actions,
- (c) that the so-called change or variation in teaching methods results in very little or no actual change in the interaction process. In this regard he avers that it all contributed towards the development of techniques for observing and analysing the concrete didactical situation and as such to evaluate the interaction process (12, pp. 117, 118).

Well known in didactics is the importance of the quality of the interaction between teacher and pupils in the teaching situation with a view to effective learning. This is why it is understandable that researchers would concentrate on devising interaction analysis measuring instruments to enable them to determine the effect of a variety of teaching styles and the nature of the interaction process in the teaching situation.

As indicated elsewhere, the value of the implementation of television in the professional training of teachers lies principally in the idea of feedback, which implies that a student is enabled, by means of an audio-visual recording, to observe, analyse and critically assess his performance in front of a class group (1, p. 120). Such assessment, however, should be made by a student in collaboration with his fellow-students and/or subject lecturer. The important question in this regard is by which method this evaluation should be made.

A salient feature in this respect is the degree to which, according to current literature, in most countries of the world, there is a breaking away from the traditional practice of evaluation in which a student presents a lesson while the lecturer merely observes and then makes a general assessment of the student's performance on the strength of broad general principles. For the purpose of evaluating a lesson presentation of 35 minutes during practice teaching, the latest tendency is to make use of assessment guides by means of which, for example, a facet of the course structure of the lesson such as clarity of exposition can be evaluated as a theme. This evaluation is made on the strength of devised core points or criteria included in the aforementioned guide and which have to be embodied in the lesson presentation (7, p. 59). The following is an example of such a guide:

ASSESSMENT GUIDE

Clarity of exposition	Actualization	Total
1. Linking up with the foreknow= ledge of pupils		
2. Referring to the essences of the lesson theme.		
3. Explaining the concept.		
4. Using concepts in context.		
5. Pupils' attention and inte= rest.		
6. Signs of comprehension by pupils		

The idea is that when a student to some extent or other actualises any of the above criteria of performance during his presentation of the lesson, a mark is made in the centre column which will eventually be converted to a total score. In some respects an assessment guide of this nature is useful, but in the opinion of some didacticians it does not leave enough scope for a comprehensive evaluation. That is why they wish to depend on the use of interaction measuring instruments, of which several variations appear in the most recent literature, for assessing a student's skill in the microteaching situation. In this respect one thinks in particular of N.A. Flanders's (1970) system of interaction criteria (11) which has already given rise to several improved designs such as that of George Brown (1975). The latter considers Flanders's system of interaction-analysis as being too time-consuming for implementation if no computer is available for processing the results (3, p. 81). In this country reference can be made to the interaction-analysis instrument designed by D.A. Gresse at the Rand Afrikaans University (12, p. 167).

In view of the fact that this report is primarily concerned with the implementation of television in teacher training and not with a fundamental and detailed reflection on an exposition of solutions regarding didactical problems in teacher training,

no further attention will be devoted to the question of interaction-analysis in microteaching situations. In fact, there are more than enough examples of this in the literature to which reference has been made. It is, however, the author's humble opinion that in the RSA as a whole there is a particular need for extensive research concerning the guiding assessment of teaching students at training institutions.

CHAPTER 4

A REFLECTION ON PARTICULAR ASPECTS OF THE PLANNING OF EDUCATIONAL TELEVISION IN TEACHER TRAINING IN THE RSA

4.1 SOME FACTORS THAT MUST BE TAKEN INTO CONSIDERATION

4.1.1 Establishing a co-ordinating committee

As there are education departments and universities in the RSA that accept responsibility for the training of teachers, planning with regard to the introduction of television in this training can be done meaningfully, especially in the case of education departments, only by establishing a co-ordinating committee consisting of representatives from every organization or college together with representatives from every education department. The task of such a committee will be to consider the requirements of every training institution with regard to organization and physical planning, so that a team effort can be launched in this way for the purpose of implementing educational television (see paragraph 5.3 for the sake of completeness).

4.1.2 Determining the need

- (a) In planning a system of educational television for teacher training institutions in the RSA the aforementioned co-ordinating committee will have to take into consideration that many training colleges and universities have already made a start in this connection. Some are implementing television on a large scale, and in an accountable manner, whereas in other cases it is still in an experimental stage.
- (b) What must be remembered, however, is that on account of local and overseas experience and the most recent literature data there is justification for saying that there are as many different forms or types of educational television practices as there are different teacher training institutions. This is the case, especially since almost every institution differently experiencedly experiences and interprets its specific requirements. A specific education department may have only one training college, whereas another may be responsible for four or five. An added problem is that the colleges of a specific department may be

far apart and those of another close together. In such cases there will inevitably be divergent requirements, so that everyone will have to plan its own television system according to its own situation.

- (c) For the rest, such a co-ordinating or exploratory committee will inevitably be confronted with the fact that what is planned for today may be outmoded to some extent tomorrow, precisely because of the rapid change and progress in the technological field and the particular questions raised in connection with personal preferences, aims and methodology. On account of the increasing improvement in the sense of continuous, technological sophistication of this highly refined electronic apparatus, together with its efficaciousness, it will obviously be attempting the impossible to lay down prescriptive patterns for all teacher training institutions, each with its own diverse training requirements, with regard to purchasing and installing an educational television unit that will be valid and acceptable to all. The point being made here is that the existing variety of educational television practices for teacher training in the RSA is of such a nature, as far as planning is concerned, that it is impossible to arrive at a common formula that will be meaningful for all training institutions. What can be done in this report, taking into account the present national economy, is to expound guiding principles by means of consideration given to various possible systems of educational television which can be implemented in an accountable manner.

4.1.3 The problem with regard to what is envisaged with educational television

Before the purchasing and installation of an educational television unit can be considered, it is absolutely essential to arrive at a decision on the role to be played by such a unit, in other words, what is envisaged within the wide framework of teacher training. It is known, for example, that the authorities of the University of Illinois in Chicago, USA, voted 2½ million dollars to equip a media centre with all the necessary television facilities and other relevant aids with a view to medical training. This money was used to build four colour television studios of different sizes,

equipped with a large number of colour cameras and extremely expensive video tape machines. Three years later the director of the media centre admitted that only one studio was being used. Part of their television recordings and editing are done in a small adjacent room, since most of the work consists of reproduction surveys, while some other recordings are made in the operating theatres. The ideal in this case would have been to start on a small scale, but in such a manner that there would be scope for future expansion.

In the RSA there are institutions which make provision for the academic as well as professional training of teachers. The academic training is concerned with the direct instruction of specific subject contents, and the professional training with the demonstration of model lessons and methods of presentation as well as the inculcation of practical teaching skills. In addition to this, education departments also concentrate on in-service and further training programmes. All these types of training and the needs arising from them will obviously have to be taken into account when the objectives are formulated. Some universities in the RSA also use television in the professional training of teachers. The fact of what is envisaged with educational television is particularly significant in the planning of the technical facilities for such training. This will become clearer later on in this report.

4.1.4 The matter of existing facilities

The next point requiring careful attention in educational television planning is the factor of television facilities that have already been purchased and which are in use at present. In exceptional cases it may be necessary for a specific training institution to make provision from the initial stage for the erection of an entirely new complex of buildings and related equipment. The normal procedure is to start with what is available, for example, a hall which lends itself to this purpose is converted for educational television without losing sight of future expansion or the purchasing of more sophisticated apparatus.

For the rest, in planning full-scale implementation, training organizations already in possession of television facilities must take into account that some of their present equipment may to a large extent be obsolete and will have to be replaced in due course for the sake of standardization.

Apart from this there is also the question of apparatus that, even in the planning stage, is not functioning properly and will therefore have to be replaced or repaired at tremendous expense. In addition, as far as present facilities are concerned, standardization may also be impeded by the problem of different manufactures.

4.1.5 The diversity and quality of educational television staff

- (a) At teacher training institutions where the training to a large extent is concentrated on the academic moulding of students, especially in the case of training future primary school teachers, much emphasis will inevitably be placed on the production of training programmes. This situation is due to the fact that much attention is devoted to the direct instruction of subject contents as well as to demonstrating methods of presenting learning contents in curriculum innovation.
- (b) Another point that has been mentioned, is the production or manufacturing of model lessons to demonstrate how the gap between theory and practice can be bridged. In these cases it is not only the presence of select technicians or media experts that is essential, but also, and especially, that of subject specialists (subject didacticists) of whom absolute expertise is expected, from the moment the programme is initiated, the script written, the recording made (camera work and technical control), until the programme has been edited for use in the lecture halls.
- (c) The same applies to the production of training programmes for in-service training and further training of teachers with the result that, as stated elsewhere, the matter of programme production will take a prominent position in the integration of television in teacher training.
- (d) The exposition until now has indicated that to ensure that the technical apparatus functions so effectively that it allows for a scientifically accountable training practice for teachers, it has to be realised once and for all that such a task cannot be undertaken without the professional expertise of acknowledged media experts, preferably those with teaching experience.

On the other hand, it must also be remembered that the implementation of educational television is principally concerned with the educational or training aspect for which academically as well as professionally trained people (educationists) are required, in other words, people who know who they teach, what and how they should teach, but especially why they are achieving this task. Consequently, to lay claim to effective utilization of television in teacher training, it is essential that everyone, that is, educationists as well as technicians, must have sound knowledge of each other's disciplines. It is surely no exaggeration to say that the success of educational television, especially with regard to the production of training programmes on the strength of a sophisticated, fully-equipped studio, is entirely dependent on the availability or lack of skilful educationists and media experts.

4.1.6 The choice between a closed circuit television system and an open network system

On account of the specific needs that have to be provided for, a choice normally has to be made between a closed circuit and an open network television system. It will therefore be meaningful to study what is meant with each, which system is preferred in overseas countries and the potential of a specific choice.

(a) The open network system

In this case lessons or courses are broadcast from one central point, for example the SAEC, via one or more channels to training institutions where the broadcast is received by means of a television receiving set. This implies broadcasts on a national level.

(b) The closed circuit system

This implies a system comprising the transmission or transfer of electronic sound and visual signals to a receiving set by means of coaxial cables or microwaves (27, p. 225). This definition points to the technical nature of the system whereby the distribution of sound and visual images is not intended for general or national reception (24, p. 34). The distribution of information or the demonstration and/or observation, inter alia, of lesson presentations is done by means of the aforementioned cables to a receiving set in the same room or to sets in different lecture halls where

it is directed towards limited groups (8, p. 34) (2, p. 65). There is, for example, a one-room closed circuit system which, in its smallest form, consists of only a camera and a receiving set in the same room used for demonstration purposes, whereas in a more complex or sophisticated system, such as used in a training college, the technical equipment will consist of more than one camera, video tape machines, the necessary facilities for mixing and monitors or receiving sets in various halls of such a college. It is therefore obvious that transmission by means of such a system is not intended for the general public (9, p. 38).

The fact that the integration of television in teacher training concentrates, or should concentrate, mainly on the idea of professional training, entails that in considering an accountable system of television, the extremely important matter of providing for local needs must be taken into account, and a closed circuit system undeniably qualifies for this in all respects. An open network system, on the other hand, is unsuitable for allowing students to perform before television cameras during their periods of practice teaching and for playing their lesson presentations back to them for critical evaluation and improvement.

4.2 CLOSED CIRCUIT TELEVISION IN OVERSEAS COUNTRIES

Since it is almost impossible to give a detailed exposition of the many organizations in overseas countries that are using closed circuit systems, an attempt will only be made to indicate the origin and development of these in some countries:

- (a) One of the first and best known experiments with this system which gave highly satisfactory results, was the one at Hagerstown, Maryland, USA, in 1956 where during the first year of its implementation 5 300 pupils and students daily received one lesson by means of television. After 3 years the closed network had spread to almost all schools in Washington County, with the result that 16 500 pupils and students from 37 educational institutions were involved. At the beginning of 1962, that is, at the end of the 5-year-old experiment, 91 per cent of the teachers who had participated in the experiment asked that the implementation of this medium should be continued. The result was that since that time closed television networks have been installed in several districts of the USA (1, p. 434).

- (b) In 1963, when there were signs of increasing awareness in British tertiary education institutions of the possibilities of closed circuit television as an educational medium, a start was made with the introduction of such a service at the University of Glasgow. After two years this service was expanded and linked by cable to the nearby University of Strathclyde in order to give a central service to each university and to specialize in the medium of television (28, p. 225). In 1962 The Thomson Foundation Television College in Glasgow began a closed circuit system with the chief aim of promoting education in undeveloped countries by the integration of modern techniques and multicomunication methods. In 1965 a similar system was started at the University of London Goldsmith's College and in 1966 the Jordanhill College of Education in Glasgow introduced the system for teacher training. Since the Inner London Education Authority Educational Television also began in 1966 with a similar service to the entire complex of nearby schools, universities and colleges, by 1971 there were as many as 1 400 organizations (of which 50 were teacher training colleges) in England that had entered the field of closed circuit television (10, p. 12).
- (c) In the meantime progress in this field was also being made in Germany. The first training organization at tertiary education level to begin with closed circuit television in Germany was the Pädagogische Hochschule in Bonn which, with its approximately 2 000 students, was one of the largest teacher training institutions in the Federal Republic (1, p. 436). In this connection can also be mentioned the introduction of an almost similar system at the Pädagogische Hochschule at Heidelberg in West Germany.
- (d) In the Netherlands, which retained the conventional methods of teacher training considerably longer than the other European countries, a closed circuit television system was eventually installed at the Rijksuniversiteit of Groningen. In its set-up and scope this system corresponded to a large extent to those installed in Bonn and Heidelberg. Known also is the preference given to such a system at the Pedagogische Academic 'De Wylderbeek' in Venloo in

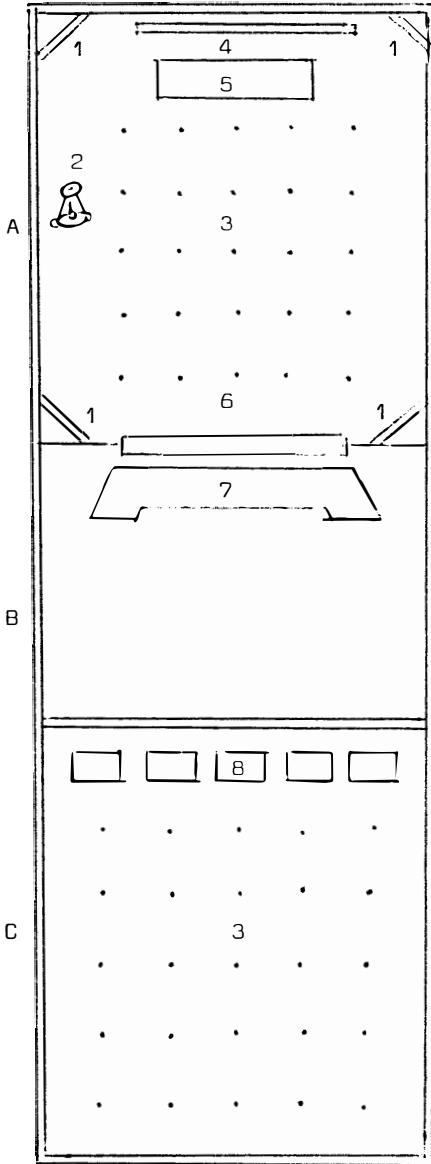
1968 (40, p. 448) and at the Onderwijsmedia Instituut at the Rijksuniversiteit of Utrecht in 1969.

- (e) As far as Belgium is concerned, the highly successful closed circuit television service at the Rijksnormaalschool in Brussels can be mentioned where ordinary school education as well as the training of teachers is accommodated under one roof. In this college the system is utilised in three areas, namely a lecture hall, a technical or control room and an observation hall (See diagram on page 39). The lecture hall, which is in fact a fully equipped classroom, is provided with 4 fixed, remote-controlled cameras mounted high up in the corners of the room, as well as a mobile floor camera on a tripod and wheel frame which provides a continuous overall image of the pupils and their reactions in the class. There are also 4 highly sensitive microphones, while the desks in the classroom are adjustable.

The image recorded in the lecture room goes by cable to the control room with its mixing facilities where it is recorded on 5 preview monitors for checking purposes, while the final, approved image is transferred from a sixth monitor by cable to the observation hall where it appears on 5 ordinary large monitors for observation and evaluation.

This observation hall is also equipped with an intercom system which enables lecturers to make contact with the technical or control room, and on account of the video tape recordings, that are also made in the control room, a lesson given by a student can be reshown repeatedly, in full or in part, and discussed.

- (f) In France it was especially the Saint Cloud audio-visual centre of the École Normale Supérieure which began experimenting with closed circuit television at different times at two different educational institutions namely the École Normale in Lille, which began in 1964, and the École Normale in Versailles where a start was made in 1966.



- A. Lecture room
- B. Control room
- C. Observation hall
- 1. 4 wall-mounted cameras.
- 2. Mobile tripod camera.
- 3. School desks.
- 4. Blackboard
- 5. Teacher's table
- 6. Soundproof double glass panel
- 7. Audio and video mixing console
- 8. 5 Monitors resting on 5 ft. high uprights

This diagram provides an indication only of the recording and playback rooms and not of the editing, maintenance, graphic and media rooms.

4.3 THE ADVANTAGES OF CLOSED CIRCUIT TELEVISION IN TEACHER TRAINING

- (a) As an ordinary part of their training, education students are given the opportunity by means of closed circuit television (CCTV) of observing lesson presentations, including the method of presentation, the reactions of pupils and the evaluation of some teaching skill or other.
- (b) Training through such a system enables a student to present his lesson to a group of pupils in an atmosphere of privacy without the disturbing presence of a group of adult observers in the class. Such a lesson can be recorded on video tape and played back to the observers for their evaluation at a later stage. The absence of disturbances of this nature may result in more attentive behaviour (16, p. 15 et seq.).
- (c) A CCTV system has the additional advantage that a much larger number of students can simultaneously observe the same lesson presentation (even in the situation of overflow lecturing (13, p. 40)) than is the case with a conventional lesson. In this way the system can definitely contribute to a broad basis of common experiences by students - a situation which offers particular possibilities for thorough discussion and evaluation (1, p. 440).
- (d) By recording a student's lesson on video tape there is an opportunity in a closed system of playing his presentation back to him, thus enabling him to improve his own performance (teaching style and handling of teaching skills).
- (e) CCTV enables students to learn to observe carefully. In this respect one thinks of viewing lesson situations in the lecture rooms of the training institution which serve as excellent preparation for practice teaching at schools at a later stage (37, pp. 37 to 41).

- (f) Bjerstedt is of the opinion that the period devoted to practice teaching can be drastically reduced, provided that a large part of lesson observation will be given by means of CCTV (2, p. 75). This by no means implies that CCTV must replace practice teaching altogether. One thinks of first-year students who may benefit tremendously from these visual lessons and who should undertake no practice teaching during their first year of training. At the same time this will also entail financial saving.
- (g) A system of CCTV enables students to become familiar with the performances of a variety of subject specialists rather than with that of one or two teachers as is the case in practice teaching in which case it happens all too often that the student identifies himself with such a teacher.
- (h) Students are enabled to observe a variety of didactical situations, especially close-ups of pupils' reactions. This is made possible since students can now observe pupils frontally, in contrast with the conventional method where students in most cases sit at the back of the class and have only a rear view of pupils.
- (i) The larger the number of students at a training institution, the more difficult it will be during practice teaching to have pupils perform before a camera with a view to feedback. This problem can be solved, however, by giving students the opportunity of performing in a microteaching situation at the college or university itself. In this case it is also a matter of providing for local needs in which case excellent results can be obtained by means of a CCTV system.

4.4 THE IMPORTANCE OF COLOUR TELEVISION IN TEACHER TRAINING

- (a) Attempts are often made to justify the acquisition of colour television for educational and training purposes with the argument that since pupils and students are accustomed to the sophistication of colour television in the family situation at home, they should at least not be exposed to the so-called inferior black and white apparatus in the teaching situation. Unfortunately this argument is based on a total misinterpretation of reality, so much so that educationally it has little, if any merit. The place of television in the home is one of diversion or entertainment, whereas in education it has a totally different role to play. When television is integrated in teacher training, it serves at best as an aid whereby an appeal is made to students to perform a specific task and which motivates them to accomplish that task in an accountable manner. It is a situation which demands a straining of the attention and consequently attentive behaviour, in which case colour plays no role in the sense that it is superior.
- (b) To account for the matter of colour television in this specific training situation, it should rather be viewed, and with sound justification, within the framework of its function of rendering assistance. If this approach is used, the question chiefly crops up in the integration of the medium in situations in which direct instruction of specific subject contents is at issue, such as Biology, Physical Science, Art and Drama. In this case colour is indispensable if an image of reality is to be brought into the classroom, as television is supposed to do.

- (c) Moreover, any training college is really a community on a small scale which, because of its specific task, cannot be divorced from the cultural life of the wider community outside. The result is that colour television has particular value in times of national and student festivals as well as other student affairs in which the institution is involved, since its students play a prominent role. In this case colour television will add to the impact of the whole affair on account of the more realistic quality of the productions. It can also be mentioned that a decade or two later such a recording will not only have historical value, but will also serve as a consolidating factor in the life of the college.
- (d) With reference to what has been said in the previous paragraph, it is obvious that colour television has significant meaning in teacher training, but it must be made clear that if the necessary funds are not available, it can be done without, taking into account, however, that the quality of programme production will suffer, especially programmes on the aforementioned subject contents. The fact that colour television is not entirely indispensable in teacher training, must at this stage be an indication to the careful reader of the great variety in technical planning which can be considered and implemented according to the specific needs of a variety of training organizations. A concrete indication of such a diversity of television systems will be discussed in the next chapter of this report.

4.5 THE PROBLEM OF COPYRIGHT

4.5.1 Introduction

According to Hancock (1973) the availability of supplementary material, in addition to what is produced locally, is always a hampering factor that must be taken into account. It is understandable that television services would sometimes wish to use material that they cannot supply themselves, for example films or specific parts of them, photographs, music and the use of dramas and other literary works. In this case copyright has to be obtained and paid for.

4.5.2 Copyright in overseas countries

In overseas countries especially films, but also other material, are protected by copyright acts, and when they are used in television programmes two specific obligations have to be met by the consumer:

- a. Firstly, permission has to be obtained before such material can be used. It must be pointed out that such permission is not always granted, especially when only series or excerpts of the material are required.
- b. Secondly, remuneration must be negotiated for the right to distribute the film material by means of television presentations (13, p. 120).

Under the Copyright Act of 1911, film material in the United Kingdom was protected for a period of 50 years from the date of manufacture. The later Copyright Act of 1956 stipulates that copyright on a film is in force -

- (a) if it qualifies for registration under the Cinematograph Films Act of 1938 until it has been registered, and then for a period of 50 years after that,
- (b) if it does not qualify for registration, then until its publication and another 50 years after that, and
- (c) as far as film news is concerned, for a period of 50 years from a specific event.

It is also important to know that in terms of the aforementioned act the term 'film' implies a 'motion picture', irrespective of the type of material on which it is recorded. A video tape recording will therefore also be subject to copyright.

In actual fact, in overseas countries the matter of copyright varies from country to country. According to Hancock, most countries have their own copyright acts, while some become members of the Berne Convention, and still others of the Universal Copyright Convention. Hancock also points out that requests from educational television services for the use of film material are sometimes granted at reduced

rates if it is clearly indicated that such films will be used for educational purposes only. Educational television services newly in operation are also sometimes granted a kind of development or 'pioneer' status by authors, manufacturers and distributors which results in smaller royalties. This may continue until the television service has succeeded in building up its own supply of supplementary material.

When an author or distributor is approached in connection with such permission, it is advisable that it should be clearly indicated in which manner such visual material is to be used. This includes for example -

- (a) whether an entire film or only part of it will be integrated,
- (b) an indication of the length of a part of a film and the specific place where it occurs in the film,
- (c) whether it will be used in conjunction with the original sound-track,
- (d) the number of transmissions for which it is considered,
- (e) whether additional transmissions or alternative distribution of the completed programme is envisaged,
- (f) whether any stills, in whatever form, may be made from the film, and
- (g) whether screen credit can be given to manufacturers or distributors.

Each of these factors may influence the final or total remuneration. It is known, for example, that some manufacturers or distributors are prepared to relinquish payment or royalties in favour of recognition for their share by screen credit.

- c. Complying with copyright and financial remuneration for the use of supplementary material in overseas countries applies to many other fields except films. Photographic stills, for example, are also subject to copyright when they are requested from news agencies, irrespective of the duration for which

they will be shown on the screen. Payment for these is normally made for every time the programme is shown.

- d. Musical recitals and gramophone records are also protected by copyright acts, as well as dramas and other literary or art works. Although short quotations from literary works may be made free of charge on account of the copyright act's qualification of 'fair dealing', the quotation of longer excerpts is subject to remuneration. The position is exactly the same with regard to paintings, sculpture and drawings, except when they are permanently available to the public for viewing or only used as background (13, p. 121).
- e. There is, moreover, the case of performing artists in connection with acting, reciting, singing, et cetera. They obviously have a right to their material, with the result that overseas educational television services are obliged to appoint contract representatives to negotiate copyright whereby the rights of the service as well as the artist are clearly formulated.

According to Hancock, it is becoming more difficult overseas to get an 'all rights' contract in respect of any kind of material. The number of broadcasts envisaged, the rate of pay for every new showing, and the right to distribute material after the initial broadcast, must all be clearly outlined.

4.5.3 Decision

It is apparent from the foregoing information that everyone is protected by the copyright act, with the result that it may be assumed that manufacturers and distributors will not manufacture and distribute if they cannot be satisfied. But there is another side to the picture, if negotiations in connection with copyright become too confusing and time-consuming, consumers, such as television services, may design their own material and no longer waste time in trying to obtain existing material. In fact, many educational television services consider obtaining copyright during the early stage of their development to be an unnecessary or unfortunate impediment, since they feel they are only small-scale

consumers with no intention of marketing their programme productions.

On the other hand, it must be admitted in all fairness that manufacturers and suppliers in the commercial sector of ordinary school and college material such as rulers, rubbers, jotters, school desks, blackboards, books, et cetera, do not do so free of charge. Fundamentally there are thus no grounds or arguments for making authors, manufacturers and/or distributors relinquish their copyrights. Like the people in commerce, they also have to make a living.

4.5.4 The position with regard to copyright in the RSA

In the Republic of South Africa there is a Copyright Act, Act No 63 of 1965, amended by Act 56 of 1967, Act 75 of 1972 and Act 64 of 1975 which is open to criticism at this stage, with the result that new legislation can be expected in this connection.

In actual fact the existing copyright act is to a large extent modelled on the British Copyright Act of 1956 which is extremely complex. Another aspect is that the RSA accepted membership of the Berne Copyright Convention of 1886, revised in Stockholm in 1967 and again in Paris in 1971, but in respect of which the RSA cannot yet be assured of full participation unless the aforementioned South African Copyright Act is amended or replaced altogether. That is why the Republic is now obliged to settle its affairs in this respect.

This is also assumed to be the main reason why the Minister of Economic Affairs, according to Hansard, announced in Parliament on Thursday 31 March 1977 that a bill will be introduced during the 1978 session of Parliament with regard to the question of copyright after all the organizations concerned had been consulted (32, p. 4836). Viewed in this light, it is inevitable that the present state of affairs with regard to copyright in the RSA is rather fluid. By virtue of the fact that drastic concessions or restrictions with regard to copyright may be enacted in the course of 1978, that is, as far as ordinary education and teacher training are concerned, it is considered unnecessary for the purpose of this report to go into more detail or to make recommendations at this stage.

4.6 A WIDE FRAMEWORK OF PHYSICAL PLANNING WITH REGARD TO A SYSTEM OF EDUCATIONAL TELEVISION

4.6.1 Introduction

In an attempt to explain a wide framework of physical planning, only the most basic requirements that have to be provided for, and that entail most expenditure and organization, will be dealt with here. In other words, this is no exploration of the finer technical accessories such as the sound and video mixer, the condenser microphone, the microscope contact, a set of power units, a set of cables, video cassettes, neck microphones, et cetera. These additional apparatus will be discussed in the recommendations in Chapter 5.

4.6.2 The building complex

a. The necessity of an equipped studio

As far as the planning of a television system for teacher training is concerned, it has already been mentioned in this report that the main issue is the scope of such a system, viewed specifically in the light of what is envisaged with it. As such the role to be played by educational television must be studied in two separate contexts, namely an academic and a professional.

In the case of general academic training the function of television will naturally not differ from that in the school and university context where subject instruction is given by means of this medium, although the target groups and the contents of the training programmes are clearly distinguishable. The most common use of television in academic training will be -

- (1) that it has possibilities for overflow lecturing,
- (2) that in subject presentations it functions as an audio-visual aid, especially in Biology and Physical Science, and
- (3) that it allows for supplementary programmes for all subject didactics at a training college.

It is with regard to the professional training of student teachers, however, that the function of educational television has significance in a different context as well. The most obvious functions in this case are -

1. the recording of model lessons by the lecturer and/or top-quality teachers from the profession for purposes of demonstration and comment,
2. the recording of practice lessons in schools with a view to feedback and critical evaluation,
3. the recording of examples of pupil reactions in ordinary as well as in remedial teaching situations with a view to exploring personality images and research, and
4. the recording of microlesson presentations by students of the college with a view to practising teaching skills.

By their nature these two categories of training can be clearly distinguished to such an extent that different demands can be made with regard to equipment, staffing and organization.

What must be clearly understood, however, is that in respect of both categories, but especially in respect of academic training, there will inevitably be a comparatively large range of programme production and that a suitably equipped studio is a prerequisite specifically for this purpose. To be more technical, only the following reasons for the necessity of a television studio need be mentioned. Since it is a room that has to satisfy specific criteria, especially with a view to eliminating outside local sounds and other disturbances as well as the increased mobility of television cameras and boom microphones and the more effective handling of overhead illumination, et cetera, television personnel are generally able to guarantee a high quality of production.

b. The television classroom

In describing the necessity of a well-equipped studio the necessity of a permanently equipped television classroom was introduced at the same time.

It has been found in Brussels, Belgium, as well as at the Rand Afrikaans University, that a special television classroom is ideal for professional training. Equipped with permanently installed benches and fixed, mounted wall cameras that are remote-controlled, and in some cases also with a mobile camera on a movable trolley for a general view of the class, such a room offers the ideal opportunity of demonstrating model lesson as well as microlesson presentations. In the opinion of many didacticians the fact that the cameras are remote-controlled has the advantage of the total absence of a bundle of cables and moving camera men who do not actually belong in the teaching situation and who distract the attention of pupils or students when recordings are being made. Conditions are therefore more in line with the normal teaching situation. In calculating the expense, however, it is a completely different matter, as will be shown in paragraph c.

c. The television studio in a dual capacity

By its very nature it will be a highly uneconomical proposition to have a permanently equipped television classroom as well as a permanent studio at the same training institution. Experience in most overseas countries revealed that the establishment of a television studio will be the most realistic thing to do, on condition that it functions in a dual capacity, namely as a studio for programme production and secondly as a television classroom. For the latter purpose school desks and the other necessary facilities will have to be arranged in the studio when a lecture is to be given and afterwards removed to an adjacent hall when the studio is required, for example, for the training of drama students. The main consideration should always be to plan as economically as possible without sacrificing quality.

In this respect one thinks, for example, of a case when a television studio does not offer enough room to accommodate a group of pupils or students, in which case, by using a mobile camera system, the group can be moved to a larger hall for a period or two for the lesson presentations.

It must be admitted, however, that the use of the studio for lecturing purposes has specific disadvantages, in the sense that when pupils are brought there from nearby schools, they as well as the teachers are taken from their natural environment, so that a certain degree of insecurity is experienced by them. In view of this, certain, television services such

as the Inner London Education Authority, practise a variety of television techniques, such as acclimatising pupils and teachers. This means that a group of pupils pays one or more brief visits to the studio during which the activities are explained to them and the apparatus shown so that they can become accustomed to everything beforehand. Various researchers mention the fact, also experienced locally, that this method is highly effective, since, after being introduced to the room and the moving apparatus, as noticed at the Inner London Education Authority, pupils pay very little further attention to their surroundings. What is important, is the extent to which pupils are motivated by the teacher towards meaningful participation in the classroom activities.

d. The control room

Of particular importance is the availability of a control room next door to the studio and separated from it by a soundproof window of double glass panels. While the studio staff are engaged in programme production, the programme leader and other technical staff are active in the control room from where instructions are given by means of earphones to the studio staff, so that their communication will not have a hampering effect on the production activities in the studio.

e. Microteaching rooms

In more advanced and sophisticated educational television practices, such as at the Rand Afrikaans University, provision is made in the building complex for a total of three or four microteaching rooms containing the minimum furniture and which can accommodate only five to eight students at a time for inculcating teaching skills. If financial circumstances do not allow for this, it will suffice for the time being to exercise the microteaching practice in ordinary rooms, providing that the minimum apparatus required for microteaching, namely a camera, one monitor and video tape recorder, remain, where possible, permanently available in such a room.

f. Other additional rooms

In addition to the studio, the control room and micro-rooms, it is almost self-evident that in the case of highly sophisticated apparatus and where high-quality programme production is envisaged, provision will also be made for -

- (a) rooms for storing, maintenance, editing, sound recordings and graphic work as well as
- (b) office accommodation for administrative staff and, if possible,
- (c) a preview room for planning and assessing programmes.

4.6.3 The technical equipment

a. The television camera service

The term 'television camera service' merely indicates that this paragraph is not concerned with an exploration or description of the technical aspects of a camera as such, but only with the didactical utilization potentialities of a variety of cameras when placed or mounted in different positions.

1. To qualify as a well-equipped television studio, the ideal condition is to work with 3 cameras: 2 of these are placed on tripods and dollies, one at the back of the class or studio, focused for the duration of the period on the person presenting the lesson, while the second is placed at an angle in front or immediately in front of the class to provide a general view of the class group or whatever activity is in progress. The third is a standard camera mounted either directly above the teacher's table on the wall or on a table stand for microscopic recordings, but also for showing photographs, diagrams, or sketches from books, models, titles, captions, et cetera.
2. With some extra trouble, 2 cameras will suffice, one mounted on a tripod, and the second inevitably a table camera as described in paragraph 1. When the table camera is not being used for photographs, models or microscopic recordings, it can simply be adjusted for a general view of pupil activities.
3. Another type of camera which is becoming popular among didacticians, is the portable hand camera which is linked by cable to a video tape recorder, in which case the latter can be carried around at the same time by a shoulder strap. It handles easily, is very

mobile, and is used successfully in practice teaching situations to record practice lessons. This does not imply that the ordinary tripod cameras described in paragraph 1 and 2 cannot be taken to schools, since manufacturers of television apparatus provide very handy cases for carrying these, with the result that they can be transported in safety for recordings in situ. The fact remains, however, that the tripod camera requires more time for unpacking, making the necessary cable connections and clearing up and repacking afterwards.

b. The video tape machine

A recording by means of a video tape recorder is a system of recording sound electronically on magnetic tape, preserving it and playing it back immediately or at a later stage. Several variations are available of this highly sophisticated electronic apparatus, but for the purpose of this report only the two best known and most useful types for educational purposes will be discussed. Firstly, there is the video tape recorder which can be used for playback only, and, secondly, the video tape recorder with which training programmes can be recorded on a magnetic tape and played back via a television set. Both are extremely important if the most economic method is to be used for educational purposes. However, the best is the video tape recorder that makes provision for colour as well as black and white recordings and also for playback, dubbing and editing facilities. Since the sixties, when this apparatus was introduced in teacher training at the Stanford University in California, it has become tremendously popular throughout the world on account of its effectivity (14, p. 87). In fact, it has become so popular that Jansen (1972) is of the opinion that technically it will oust films.

c. The television receiving set and television monitor

It is remarkable to what extent these two terms for describing the specific apparatus are used synonymously in the relevant literature. The television receiving set is the more expensive apparatus that can receive and show a camera recording by air or cable, whereas the monitor, which is much cheaper, can only play back a recording of sound and image made by means of the video tape recorder. The usefulness of both these apparatuses

in a closed circuit system is obvious, if the diversity of situations in teacher training is taken into consideration. That is why it should not be difficult to determine how many of each are required for a training institution.

A matter which has still to be decided on, however, is the size of the screen needed in different situations. Screen widths suitable for educational purposes vary between 50 cm, 55 cm, 60 cm and 66 cm. If it is intended for training in the microteaching situation, it must be taken into account that it is not merely a matter of playback, since recordings will inevitably have to be made as well. In such cases the use of the ordinary monitor will be out of the question. In purchasing monitors and receiving sets the requirements for a variety of educational situations will have to be taken into consideration, also with regard to the choice between as well as the number of colour and/or black and white sets.

d. The problem of cable connection

Paragraph 4.1.6 provides an exposition on closed circuit television within the framework of which coaxial cable connection between various rooms has special significance. According to the latest literature, it is remarkable how much money can be saved in the planning of such a system by a minimum of cable connection. It is inevitable that there will always have to be cable connection between the camera operation and the control room, but the modern tendency, for training purposes in different rooms, is to use trolleys on which a monitor or receiving set and a video tape recorder can be moved simultaneously to different rooms or wherever required. In this case no cable connection is required from the control room to the other rooms. Some colleges, however, may prefer such connection with at least one or two rooms, even though it might only apply to the college hall or for purposes of overflow lecturing.

In addition to this the possibility of programme distribution can also be mentioned. If it can be arranged that all the rooms that will be used for educational television will be equipped with permanently installed receiving sets, which will make it unnecessary to move to and fro with one or more sets, it will be completely unnecessary to buy and use trolleys each costing R145. All that will be necessary will be to move a portable video tape recorder between rooms.

Although this will be a more expensive immediate undertaking, it will probably be more economical in the long run, since permanently installed receiving sets will require less maintenance.

e. The question of a mobile television unit

It is unavoidable that some mobile unit or other will have to be provided independently of a well-equipped television studio. The author specifically mentions some form or other, since such a unit can again be one of a large variety, while the idea of mobility lies in the fact that it is principally intended to function independently of the studio, away from the training institution. Such a unit will be indispensable in practice teaching at schools.

Such a mobile unit can consist of only one or two cameras plus a video tape recorder which can easily be transported to schools. Its scope can of course be extended by the addition of more sophisticated equipment (even mixing facilities). If it is further extended, however, a motor-bus is normally converted for this purpose with mounted shelves for protection and transport.

It must be clear at this stage that (with a view to economising) much variation in apparatus is possible between the television studio and the mobile unit. However, if the studio is equipped with highly sophisticated colour cameras costing several thousands of rand, and it is argued that these are much too delicate to be transported around, provision will have to be made for an additional black and white unit, perhaps consisting of one or more portable hand camera systems that can function as a mobile unit.

Even including a mobile unit as described in the previous paragraph, it can still be claimed that this is the most economical planning. But when it is a case of more comprehensive requirements at a college than merely the recording of practice lessons at schools, such a converted motor-bus can be fully equipped as a mobile control unit with permanently installed mixing facilities, cameras, video tape recorders, et cetera, - naturally at much greater expense - functioning independently of the television studio.

CHAPTER 5

RECOMMENDATIONS WITH REGARD TO POSSIBLE SYSTEMS OF CLOSED CIRCUIT TELEVISION FOR TEACHER TRAINING IN THE RSA

5.1 INTRODUCTION

- 5.1.1 To prevent any misapprehension, it must be stated first of all that the recommendations in this chapter are only intended as guiding principles on the strength of which training institutes will have to do their own planning and make their own recommendations in the light of their specific requirements.

In the heading to this chapter mention has deliberately been made of possible closed circuit television systems, precisely on account of the large variety of possible forms of such systems, but also on account of the fact that systems vary from what may be called the more or less ideal to the less sophisticated with which nevertheless a large degree of successful training can be provided and which may also be immediately practicable.

- 5.1.2 It must also be indicated that in considering possible systems and in making recommendations in this regard, the scope of and costs attached to the physical facilities must be pointed out without going into too many details with regard to the specific didactical practice made possible by every specific apparatus. An investigation of such a nature will obviously cover too wide a field. As an example attention can be drawn to the implementation of the video tape recorder and the didactical possibilities implied by it. Research and recommendations in this respect only can assume tremendous proportions, as is, in fact, shown by most current literature.

5.2 A GENERAL ORIENTATION IN RESPECT OF THE STATE OF AFFAIRS IN THE RSA

- 5.2.1 To reflect on recommendations regarding a system or systems of closed circuit television for teacher training in the RSA will inevitably mean starting

with the fundamentals of the situation and the first question will be who is responsible for the training of teachers.

In the first instance there are universities that train teachers for secondary as well as primary education and that are autonomous. The result is that they have to plan a television system for their own needs only. Secondly, there are provincial education departments and the Department of National Education responsible for teacher training at colleges controlled and administered by them.

Since it is considered unnecessary to make separate recommendations for universities and education departments, the rest of this chapter will be devoted to recommendations for teacher training institutions controlled by the various education departments. It is hoped that in reading this report universities that have not yet implemented television will be able to determine their own positions within the framework of that which is relevant to the education departments.

- 5.2.2 In the light of what has been said in the previous paragraph, it will first of all be necessary for every education department to take into consideration how many training institutions the specific department is responsible for. Quite conceivably the task of considering, purchasing and installing a closed circuit television system will be the most practicable where there are the smallest number of colleges and where some of them are not too far apart. This will be the case of an education department such as that of the Orange Free State with only one college in contrast with the Transvaal that is responsible for training at four different institutions. What this amounts to is that some education departments will have to take into account the range or size that more than one system, that is, a system for every college under its control, will have to assume, especially when the national economy is involved as well. It would be completely unaccountable, for example, if an education department responsible for several colleges would decide that every training institution must accommodate a highly sophisticated educational television system. Granted, this would be the ideal

condition, but for various reasons an ideal is not always practicable.

5.3 RECOMMENDATIONS WITH REGARD TO A CO-ORDINATING COMMITTEE

5.3.1 Motivation

With a view to sound planning and recommendations regarding the purchasing and implementation of closed circuit television in teacher training, one of the most important questions is who has to accomplish this most responsible task.

When the present state of affairs with regard to the implementation of television in South African teacher training colleges is studied, it must be taken into account that some institutions have started with this on a large scale, whereas others have introduced it on a limited scale only. It must also be comprehended that with a view to future full implementation of educational television (that is, when it is no longer merely a question of experimenting) a variety of problems may arise that must be noted.

Among these are -

- (a) the possibility of an initial staff shortage,
- (b) the problem of outmoded equipment that will no longer be adequate for training requirements and that will have to be replaced,
- (c) equipment that is not functioning properly and that will be expensive to repair,
- (d) an inadequate building complex, and
- (e) the presence of apparatus of various manufacturers which will hamper standardization and the compatibility of training programmes among training institutions.

It will obviously be meaningful for every education department to establish a central body which through consultation can jointly record problems and plan how to overcome them.

5.3.2 Recommendations

It is therefore recommended -

- (a) that a Co-ordinating Committee be established, consisting of one or two representatives from every college, and at least three senior officials from the department whose activities in the department revolve round educational technology or audiovisual services,
- (b) that the task of this Co-ordinating Committee will be -
 - during joint sessions to provide information and to consult on the specific needs of every college,
 - to arrange matters regarding video tape recordings involving every college,
 - to show friendly co-operation in exchanging advice and ideas, and
- (c) that the Co-ordinating Committee meet at least once per college term to fulfil its obligations.

5.4 RECOMMENDATIONS WITH REGARD TO THE BUILDING COMPLEX

5.4.1 Motivation

In planning and making recommendations in respect of physical facilities such as the building complex, education departments will have to decide first of all whether it is possible to convert existing rooms for the installation of television or whether an entirely new complex will be required. Another aspect that has to be considered carefully is the forms of training to be provided, so that there will be certainty as to what is envisaged. There are, for example, departments that make provision for full-time as well as further training and for a system of in-service training which is further subdivided into regional and orientation courses. Whatever form of training is provided, the fact remains that the production of training programmes at every college, or at least at the largest or most centrally situated college will be of such a scope that a suitably equipped studio and related television rooms will be an absolute necessity.

5.4.2 Recommendation of a central studio and allied rooms

As far as a building complex for the implementation of educational television is concerned, it is recommended -

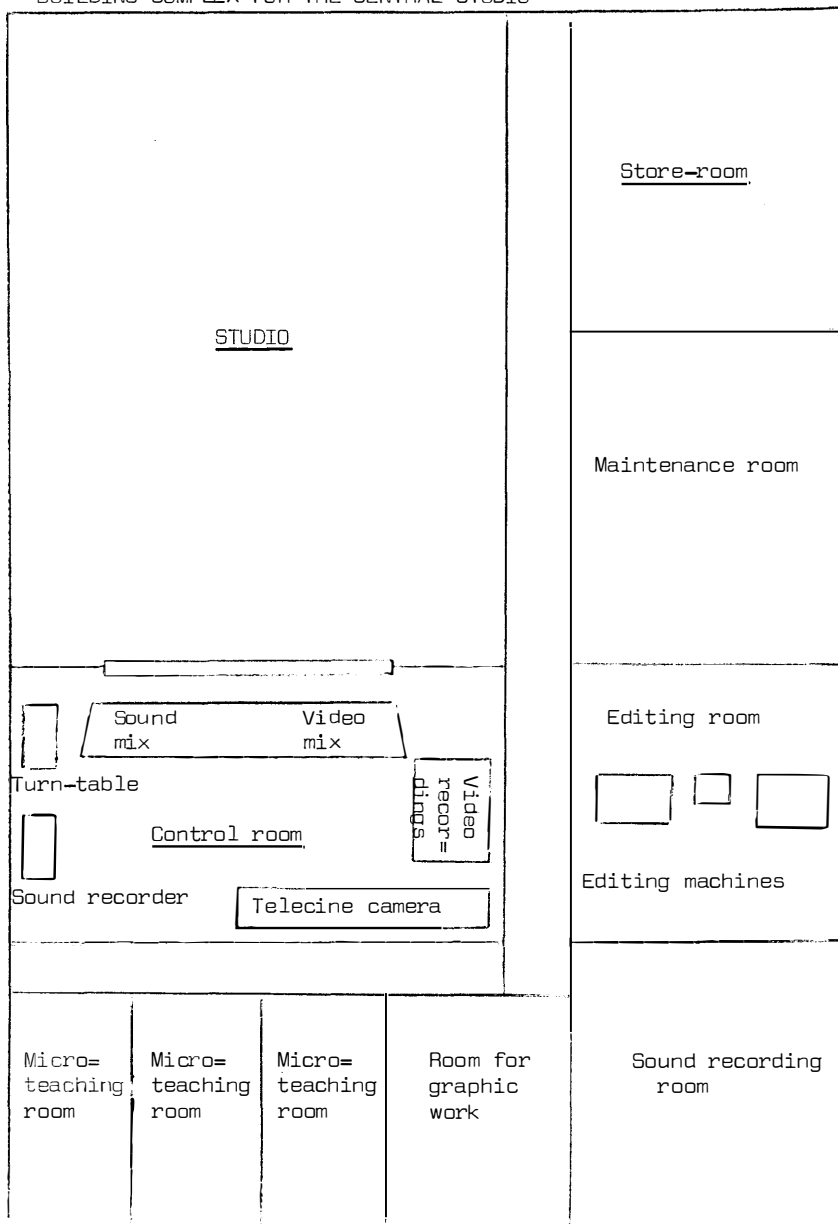
- (a) that a sophisticated studio (henceforth called the central studio) be established at the largest or most centrally situated training institution of every education department,
- (b) that the central studio be equipped with a colour television unit for sophisticated programme production and lecturing in subjects such as Elementary Physical Science, Biology, Art, Music and Drama,
- (c) that, in addition to the central studio, provision be made for a well-equipped control room with the necessary mixing and communication facilities as well as other relevant apparatus allowing for a multimedia approach, and
- (d) that as far as possible provision be made for at least the following additional rooms: a store-room, a maintenance room, an editing room, a sound recording room, a room for graphic work and two to three micro-teaching rooms. (See diagrammatic representation on Page 61.)

5.4.3 Recommendation of substudios.

It is recommended -

- (a) that at each of the remaining training institutions of the education departments a mini- or substudio be established, that is, a studio of smaller size with just enough equipment to provide for the most important local needs,
- (b) that every substudio at the remaining colleges be equipped with a black and white television unit of such range that it will provide for specific local production requirements, but especially for professional training: methodological approaches, practising teaching skills and critical evaluation as well as exercising skills in gymnastics and other games,

BUILDING COMPLEX FOR THE CENTRAL STUDIO



- (c) that, as a supplement to every substudio, provision be made for a well-equipped control room with the necessary mixing and communication facilities as well as other essential equipment for a multimedia approach,
- (d) that (with regard to supplementary rooms), finances permitting, the remaining colleges provisionally make do with the use of the substudio and a control room, since -
 - (1) editing and sound recordings can be done in the control room directly,
 - (2) storing and maintenance can be done in the substudio itself, and
 - (3) microteaching can be done in ordinary classrooms (see diagram on central studio), and
- (e) that provision be made at least for the necessary administrative offices and a room for graphic work and research.

5.5 RECOMMENDATIONS WITH REGARD TO THE TECHNICAL EQUIPMENT

5.5.1 Apparatus for the central colour studio

Since the expenditure attached to the equipment of a colour television unit can be extremely high if there is no careful planning, it must be pointed out that the following recommendations concentrate on essential equipment with only the minimum expenditure. For such a colour studio the following are recommended -

- (1) 3 colour cameras complete with view-finders at R5 000 each. (The third camera need not necessarily have a view-finder, but it must be remote controlled - also used for microscopic work.) R15 000
- (2) 1 colour camera without view-finder similar to Camera 3 above, for use of telecine in control room R 5 000

(3) Lenses

- | | | |
|-----|--|---------|
| 2 | 1:10 zoom lenses @ R1 600 each | R 3 200 |
| 1 | 1:10 motorised zoom lens for remote controlled camera | R 1 600 |
| 1 | suitable for use on telecine and captions | R 1 600 |
| (4) | 2 sturdy tripod stands complete with pan and tilt on a dolly at R1 200 each | R 2 400 |
| (5) | 1 sturdy tripod stand with remote controlled pan and tilt | R 2 000 |
| (6) | 2 microphones at R60 each | R 120 |
| (7) | 2 complete microphone booms at R400 each | R 800 |
| (8) | studio lamps: complete with sockets and/or stands with total delivery of 15 kw (minimum) | R 5 000 |

Control room

- | | | |
|------|---|---------|
| (9) | 1 video mixer/special effects generator | R 1 300 |
| (10) | 1 10 channel audiomixer | R 500 |
| (11) | 1 phase oscillator | R 340 |
| (12) | 1 signal generator | R 1 000 |
| (13) | signal distribution amplifiers | R 600 |
| (14) | audio and video distribution amplifiers | R 500 |
| (15) | 1 telecine apparatus that also provides for the use of captions, complete with one 16 mm projector adapted for use in television productions as well as <u>one</u> slide projector and <u>one</u> Caption stand | R 5 000 |
| (16) | 1 colour receiving set in studio 60 cm + | R 1 000 |

(17)	7 console monitors of which 2 must be colour and 5 black and white	R 2 000
(18)	2 colour video tape machines with editing facilities at R5 000 each	R 10 000
(19)	1 audio tape machine	R 1 000
(20)	1 professional turn-table	R 300
(21)	1 complete communication system between control room and studio which includes 3 sets of headphones (R350,00) and one loudspeaker (R80,00)	R 430
(22)	1 oscilloscope	R 2 000
(23)	3 dozen $\frac{1}{2}$ hour video tapes for video tape machine	R 940
(24)	1 complete light control dimming system for fading or brightening lights	R 8 000
(25)	requirements for installing apparatus to function effectively as a whole, for example, cables, connection boxes, distribution switches and remote control switches	R 2 186
(26)	all the necessary furniture for control room and its installation	R 4 000
(27)	power stabilisers	R 2 400
(28)	1 complete portable colour camera and video tape recorder equipment	R 7 600
(29)	an effective air-conditioning system for the requirements of a colour camera set	R 15 000
(30)	5 colour receiving sets 66 cm	R 5 000
	Total	<u>R 107 816</u>

5.5.2 Recommendation for technical apparatus for a substudio

It is recommended that every substudio at the remaining colleges be provided with the following apparatus:

- | | | |
|------|---|---------|
| (1) | 2 black and white cameras complete with viewfinders and tubes at R736 each | R 1 472 |
| (2) | 2 1:6 zoom lenses at R500 each | R 1 000 |
| (3) | 2 sturdy light-weight tripod stands complete with pan and tilt on dollies at R375 each | R 750 |
| (4) | the necessary cables | R 300 |
| (5) | 1 special effects generator with provision for non-synchronised sources such as the video tape recorder | R 1 150 |
| (6) | <u>Monitors</u> | |
| | 3 15 cm monitors (rack mounted) | R 850 |
| | 2 20 cm monitors with sound | R 800 |
| (7) | 3 complete headsets with talk-back facilities | R 150 |
| (8) | 1 6 channel audiomixer complete with amplifier | R 550 |
| (9) | 2 microphones at R40 each | R 80 |
| (10) | 1 boom microphone | R 120 |
| (11) | 4 1 000 watt lamps complete with clamps and bulbs, plus extra bulb per lamp
R1 150 + R100 | R 1 250 |
| (12) | 4 lamp stands on wheels | R 200 |
| (13) | <u>Video cassette machines</u> | |
| | 1 with editing facilities | R 2 000 |
| | 1 for recording and playback | R 1 500 |
| | 1 for playback only | R 1 350 |

(14)	<u>Monitors</u>		
	1	60 cm + colour monitor	R 1 000
	4	60 cm + black and white monitors	R 1 400
(15)	1	mobile console on wheels that must be built	R 1 200
(16)		the necessary switches and contact plugs	R 300
(17)	<u>Labour</u>		
		installing equipment in a console for serving a complete 2-camera black and white system	R 600
(18)	1	complete portable camera and video tape machine equipment	R 2 000
(19)	1	intercom system between console and cameras, complete with headsets for speaking and listening	R 350
(20)	1	2 KVA stabiliser (if necessary)	R 1 000
			<u>R21 372</u>

5.5.3 Recommendations in connection with black and white technical apparatus for a variety of smaller educational television units

The following exposition attempts to make recommendations in respect of black and white technical apparatus that can be functional in a variety of smaller educational television systems. This is done since there may be education departments that wish to or have to function with a much more limited range of apparatus in their training institutions, for example the Department of Education and Training, the Administration of Coloured Affairs and the Department of Indian Education. After information was obtained from various manufacturers, technical equipment can be recommended for the following variations of educational television systems:

a. System No. 1

The smallest initial format of equipment that can be used for a closed circuit system is one camera and one receiving set. It is doubtful, however, whether this will ever justify the expenditure, since with only one camera it is difficult, or impossible to obtain a true picture of the classroom activities, except if it is intended to present specific subject contents. A practice of this nature offers so few opportunities of teacher training that it might as well be better to work without television. It will be a completely different matter, however, if a third component is added, namely a video tape recorder with which provision can at least be made for playback facilities for microlesson presentations. It will be noticed that the extent of this equipment is very limited, but these three instruments can be used to good effect, especially in recording demonstration lessons, practising teaching skills, presenting certain subject contents, et cetera, on condition, however, that this system functions in a very small college with a limited number of students. The fact remains that didactically one camera has little effectivity, since when it is focused only on the presenter (student or lecturer), the reaction of pupils or fellow-students in the room cannot easily be recorded. The estimated cost of such a limited unit is the following:

(1)	1 black and white view-finder camera equipped with one 1:6 zoom lens (R1 150) mounted on a tripod stand with pan and tilt (R145) and dolly (R75)	R1 370
(2)	1 50 cm black and white monitor with sound facilities for playback purposes	R 465
(3)	1 standard video tape recorder for playback and evaluation purposes only	R1 150
(4)	1 microphone for presenter	R 45
(5)	1 dozen cassettes at R30 each	<u>R 360</u>
	Total	<u>R3 390</u>

b. System No. 2

A fully accountable range of technical equipment for teacher training is that which will function in a two black and white camera system and which can be used for -

1. production of training programmes,
2. demonstration lessons, and
3. practising teaching skills.

Equipment that will function less sophisticatedly but quite successfully in a substudio include the following, with the cost attached to them:

- | | | |
|-----|---|---------|
| (1) | 1 black and white view-finder camera equipped with 1:6 zoom lens for focusing on the presenter | R 1 150 |
| (2) | 1 black and white table camera without view-finder, equipped with lens for close-up work and mounted on an adjustable table or wall stand for use as document reader, but in some cases also for a general view of pupil activities. The same camera is used with the telecine contact unit for transferring films to video tape (camera and stand) | R 495 |
| (3) | 1 tripod stand with pan and tilt | R 145 |
| (4) | 1 dolly | R 75 |
| (5) | 1 video mixer consisting of a 2 to 3-channel video switch and special effects generator which provides for - | |
| | (a) contact between any of the camera images, | |
| | (b) mixing and superimposing (dual image) any of the camera images, | |
| | (c) showing two images next to each other on the same screen (split screen), and | |

(d)	placing the second camera image in the corner of the main or primary image	R 1 250
(6)	3 small preview monitors	R 1 000
(7)	1 intercom system consisting of amplifier and four headsets	R 180
(8)	1 5-channel sound mixer	R 195
(9)	1 condenser microphone for covering the classroom as a whole	R 85
(10)	1 microscope contact	R 45
(11)	1 telecine contact for transferring film and dia-images to video tape	R 250
(12)	1 set of power units for the above-mentioned apparatus	R 280
(13)	1 set of cables free of charge	
(14)	1 standard video tape recorder for playback and evaluation purposes	R 1 150
(15)	2 50 cm black and white monitors with sound for playback purposes during group discussions or in microteaching situations	R 930
(16)	1 neck microphone for person presenting the lesson	R 45
(17)	2 dozen video cassettes at R30 each	R 720
	Total	<u>R 7 995</u>

As stated earlier on, the training of teachers can be successfully undertaken by using the apparatus described in System No. 2, but it must be taken into account that the more additional apparatus is included, the more effective and faster training can be done.

It can also be mentioned in connection with this system that if it is supplemented by monitors, video tape machines, cassettes and trolleys, training can be done at a much faster tempo, since more than one student can simultaneously utilise playback facilities in different rooms, while others are still demonstrating lessons or practice teaching. In this case it applies to student communities at much larger colleges.

Since such a supplementation or extension of System 2 would involve considerably more financial expenditure, it would be useful to explain a third system.

c. System No. 3

	Total of System 2	R 7 995
	plus	
(1)	1 video tape recorder with electronic editing facilities for the production of model lessons as well as for recording from colour cameras	R 2 550
(2)	1 standard video tape recorder for playback and evaluation only	R 1 150
(3)	1 60 cm black and white monitor with sound for control room	R 485
(4)	1 50 cm black and white monitor with sound for playback facilities during group discussions or in microteaching situations	R 465
(5)	2 trolleys for moving video tape recorders and monitors <u>to</u> and <u>in</u> the different rooms at R145 each	R 290
	Total	<u>R13 035</u>

5.6 RECOMMENDATIONS WITH REGARD TO THE DISTRIBUTION OF PROGRAMME CONTENTS

5.6.1 Motivation

The distribution of programme contents means the broadcasting, inter alia, of the presentation of subject contents, demonstration lessons and demonstrations of guidance situations via

some form of communication to various rooms in the same college. It is noticeable that providers of television units advise prospective implementers of this medium in teacher training that it is more economical to arrange for such distribution not by cable contact, but rather by means of video tape recorders which can simply be carried from room to room by the lecturers or students. This will incur no extra expenditure, since the video tape recorders are in any case bought for many other purposes.

5.6.2 Recommendation

It is therefore recommended that, where possible, sufficient monitors be given a permanent, suitable position in lecture halls, so that the video tape machine and the specific training programme can be moved from one room to another for distributing programme contents.

5.7 RECOMMENDATIONS WITH REGARD TO INTERCOLLEGE PROGRAMME PRODUCTION

5.7.1 Motivation

As shown by the recommendations in respect of the technical equipment for the central and substudios, it is envisaged that training programmes will be produced at all colleges. The most sophisticated programmes will, however, be manufactured at the central colour studio, especially as far as the presentation of certain subject contents and skills in gymnastics and other relevant games are concerned. It is therefore obvious that in addition to the central college which accommodates the colour studio, the other colleges would also want to and have to use colour recordings.

5.7.2 Recommendations

It is recommended -

- (a) that the staff of the central studio should concentrate on the production of training programmes by means of colour video cassettes and the building up of a local videotique for distribution to the remaining colleges that must be authorised in accordance with departmental regulations to requisition for them,

- (b) that when the remaining colleges require high-quality cassette recordings of training programmes initiated by themselves, their staff be allowed to manufacture them in collaboration with the staff of the central studio at the central studio,
- (c) that if conditions are such that a self-initiated programme can be manufactured only at the college where it is initiated, such a college should then be entitled to request that a mobile unit with colour equipment come from the central studio for programme production for as long as necessary,
- (d) that the remaining colleges be provided with the necessary video tape recorders and some colour receiving sets for utilising the recordings of the central studio. (In this connection see Paragraph 5.8.)

5.8 RECOMMENDATIONS WITH REGARD TO STANDARDIZATION AND THE COMPATIBILITY OF PROGRAMMES

5.8.1 Motivation

It is an indisputable fact that the standardization of technical equipment and compatibility of training programmes as co-ordinating factors are in all respects related to financial saving and/or limited budgets.

Standardization implies that a department of education should consider it a matter of the utmost importance that the colleges controlled by it should as far as possible acquire technical equipment of the same manufacture and size to allow for the exchange of programmes on an intercollege basis. Unnecessary duplication and waste of money can be avoided by this means (18, p. 11). It is obviously meaningless to manufacture a programme or programmes dealing with the same theme or series of themes at 3 or 4 different colleges.

Another aspect in connection with this matter is the extension of a videotique of cassette recordings such as of model lessons on specific teaching skills.

According to Kathleen Reed (1976), the University of Nebraska, USA, claims that they compiled a catalogue of 171 pages on the model video tape recordings in their videotique for use in teacher training, whereas a catalogue of 240 pages was published at the Carleton College in Northfield, Minnesota.

5.8.2 Recommendations

It is recommended -

- (a) that when existing equipment becomes unsuitable or obsolete it must be replaced by standard equipment to ensure compatibility,
- (b) that during mutual consultation the Co-ordinating Committee allocates specific tasks in respect of programme production to specific colleges to prevent duplication,
- (c) that scenarios in connection with a series of recordings dealing with the same theme, to be manufactured in different colleges, be exchanged between colleges as far as possible for evaluation and comment,
- (d) that provision be made in every college for building up a videotique of model video cassette recordings which can be included in a catalogue to be passed on to sister colleges for their information.

5.9 RECOMMENDATIONS WITH REGARD TO A MOBILE TELEVISION UNIT

5.9.1 Motivation

Paragraph 4.6.3(e) provides an indication of the possible scope of a mobile television unit and the necessity of such a unit in teacher training was chiefly based on its important function in practice teaching and for purposes of programme production at the remaining colleges.

5.9.2 Recommendations

It is recommended -

- (a) that a mobile unit be established, equipped with the necessary rack mountings for the safe transport of technical equipment from the central studio to destinations outside the college,
- (b) that this mobile unit must function under the control of the central studio,

- (c) that it must serve the whole complex of colleges under a specific department, and
- (d) that the previously recommended Co-ordinating Committee must work out the service timetable for this unit by mutual consultation.

5.10 RECOMMENDATIONS WITH REGARD TO STAFFING

5.10.1 Motivation

Several well-known overseas authors agree that a sophisticated studio with colour equipment, which results in relatively high financial expenditure, must be used at least so productively that it will compensate for the costs attached to it. In fact, it should be in full production at all times, and if the range and cost of a central studio, as recommended, are taken into consideration, such production cannot be successful with fewer than 12 full-time technical staff who also have educational qualifications and experience. It must also be taken into account that these members of staff will periodically be on holiday or sick leave.

It must also be noted that with full-time technical staff the author does not imply that these persons must be seconded to a training college as technicians linked to a salary structure of academic teaching staff, but they must be permanently appointed on a salary structure applicable to technical staff in the public service. This will entail that they will be entitled to holiday leave once a year and that during college holidays they will still continue with the planning, production and selection of programmes as well as with writing scenarios in conjunction with subject specialists. To continue with their activities during college holidays would entail a slight change in the holiday activities of academic staff. Indeed, it could harm nobody if lecturers are instructed by their departments to take turns in assisting with television activities during holidays. In view of the present world situation, especially as far as South Africa is concerned, and also on account of the author's experience in the USA and West Germany regarding the labour productivity of academics, the question has been asked by many of the foremost labour leaders in this country whether we do not have too many holidays in the RSA, thereby creating the wrong impression for our young people in this respect.

5.10.2 Recommendations

It is recommended -

- (a) that the technical staff of the central colour studio should be compiled in the following manner:
- . 4 camera operators
 - . 3 directors
 - . 1 video technician
 - . 1 sound technician
 - . 1 editor
 - . 1 graphic artist
 - . 1 maintenance technician

N.B.: On account of the scarcity of technical staff, especially during the initial phase of such an educational television service, some departments will have to start with a smaller staff, but in such a case it must be regarded as a temporary arrangement only, otherwise the cost of a colour studio will not be justified,

- (b) that one specific person be at the head of this service, perhaps with the rank of director. This person must have a sound knowledge of the technical and organizational aspects of such a service, but first and foremost he must be an educationist of renown. This brings the total to 13 full-time persons, unless one of the three recommended directors (production leaders) is provisionally appointed to this post,
- (c) that for the present no full-time script-writer be appointed, since, before any further expansion of the television service takes place, this task can be accomplished by the 3 directors in conjunction with the subject specialists,

- (d) that when the services of excellent teachers are required as subject presenters, they must not be appointed permanently, but must be seconded to colleges and compensated by an extra notch or two on their salaries,
- (e) that, in order to get as much production as possible out of the colour studio, the three recommended directors, in conjunction with the particular subject specialists, should write, shoot, and edit separate programmes in rotation. This would amount to a rotation cycle of activities within clearly defined periods of time.
- (f) that consideration be given to arranging the aforementioned rotation cycle of activities in the following manner:
1. First period (that is, the first week or first half of the week)

<u>Programme No. 1</u>	Script-writer director No. 1 + subject specialist + technical staff → shooting.
<u>Programme No. 2</u>	Script-writer director No. 2 + subject specialist prepare for shooting.
<u>Programme No. 3</u>	Script-writer director No. 3 + subject specialist (writes scenario).
 2. Second period

<u>Programme No. 1</u>	Script-writer director No. 1 + editors → editing.
<u>Programme No. 2</u>	Script-writer director No. 2 + subject specialist + technical staff → shooting.
<u>Programme No. 3</u>	Script-writer director No. 3 + subject specialist prepare for → shooting.

3. Third period

Programme No. 4 Script-writer director No. 1 +
subject specialist(writes scenario).

Programme No. 2 Script-writer director No. 2 +
editor → editing.

Programme No. 3 Script-writer director No. 3 +
subject specialist + technical
staff → shooting.

4. Fourth period

Programme No. 4 Script-writer director No. 1 +
subject specialist + technical
staff → shooting.

Programme No. 5 Script-writer director No. 2 +
subject specialist (writes scenario).

Programme No. 3 Script-writer director No. 3 +
editor (editing).

(g) that at least 4 full-time technical staff with educational qualifications and teaching experience be appointed at each of the remaining colleges, namely

- . a head of the television service who would at the same time be production manager or director,
- . 2 camera operators, and
- . 1 control technician, and

(h) that the mobile unit controlled by the central studio be staffed by 2 persons from the central studio, plus 2 members of the staff of a specific college when the unit goes to that college for service.

5.11 RECOMMENDATIONS WITH REGARD TO THE CARE AND MAINTENANCE OF TECHNICAL EQUIPMENT

5.11.1 Motivation

(a) Since the technical aspect of an educational television service cannot be ignored, it is understandable that the

safe keeping or care and periodic maintenance of equipment are essential. Manufacturers say that in general, maintenance costs during the first three years after installing do not cause too much concern. On the other hand, if it is taken into consideration that a receiving set normally lasts approximately 8 years, it is understandable that a college will have to ensure that its equipment is always in a good working condition for the times it will be required.

- (b) If the rate of service of an educational television system is of such a scope and sophisticated nature that it justifies the permanent appointment of an engineer in electronics or of a maintenance technician, then such a service need give very little reason for concern about its maintenance. However, if no provision, for whatever reason, can be made for such a person on the establishment, then, according to several overseas organizations such as the educational television service of Hong Kong, it would be advisable to sign a contract with the suppliers of technical equipment for its annual servicing and maintenance at fixed rates.
- (c) In the RSA there are apparently suppliers of world renown who are prepared to install a small black and white 2-camera system with facilities for mixing free of charge. Moreover, after installation it is possible to obtain a 6-months guarantee, whereas the annual maintenance contract amounts to roughly R500 per annum, depending on the distance to be travelled. In a contract of this nature, provision is made for two kinds of services, namely a precautionary service which is carried out from 2 to 4 times a year, and an emergency service which guarantees immediate attention in an emergency. If a defect suddenly develops in some component or other and it cannot be repaired on the spot, a replacement is normally sent until repairs have been completed.
- (d) It is obvious that the greatest care must be used in storing and handling technical equipment. In fact, the less often this highly delicate equipment is moved round, the better. In teacher training, especially during recordings of practice teaching at schools, it would be impossible, however, to avoid moving the equipment round altogether, or even partly. To overcome this problem, suitable cases can be bought with relatively

small additional expenditure. Cases at R162 each can be bought for transporting television cameras safely, as well as cases at R45 each for video tape recorders and canvas bags at R25 each for transporting monitors, all from the suppliers. If finances do not permit this, ordinary cases may also be used, but it would still be the safest form of protection.

5.11.2 Recommendations

It is recommended -

- (a) that in the case of the recommended central studio it must be the responsibility of the maintenance technician to care for television equipment,
- (b) that in the case of the substudios an annual contract be signed with the suppliers, providing for precautionary and emergency services, and
- (c) that consideration be given to the purchase of portable cases for the safe transport of equipment on the college campus as well as away from it.

5.12 CONCLUSION AND FUTURE PERSPECTIVE

- (a) Since the beginning of 1976 the RSA has had the privilege of viewing the transmissions of the national television service of the SABC. Since this service does not work on a provincial basis, it is unlikely that it would introduce ordinary school television broadcasts based on syllabus contents. In this case it is also possible that the SABC may one day concentrate mainly on providing or extending a full-scale permanent section for the production and transmission of programmes for adult education. There is sound justification for such a step, but this study is not concerned with that and no further attention will be devoted to it.
- (b) What must be considered, however, is the fact that although full-scale implementation of television in the school context is not envisaged for the near future, and there are several reasons for this outlook, there is nevertheless a possibility that such a need might be felt in due course. And since educational television in the school context can hardly be accounted for educationally, unless it is related to syllabus contents, it can

be assumed that if full-scale implementation of television in schools in the RSA should become reality one day, the existence and function of the so-called central studio for every education department would have to be reconsidered and replanned.

- (c) What the author wishes to stress, is the fact that the introduction of a school television service normally assumes such proportions, especially if all the different subjects at the different school levels are taken into consideration, that every education department will have to consider making such a service function as a central departmental service, which will provide co-ordinated services similar to those of the departmental library services. If this should come about, every training college would still have to accommodate its own educational television facilities, whereas a central departmental school television service will have to function in isolation, since, on account of its hectic programme of work, it cannot be attached to a teacher training college to be implemented on behalf of teacher training as well.

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