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The Supply and Preparation of Teachers

Technical education is an integral part of a country's general education system and it is therefore right that in most circumstances the initial training of technical teachers should not be isolated from that of other teachers. Segregation can reinforce belief in lines of division whereas, in fact, the training of specialist technician teachers has much in common with the training for teachers of the 15 to 19 age-group in secondary schools, particularly with those who will teach mathematics, science, technology and practical subjects. Some of the instruction in the basic initial training course could be shared. Examples are: aids to study; the philosophy, history, structure, and administration of the national system of education; fundamental ideas in educational psychology and sociology; curriculum studies and syllabus construction; educational technology; finding and presenting information; communication skills; techniques of writing educational objectives; basic principles and techniques of educational measurement and evaluation; the purposes, content, structure, maintenance and use of the individual student record; and the administrative management and organization procedures within which teachers work.

Most of the instruction common to senior secondary and technical college teachers can be organized in learning units, and much of it can be undertaken by junior training staff who are not necessarily or exclusively technical or science specialists. The full-time subject-oriented specialist in a training establishment can be prone to giving academic, theoretical, bookish, tutor-centred instruction not directly applied to the day-to-day tasks of the teacher. What the technical teacher most needs – and most seeks – during his training are the essential fundamental ideas, principles, methods and skills that he can use in his job. He does not want to be baffled with abstract pedagogical theory. Rather he wants to be equipped with the practical knowledge which will enable him to carry out his tasks, to solve his on-the-job problems, and to ensure that the students he teaches achieve occupationally-useful learning objectives.

The training of individual specialist technician teachers cannot, however, be limited to an understanding of the general needs of all teachers of adolescent and younger adult students. The relationship which technician education and training bears to a country's industrial growth, economic and social development, standards of living, and quality of life also needs to be studied. The ideas, principles, methods and resources peculiar to the teaching of the technician teacher's own specialism must be understood and practised. Specialist trainers must therefore be well qualified in their specialist technical knowledge and skills. They must have a range of good, relevant, recent industrial experience at technician level, and, if possible, have been members of industrial project teams working with specialists in management, action research, operational development, planning, organization, and training. They must understand and be in intellectual harmony with national economic and social development objectives, with the purposes and objectives of industrial development, and with the aims and objectives of technician education and training. Length of teaching experience is probably of less importance than the ability to understand and accept change, and the willingness to adapt to innovation.

It is often difficult to convince the technician teacher of the specifically vocational industrial orientation of his teaching functions. For this reason much of the specialist teacher trainer's work with in-service technician teachers may have to be concerned with subject and job attitude re-orientation, stressing the need to change antiquated attitudes to teaching methods, to being subject kings, to operating strictly within traditional departmental boundaries, and to legendary ways of planning special vocational syllabuses and schemes of work. These must be replaced by a broader professional approach, and emphasis should be laid on the need to modernize the ways in which technician teachers function so that the total resources of technical colleges are directed to the preparation of students for immediate technician employment, social responsibility and effective citizenship in their community. The principle should also be established that technician teachers will require in-service professional development so as to up-date and extend their knowledge of specialist subject matter and their first-hand experience of modern processes, techniques, equipment, work organization, management and supervision in industry. They will also need to learn new ways of planning and organizing the teaching of specialist technician material through formal and informal methods including individual and group industry-based asignments and projects, team teaching, learning packages, case studies, role playing, programmed learning, and the techniques of educational technology that individualize learning and take account of differences which influence the rate, rhythm, level, extent and quality of learning between students. This is not always easy. The belief and attitude that attendance at an in-service course *must* lead to a promotion-earning paper qualification dies hard. A teacher trainer is often faced with the difficult job of modifying the attitudes of people who have a great capacity for looking backwards and who, despite exhortations to change, continue teaching what they want to teach, and what they can most easily teach.

The kinds of person required as technical teacher trainers are expensive to hire and difficult to retain. They are sought not only by training colleges but by the civil, social and armed services, by industry, and by international agencies for their technical, industrial, and training qualifications, and their proven on-the-job abilities. Their time and effort should not be dissipated on routine administrative or clerical tasks that seal them off in offices and isolate them from full-time commitment to teaching, tutoring and counselling technical teachers. Their contribution is needed to instruct teachers on the most productive methods of teaching the specialist subjects in technician courses. They should also help to organize special method teaching packages, including correspondence courses, for in-service technician teachers who are unable to attend a full-time training course and who need help to do their jobs more effectively. In addition, they should be actively encouraged to attend courses designed specifically to train the technician teacher trainers.

The most suitable programme for technical teacher training courses is still under discussion. This discussion pivots on how best to prevent technical teachers from being isolated on the one hand from other teachers in training, and, on the other, from the vocational, educational and training institutions in which they will be employed. There is general consensus that the initial basic training course common to all teachers could be provided in general colleges of education for senior secondary teachers, in university departments of education or in senior technical colleges that offer behavioural science for other purposes. Much of the special method training could be undertaken by teachers in technical colleges who could be given special training for the technical teacher training job. A recent and widely accepted view is that all teacher education and training courses, general and specialist, from nursery to postgraduate level, are likely to be less educationally divisive and to be more socially relevant and more educationally effective if located in tertiary vocational education and training establishments. These are becoming more comprehensive in their range of work; they are providing inter-disciplinary technical, vocational and non-vocational courses which cross subject barriers; and they are bridging departmental fences and breaking down faculty barriers. In addition, they are building up considerable resources of specialist tutorial and supporting manpower in a wide range of technologies at technologist and technician level, in the behavioural sciences, and in organization, planning and management; and they possess a full range of laboratories, practical rooms, workshops, and large well-equipped libraries.

Technician Teacher Training Course Planning

No matter how well conceived are the plans for the development of a country's natural and financial resources, their implementation depends on skilled manpower, that is on the quality and quantity of technicians in the country. This in turn depends on the supply of technician teachers, particularly those with good practical experience. Unfortunately, trained technician teachers are not easy to obtain. Too often their salaries are more closely related to the lower levels of

school teaching than to posts in universities, higher technological institutions or in industry where they can obtain good career prospects, more attractive working conditions, better standards of living, and higher social status than they can in teaching. In their place graduate professional engineers or technologists may be employed who lack the industrial training and the practical, shop-floor experience required to train technicians properly. These people are often academic, theoretical, and bookish, and have little concept of what technicians need to know. As a result, their students are not industrially orientated and may not always be willing to train for production-line jobs.

Industry, having identified the tasks to be undertaken by specialist technicians, defines the knowledge, skills and attitudes they need to do their jobs. The objectives and content of technician courses decide the kind of teachers required, and the qualifications and industrial experience they must have. Existing teachers may have to take subject courses and undergo further industrial training to familiarize themselves with modern equipment, processes, techniques and systems of work organization, and newly recruited teachers may need to attend a technician teacher training course. All training courses should be kept under systematic review by training institutions, whose reviews should also involve representatives of industry, technical colleges, and examining and qualifying bodies, so as to meet the changing needs of technicians, teachers and industry.

The staffs of training institutions should be in regular contact with the staffs in the technical colleges for which they train the teachers. Otherwise they can become intellectually isolated and professionally remote from the objectives and tasks of a specialist technician teacher.

In industralized countries it is possible to require a person to have technician qualifications, industrial training and industrial experience before he is employed as a technician teacher or admitted to a teacher training course. In industrializing countries, however, this is not always feasible. His technical education rarely begins before he leaves secondary school, and it normally takes the form of full-time study in a technical college which has workshop facilities for off-the-job practical training. His professional training may follow immediately or after some years of teaching. Less commonly teachers' colleges provide technician education, practical training and professional training in one synthesized course, in which case the final qualification may be a degree in technician education which equates the technician teacher's status with that of colleagues in academic sectors of education. There may be access to courses for higher degrees in technician education.

In some countries there are full-time one-year pre-service courses for people wishing to become technician teachers straight from industry. These may be extended by one term to revise and extend knowledge of basic subject matter and ensure familiarity with modern industrial practices. There are four-term sandwich courses for in-service teachers with two or more years' experience, the first and fourth terms being spent in the teacher training establishment and the middle two terms in the parent technical college. There are also day and block

release courses at easily accessible centres. Teachers attend a centre for one day a week for two years, and a teacher training institution for one month in each year. The aim is to make technical teacher training courses available to the maximum number of in-service teachers without requiring the individual teacher to leave his home and his job in a technical college for weeks at a time. The advantages are that the staffing problem of the parent college can be reduced, a greater number of teachers can have the opportunity to train, and the specialist staff of the training institution can be better utilized.

Such programmes are expanding in several countries, particularly where teacher training institutions are closely associated with senior technical colleges so that all stages and aspects of in-service technical teacher development can be planned, co-ordinated, conducted, monitored, assessed and evaluated from within one fully-resourced, comprehensive organization.

Experience has shown that course planning is best undertaken by a small group of senior staff in consultation with colleagues who are responsible for activating and supervising the course programmes. Training staff and in-service teacher study groups are a necessary forum for ideas, opinions, and suggestions about the organization of a programme and the day-to-day work of tutors, particularly those with the main face-to-face training commitment. In-service teacher involvement in their own programme planning is essential, as is the involvement of technical college principals, heads of department, government administrators and technical education advisers at the policy-making stages.

Course planning must take account of what tasks are performed by newly appointed and in-service teachers at different grades, how much time and what proportion of it they spend on each task, and what significance the tasks have in relation to the allocation of hours. The clusters of knowledge and skill required to do the tasks become the basis of training programmes.

It is in the allocation of tutorial manpower – which tutor does what with whom, where, when and how – that programme planning requires the most detailed appraisal and objective statement. Maximizing the effective, economic use of all the training resources and supporting manpower to meet the requirements of the course is the most important task. Not much less important is the full economic and productive use of the training accommodation – hall, lecture theatres, classrooms, tutorial rooms, laboratories, workshops, library. The co-ordinated utilization of laboratory and workshop technicians is fundamental. Senior tutorial training staff should be engaged on the more formal, more high-level specialist lectures and tutorials for about two-thirds of their teaching time; on more general-level group work for the remaining third. Their trainee contact hours should normally be not less than ten or more than 15 hours a week. Contact commitment for middle-level and junior tutors could be of the order of 15 to 20 hours a week, mainly with groups and individuals following up the work initiated, planned, and co-ordinated by senior tutorial staff.

Four broad areas of work need careful planning in technical teacher training courses. These are, first, education studies including general principles and

methods of teaching; second, special methods of teaching particular subjects or co-ordinated integrated groups of subjects; third, communication subjects; and fourth, guidance of practical teaching experiences.

Within this broad pattern, decisions have to be made about the content of courses for different categories of technician teacher; about schemes of work for the tutorial staff and for the teachers on the training courses; about the allocation of hours to each subject area and topic within it; about the sequence and co-ordination of topics; and about the time to be allocated to formal lectures, syndicates, individual studies, and tutorial guidance. Programme flexibility should allow for professionally-acceptable choices by students. Compulsory topics should be repeated throughout the session to allow tutors and students a choice of time and topic sequence. There should also be flexibility in tutorial counselling and guidance. The student groupings can be of two kinds – specialist, for the special method activities, and inter-disciplinary for the non-special method elements (e.g. general principles, general methods, teaching aids, and communication).

Practical teaching helps student teachers to assess, diagnose and improve their work while they are still in a training institution. There is therefore good reason for beginning practical teaching as early in the course as possible. This can be done if the teachers are sent out in groups to technical colleges on practice-teaching sessions, which seem to be successful in units of three or six weeks. Having mixed groups of teachers on practical teaching at the same time enables the best use to be made of training accommodation, tutors, and supporting staff. In addition, carrying out the training in colleges close to the training institution allows tutors to pay more frequent visits.

It is frequently asserted that teachers need to carry out some lesson planning and preparation *before* sampling practical teaching. This, however, often gives rise to nothing more than narrow skill training and conditioning to the tricks of the teacher's trade. What is more essential is that teachers should know how adolescents learn technical subjects and appreciate liberal subjects, what factors aid or hinder vocational learning, how to make use of diagrams and charts, how to use audio-visual aids, case studies and other techniques in presenting technical material, and how sociological, psychological and interpersonal factors come into play in the teacher-class situation. Much can be learnt about these things during practical teaching, where guidance is provided by a specialist tutor from the training institution or by a nominated member of the parent college staff. Now that technical colleges are being given increasing responsibility for guidance and assessing pre-service and in-service practical teaching, they are appointing professional tutors to advise teachers about general and special teaching methods. Each methods tutor in a training institution should have responsibility for a specific area of work. For example, a building subjects tutor should be concerned mainly, if not entirely, with relating general teaching principles and methods to those groups of subjects which are identified as being building technician subjects in syllabuses, time-tables and work diaries. The specialist tutor needs con-

siderable time to develop projects and assignments and to tailor individual studies to suit the needs of particular groups of teachers employed to teach the vocational subjects on technician courses. His efforts should therefore be conserved for the functions in which he has specialized knowledge, not spread so thinly across the whole training curriculum that he has no scope to concentrate on the tasks that he alone can do.

The Teacher Training Staff

The training tutor needs to be well informed about the political, economic, educational and social aims, ideas and opinions which shape the pattern, structure and organization of technical education and training. In particular, he should be sensitive to changes in attitudes, values, standards, patterns of living and social behaviour resulting from scientific discovery and technological development. He needs to have up-do-date knowledge of proven principles and methods of teaching, and to be in harmony with forward-looking philosophies and practices in education. Not only must his contribution be based on reading, investigation and discussion, and on recent, successful experience in the field of technician education, but it must be directed to helping teachers to become better at their jobs. Teachers must feel that the training course is professionally worth while, and that they are thinking deeply, penetratively and productively, not that their time is being misused. They must feel convinced that the training is specific to their job needs, not out-of-date, over-generalized, or isolated from the day-to-day problems of a teacher of technician subjects. There is a tendency in teacher training institutions to treat Education, General Principles, Educational Technology, and General and Special Methods of Teaching as if they were remote from the realities of technician education and employment, and of national and personal development. Training tutors need to make maximum use of technical college-based projects, investigations and case studies which are directly relevant to the interests and job needs of technician teachers. Many opportunities arise in such fields as motivation, organizing interest, class activity, class organization and management, physical, intellectual and emotional development in adolescence, and techniques of evaluating learning achievement.

Where necessary, a technical college geographically accessible to other colleges can be used to provide modules of teacher training, and its classrooms, laboratories, workshops, practical rooms and library can become a teacher training workshop in which specially-tailored courses can be mounted during long vacations, and on afternoons, evenings, and week-ends in term time. These courses are convenient because they do little to disturb technical college organization, and relevant because they are based on the realities of the technical college environment. In addition they carry conviction because they are not abstract; neither do they use sophisticated equipment and educational gimmickry that will not be available in the colleges themselves in the foreseeable future.

The trainer's task is to help the technical teacher improve the job he is doing within the constraints of the system and the resources available to him. There is

no dividend from a training programme in which tutors talk *in vacuo* about a non-existent world where there is no need for profitable productive industry, and where there are no constraints of accommodation, administration, finance, time-tables, syllabuses, and examinations. To prevent this from happening, specialist teacher trainers must keep in close touch with industry and with the increased complexity of the products and manufacturing methods with which technicians have to be familiar.

Tutors need to understand how the present pattern and structure of technical education has developed in their country and how particular categories and gradings of technician fit into it. They should remember that important details of the pattern change when primary education for all comes nearer to realization and secondary education becomes more widely available; and where improved guidance services and an increasing vocationalization of the secondary curriculum provide a better preparation for tertiary, technical, vocational, and employment-oriented courses. Opportunities should be given to them to fill any gaps in their knowledge so that they can become more effective in their technician teacher training tasks; otherwise they can easily get their training priorities out of focus and become increasingly inward-looking.

The main aim of technician teacher training is quite clear. It is to equip the technician teacher with knowledge, skills and attitudes to help technician students to do the best work they are capable of. To achieve this aim the right teachers must be found – people with the right mix of knowledge, skills, experience, and attitudes. To attract such people, the rewards, conditions of service and career development opportunities must be comparable to those in other fields where their services are in demand. To train them, there is a need in most countries for more facilities in the form of teacher training departments and centres, which should preferably form parts of more comprehensive technical institutions. To meet the inadequacy of existing facilities the various Bursary and Fellowship schemes may be useful as an interim measure. 'Third Country' education and training schemes in particular need to be more actively encouraged and more generously financed.

Course Content

The initial training of technician teachers should concentrate on those studies which are strictly relevant to the teacher's job, leaving practical experiences to the technical college in which he is employed, or to be employed, and delaying broader studies of education to in-service courses or to higher diploma or degree work. In determining the content, structure and organization of the courses, the experience and advice of teacher trainers, advisers and administrators from other sectors of the education system should be sought. Training and staff development experts from industry can also contribute to programme planning, and can provide reliable data based on job and task analysis about the knowledge and skills which technicians use on the job. Experts from the examining and qualifying bodies can give reliable information about technician course content

and identify – from an analysis of examination scripts – which topics are well taught, badly taught or not taught at all. Principals and heads of departments are able to give advice from their day-to-day jobs of organizing and supervising the work of technician teachers and of allocating resources. Technician teachers can provide very important information about the way they plan, organize and sequence their work, the topics they find difficult to teach, their problems in the laboratory and workshop, and the learning difficulties which adversely affect the performance of their students.

Training Units

It is common practice to divide the content of training courses into units or modules. This is a particularly convenient practice when the training institution offers alternative arrangements, as for example one academic year of eight months, or the same course for an equivalent length of time in a sandwich or in a day and block release arrangement. The time allocated to each unit, and the selection and arrangement of the material, are decided by the course and curriculum planners. Combinations of units and their sequencing are kept flexible to make good use of specialist tutorial and supporting manpower, of equipment, and of teaching and residential accommodation. Carefully planned, properly managed, and closely co-ordinated tutorial team work is essential to ensure that each unit fits into an integrated course. Newly appointed teachers should be encouraged to undertake initial training units (e.g. general principles and general methods of teaching together with two additional appropriate units) before or shortly after taking up a first appointment. They could take additional units, as convenient, to build up credits towards a recognized qualification. They could also take those special units required by the nature of their jobs. The training institution should anticipate and prepare to meet needs for additional units.

On pages 77–78, course planning for technical teacher training courses was divided into four broad areas. These can be further broken down into eight units, as follows, constituting a total course of 1,000 hours:

1.	Course orientation		10 hours
2.	General principles of teaching		60 hours
3.	General methods of teaching		30 hours
4.	Development in middle and late adolescence		60 hours
5.	Education	(a) Nursery, infants, primary	30 hours
		(b) Secondary	30 hours
		(c) Technical	60 hours
6.	Special methods of teaching		210 hours
7.	Practical teaching		360 hours
8.	Additional units	(a) Language and communication	150 hours
		(b) Educational technology	
		(c) Programmed learning	
		(d) Liberal studies	
		(e) Special method tutorials.	

Orientation Unit (10 hours)

The main purpose of the orientation unit should be the development of a rapport between the individual teacher and his tutor, leading to the former's participation and involvement in his own programme planning for the full course. To make the first contacts purposeful, each teacher needs to be given a statement setting out the overall aims of the training course, the objectives in each area of study, and the subjects, options, and combinations. With this information, and the knowledge he has of his own technical qualifications and industrial experience, the teacher can begin to assess himself in relation to the kind of post he is likely to obtain or, if he is taking an in-service course, to his job. This also gives the tutor a starting point for discussing the teacher's programme and offering guidance about choosing elements in the course. Thus by the end of the first or second interview the trainee teacher ought to have arrived at a fair analysis of his abilities, qualifications, experience, interests, and potential within the course structure governing his time-table, and have an understanding of the philosophy and principles on which his particular training programme has been constructed. By the end of his orientation he should also have discussed the nature of his progressive guidance throughout the training course, the data and processes by which his progressive assessment profile will be constructed, the information he will be given about his course assessment profile, and the reasons lying behind each activity he will undertake throughout his training.

General Principles Unit (60 hours) and General Method Unit (30 hours)

The aims of this lecture course are to give teachers a foundation on which to base their practical technician teaching, to start them building up information about the learning behaviour and learning problems of technician students, to convince them of the value of applying proven principles which encourage and sustain persistent learning effort, to enable them to experiment with different methods of making their teaching more effective and of identifying and correcting their teaching errors, and to help them to prepare teaching topics and appraise varieties of formal and informal presentation. Though the course should question and challenge the in-service teacher's attitudes and opinions, and reveal any prejudices underlying his teaching techniques, it should do so without undermining his confidence. The technician teacher, like most mature adults, recognizes and accepts his limitations. He works within them to give and to get satisfaction in his job. Nevertheless he does need the knowledge on which to base reasoned, objective judgements about such matters as different methods of teaching, class discipline, teacher-student relationships, general studies, and autocracy in the classroom.

The lectures in general principles and methods are not complete in themselves. They are starting points for syndicate work, discussion groups, individual tutorial and study assignments, and written work based on prescribed reading.

The two sets of lectures should be integrated and, if possible, delivered by a tutor who is not only a technical specialist (e.g. in engineering, mathematics, or

building), but a trained teacher with a further qualification in Education and with experience in industry and in teaching technician subjects.

The general principles of the teaching programme should include the following:

1. The meaning of learning in relation to the employment needs of students attending technician courses in technical colleges. Principles involved in the preparation and presentation of technical material for formal and informal presentation.
2. Evaluating quality of learning in terms of the technician student's ability to utilize the knowledge and information in industrial situations.
3. Incentives and motivation influencing the quality of individual student learning effort (e.g. interest, attention, persistence, and attitudes to learning, to subject, to occupation, and to career and working environment).
4. The kinds of learning conducive to character building and personality development; also those involved in practical technical skills, technical theory, general subjects, etc.
5. The literature and research relating to learning technical and vocational subjects; the evaluation of learning.
6. Factors in learning: general intelligence and its correlation with kinds of learning; kinds of student and levels of technician course; aptitudes, their nature and measurement; relevance of aptitude profiles to selection and placement and to techniques of teaching technician subjects; heredity, environment, social class background; motivation; home background support; industrial support; health; personal qualities; quality of teaching.
7. Individual differences in technician classes; grouping and streaming; individualizing teaching.
8. Learning difficulties in technician subjects; diagnostic and remedial techniques and devices. Remembering in relation to the technician student's occupational needs.
9. Technician teacher and technician student learning relationships: authoritarianism and democracy in the classroom; staff student councils; students' unions.
10. Resources of educational technology. (The precise use and application of these devices and techniques is a main element in special method courses.)

The teaching programme for the General Methods course should include:

1. Topic analysis, collection, selection, preparation, arrangement and layout of material for presentation to students in technical colleges; lectures, lessons, discussion groups, assignments, case studies, role playing; immediate, intermediate and long-term aims and objectives; structure of the lesson period.
2. Class and classroom organization and management. Organizing class activity, individual participation and activity; co-operation. Homework.
3. Evaluating quality of learning and quality of teaching: testing and exam-

ining techniques; lesson assessment techniques and devices; self-assessment techniques.

4. Students' note-making, file-keeping and self-development record-making.

5. Analysis of particular teaching methods observed in technical colleges.

6. The factors to be considered in preparing a scheme of work for a session from a published syllabus.

7. Organization of the technical college and the teachers' responsibilities; personal records; student records; progress charts; reports; administrative arrangements for examinations; technical college discipline; tone, status, public relations and responsibility of teachers.

8. Collaboration with industry at teacher and student levels; arranging educational visits to industrial organizations.

9. Inter-staff relationships.

10. Storage, care and maintenance of equipment.

Development in Middle and Late Adolescence Unit (60 hours)

The purpose of this unit is to equip teachers to understand the behaviour of adolescents attending technician courses; to understand the need for sensitivity to the influences affecting the behaviour of young technicians; and to help teachers to appreciate the inter-personal relations affecting the learning environment. Teachers should carry out a number of case studies in their parent or host technical colleges, in industry and in youth clubs. The studies are supported by a general introduction to interviewing, questionnaires, attitude surveys, schedules, sociograms, and rating scales, and to the general literature of adolescent personality development. Guided reading from the relevant specialist literature as well as studies of novels, plays and films about young people in industry are an important part of the unit. Youth workers, careers officers, industrial personnel and training staff give talks and lead discussions.

In some cases the adolescent programme incorporates the following studies:

1. Intellectual, physical, emotional, and social development in middle and late adolescence; the learning process in relation to personal development and adjustment; influences on personal development; group and individual differences among technician students.

2. Heredity and environment in the personal and social adjustment of adolescents going into industry; importance of home, school, college, and working environment, and of parents, teachers, managers, supervisors and other adults in their lives.

3. Social and occupational structure of society and industry and their influence on the development of adolescent intelligence, aptitudes, temperament, culture, interests, and attitudes, and on adolescents' opportunities.

4. Development of attitudes in adolescents: growth and pattern of vocational, social and personal interests, ideals, standards, values and ambitions; personality growth.

5. Constructing, interpreting, and using sociograms, inventories, and ques-

tionnaires; group techniques in studying adolescents in industry.

6. The maintenance and interpretation of cumulative records.

7. Final years at secondary school; transferring from school and adjustment to work and technical education; agencies concerned with young people; problems of adolescent social adjustment at work and at technical college.

8. The literature of physical and social maturation, and of family living.

Education Unit (120 hours)

This unit should be a vehicle for the interpretation and application of educational ideas to the situations that confront a technician teacher on his job. It should not over-emphasize general educational theories. Teams of tutors need to integrate their collective knowledge and expertise to tackle such problems as how to teach a junior technician to read and use a blue-print; how to deal with variety in ability and attainment in mathematics, science, and the use of language; how to work with technician students with very different interests in learning; and how to make the teaching of technology liberal and at the same time applicable to the processes of industry. Technician teachers must be helped to think critically about how educational ideas, historical, economic, and sociological factors have converged at particular times to produce evolutionary changes in education, and technical education in particular; and about the sequence of development in an industrializing nation's development plans. A short general introduction to the school system of a country could lead to tutorial discussions, reading assignments, and projects dealing with the aims, objectives, content, and structure of the school curriculum, methods of teaching, organization and techniques of educational and vocational guidance, the growing technological and vocational element in secondary education and its impact on the technical college curriculum, and the transfer of students from school to specific technical courses.

The units on technical education are of greatest importance. They should help teachers to understand that the purpose of technical education is to support national industry and the national economy, to perceive the relationship between technical education and education as a whole, and see that educational opportunity and vocational choice in an industrialized society are closely related to its occupational, social, and educational structure. Teachers should also learn how official technician education reports are produced, how technician education committees and examining bodies function, how industrial innovation comes about, how courses are reviewed and how changes are made to syllabuses, examinations and qualifications.

Education Programme

1. Making and arranging personal notes and files; aids to study; clear thinking; using the library.

2. The school system – aims, history, development, organization, administration, management, curricula, teaching methods – and transfer from one level to the next. New approaches to curriculum building in secondary schools and their impact on technical colleges.

3. The purposes of technical education, and its recent development, organization, administration and management. (Much of this might be dealt with by visiting speakers actively engaged at policy and management levels, supplemented by visits to technical colleges and by projects based on official reports.)

4. The purposes and employment structure of industry. Levels of liaison and collaboration between technical colleges and industrial organizations.

5. The history of the growth of selected technical colleges. The organization of different kinds of technical colleges doing different kinds of courses. The development and purposes of technical education advisory councils.

6. Examinations in technical colleges; regulations and administration; the changing systems and patterns of examinations and final assessments for qualifications; the consequent need for the further education and training of technical college teachers in the principles and methods of examining students and of compiling, maintaining, and interpreting student records.

7. The technical education purposes of the relevant professional institutions, of manufacturers' and employers' institutions and federations, and of trade unions.

8. Methods of education and training in industry.

9. The organization, courses, curricula, methods of teaching, and qualifications in government training centres (now called 'skill centres' in Britain).

10. Vocational and educational guidance in school and technical college; the careers teacher; the industrial training officer.

11. The technical training and re-training of adult workers at all levels of industry.

12. The philosophers and philosophies influencing general education and particularly technician education in the country.

Special Method Unit (210 hours)

The special method unit is concerned with the interpretation and application of educational ideas to the circumstances in which technician teachers work. Its purpose is to equip the teacher to become a good practitioner in a technical college. In this sector, the relative lack of information, training experience, literature and research is most felt, and tutorial staff are most difficult to recruit. Short in-service special method courses are in demand and are generally oversubscribed. In several countries technician teachers attend supporting technical studies courses before starting special method courses. These supporting studies revise, extend, and up-date the students' knowledge of basic subjects and help them to become more familiar with modern equipment, techniques and processes in industry. They also include instruction in new subjects being introduced to specialist technician courses. They are tailored to the individual technician teacher's needs which depend on the level and recency of his technical qualifications, on his teaching subjects, and on his industrial experience. The duration of supporting studies courses varies from a few weeks to a year. There are four main problems. The first is devising ways of identifying and assessing the gaps in

the individual teacher's knowledge and skills. The second is planning the content, structure, organization and tutorial staffing of the extension course. The third is identifying the specific kinds of industrial experience the teacher needs in order to integrate theory and industrial practice when he is teaching technician students on a specialist course. The fourth is finding the best place to locate the extension course. An eminently sound approach being adopted in some countries is to locate it in a comprehensive polytechnic organization along with all the other components of technician teacher education, training and industrial orientation.

On completion of the supporting studies course, the teachers work in special method groups with specialist tutors. These tutors should possess the necessary technical qualifications and have had responsible industrial experience and successful teaching experience. They must therefore be put to optimum use. First-class organization and supervision are required to prevent fragmentation of tuition which can arise from having so many tutors involved that the teachers think in terms of isolated pieces of knowledge rather than of an integrated course. In general the fewer the teachers involved in any learner's specialist education, the more integrated and effective his learning is likely to be.

Experience indicates that the energizing influence in technician teacher training comes from the tutor who knows how adolescent and young adult students can be motivated to make the personal effort to learn, who engages in relevant research, who keeps his specialist knowledge of industrial practice up to date; and who is able to communicate with practising teachers. Such a tutor can apply general principles of technician teaching to precise statements of lesson aims and objectives, and give reliable guidance on the selection and analysis of learning material. He can also pin-point where technical education impinges on productivity and the economic life of the country and where it develops character and personality by equipping students with the occupational knowledge to give and to get statisfaction in their daily work. In dealing with tools, instruments, machines, and components, a tutor with these qualities and attainments can also help teachers to think through their purposes and design, their principles of operation, their construction and assembly, their functioning and use, and their care and maintenance. He will also be knowledgeable about audio-visual aids, methods of demonstrating the application of relevant scientific principles, and ways of anticipating and dealing with difficulties.

In training special method teachers, laboratory, workshop and library projects and assignments are valuable. These emphasize the application of principles to the equipment, materials and processes of industry, and integrate theory and practice in ways which support the new technician syllabuses being formulated in many countries. Teachers in technical colleges are likely to be in most need of science and mathematics knowledge, laboratory and demonstration skills, and up-to-date industrial background. Some shortcomings in these areas can be tackled by in-service courses of the kind with which industry is becoming familiar.

Recruitment of technician teachers is a serious problem in some Commonwealth countries. Already the Commonwealth Education Fellowship Scheme

and 'third country' education and training schemes make provision for Bursars and Fellows to revise, extend and bring up to date their technical and professional qualifications and obtain industrial training experience. It might be worth exploring the provision of regional staff training centres to develop concentrated short courses for more senior and experienced technical education staff who could become trainers of technical educators and trainers in their home countries. The same centres could arrange courses for people to train industrial trainers and vocational guidance staff. They could act as information centres. And they could conduct seminars for middle-level technical education executives, administrators, decision makers, advisers, technical teacher trainers, principals, heads of departments and key teachers.

Modern special method courses are designed to promote change and innovation in technician teaching methods; for example by replacing traditional lectures, dictated note-giving and fact memorization with methods based on individual learning, by developing flexible intellectual and manual skills, and by emphasizing those principles that must be understood by students in whatever sphere of technician activity they are about to operate.

Special Method Programme

This programme, which applies teaching methods to the changing content and organization of technician courses, should be planned by specialist tutors along with the individual teachers on the training course so as to match each teacher's studies with the special subjects he will teach. It should consist of not more than two main special method courses and two additional shorter special method courses. A teacher should take only those courses for which he already has the necessary technical qualifications. Laboratory-based studies should include:

1. Laboratory design; layout; organization; management; safety precautions; teachers' and students' records; projects and assignments for individual and group work; examining, testing, and progressively assessing laboratory work; the duties and supervision of laboratory technicians; and sources of information on laboratory studies, equipment, and technical college laboratories.
2. Organization of laboratory work to integrate with related topics and technology courses for different years of a technician course.
3. Published reports on the teaching of laboratory work; the analysis of common mistakes made in the laboratory at different stages of a technician course, and possible causes and remedies.
4. Small-scale equipment in laboratories of various kinds.
5. Devising and observing laboratory programmes for closed circuit television; the place of film and film strip in teaching laboratory procedures; and programming laboratory work for teaching machines.
6. Demonstrations on the teaching of 'difficult' laboratory subjects.
7. Laboratory projects by each technician on the teacher training course.

Topics

Topics within any special method programme should include:

1. The aims of a special technician course and syllabus; the educational, industrial and social background of the students; the nature and content of any induction and core curriculum courses that are required to revise and extend subject knowledge prior to the commencement of the course itself; the value and limitations of existing devices for selection, placement, and guidance.

2. Group projects in which technician syllabuses are converted into schemes of work; the allocation of time to different activities; the aims and content of each lesson and their relationship to the scheme of work as a whole, to other subjects, and to industrial training and experience; the methods to be used in teaching and evaluating the success of each lesson; the homework, library, and other assignments to be undertaken.

3. Principles and methods of technician lesson preparation, with demonstration lessons by tutors, teachers, and experienced specialists from technical colleges involving experiments, chalk-board and other summaries, charts and diagrams, models and components.

4. Techniques for dealing with individual differences among students in the same class; common learning difficulties; remedial techniques.

5. A study of relevant reports (including examiners' reports) concerning the teaching of the subject; researches in teaching the subject.

6. Marking theoretical, laboratory and workshop material; compiling, maintaining, interpreting, and using technical college records; reports for different purposes.

7. Specialist laboratory, workshop and practical room organization, management and supervision, and related safety education; ordering, storing, maintaining equipment and consumable materials; responsibilities of teacher, technician, steward, store-keeper, caretaker and cleaner.

8. Appraisal of reference material, textbooks, source books, journals, magazines and handbooks from professional and industrial organizations.

9. Examination and discussion of possible causes of wastage in the particular course and classes concerned; research reports; researches in progress.

10. Arranging and conducting special method educational visits.

11. Actual involvement in industrial, school and other forms of liaison to establish the need, value and methods of close collaboration.

12. Technician students' personal note-books, files and other methods of building-up records of course work and other relevant information.

13. Discussion and involvement in team teaching experiments in technical colleges.

14. Skill learning; rote learning; habit formation; boredom and fatigue; analysis of skills; job analysis; demonstration techniques; modern techniques with audio-visual aids, simulators, off-the-job exercises and preliminary training and preparation; researches being conducted; teachers' and learners' problems of communication and their solution.

15. The contribution of technician subject teachers to the general studies programme; involvement by giving talks, leading discussions, and participating in art, pottery, music, drama, poetry reading.

16. Specialist technician teachers' attitudes to their subjects; to teaching, to students and their corporate life; to college, industry, local schools, and the local community; the teacher's function and responsibilities as a personal tutor to a group of technician students.

17. The history and probable future pattern of teaching the specialist subject.

18. Safety education.

Language and Communication Unit (30 hours)

The purpose of this unit is to help teachers to communicate their knowledge and skills effectively to the technician students they teach. It should be based on the principle that tutorial example has more influence than precept.

The programme of activities should include:

1. Learning to use language to communicate ideas, opinions, instructions and directions, and to report specific situations with clarity of meaning and expression; building a work vocabulary; note making; routine work in langauge (writing letters, using the telephone, phrasing telegrams, completing forms, etc); writing a statement of requirements for a job to be done by a technician in a technical college.

2. The mechanics and techniques of good speech and delivery; speech therapy where necessary.

3. Reading; verbal and written summaries of reading; short composition exercises; rapid reading; learning to use an organized library; appraisal of articles in journals.

4. Discussions on current affairs; expressing views, and making judgements about what is said.

5. Chairing a meeting; being a committee member; building self-confidence by giving short talks, by role playing (e.g. for a job interview), and by acting and the use of mime and gesture.

6. Exercises in logical analysis; principles of clear thinking and expression based on the analysis and appraisal of teaching experiences; improving the quality of thinking; comprehension and précis making; debating.

Educational Technology Unit (30 hours)

The aims of this unit are to help technician teachers to acquire the skills of(a) defining and analysing educational objectives, (b) planning and organizing resources for student learning situations, and (c) evaluating, selecting, manipulating, using and co-ordinating the media available to them in their parent technical colleges.

The Educational Technology programme should include:

1. Design and production of technician course material such as hand-outs, graphs, charts, diagrams, transparencies, and overlay assemblies of transparencies

for an overhead projector.

2. Making models and mock-ups, dioramas and displays.

3. Using 8 and 16 mm film and cassette loops, filmstrips, slides, prints, sound recordings, teaching machines and programmes, duplicators, photocopying machines, and various forms of TV including video-tape recording.

Liberal Studies Unit (30 hours)

The main objective of this unit is to assess each teacher's educational background with a view to helping him to overcome any weaknesses that exist in it, and to extend his special interests and share them with others. The presence of a cross-section of students from many walks of social and industrial life enhances these opportunities. However, while it is easy to discover background weaknesses it is not so easy to be constructive about their treatment. Though there is a general agreement that a liberal studies course in a technician teacher training programme should encourage the questioning and challenging of ideas, not all tutors are willing to expose themselves in debates and discussions with students.

A second objective of this unit is to enable some of the students to become general subject teachers in technician schemes of work. These students could be invited to work closely with the specialist technical groups to think out the kinds of course that could be useful and interesting to technician students. This is an area of teacher education and training that requires much more research and experiment.

Practical Teaching Unit (360 hours)

The purpose of the practical teaching unit is to give the teacher experience of putting into practice what he has learned in the special method unit. He should be expected to make fairly detailed studies of laboratories and workshops in his own specialist area and less detailed observations in other areas. He should be asked to learn about the reasons for different designs for practical rooms; the types of specialist equipment and the use made of it; the selection and ordering of equipment and stock, and the methods used for receiving, checking, storing, allocating and servicing them; the organization and management of laboratories and practical rooms (including the safety precautions built into practical courses); and the records maintained by technician teachers and students.

There are many advantages and few disadvantages if the in-service teacher fulfils the practical teaching requirements of the training course in his parent technical college. He has ready access to the range of resources he needs for the preparation and teaching of his material. He knows the students and the staff, and can more easily participate in the professional, corporate, and social life of the college than he can in an unfamiliar establishment. In addition, he has more opportunity to carry out and evaluate new teaching methods, to make self-assessments of achievement, and to reappraise (and where necessary modify) personal attitudes and patterns of behaviour.

The training institution tutor can collaborate with the trainee teacher to produce a range of exercises, assignments and projects which are directly

and immediately related to real life situations. He can make modifications to lessons, to practical demonstrations and to laboratory schemes or drawing office exercises in the light of first-hand experience. If this tutor is made responsible for the whole of the teacher's practical teacher training and development programme, he can discuss the teacher's progress convincingly, and he can advise and demonstrate how to develop more creative, varied and self-critical methods.

Assessment of Practical Teaching

The reasons for having visits by tutors or assessors during teaching sessions need to be defined if the learning experience is to be worth while to the teachers concerned. Tutors must be in a position to decide whether they are giving assessment an exaggerated importance to the detriment of constructive guidance. The assessment mark can certainly become too important in the teacher's mind, and tutors should therefore endeavour to prevent this from causing a poor tutor-teacher relationship. One thing the tutor can do is to inform a teacher well in advance about the time of a forthcoming assessment. This allows the teacher to present himself at his professional best. Another is to make sure that the teacher is fully aware of the purpose of the visit and the criteria on which the assessment will be based. If the assessor has personal points of view that will affect the assessment, the teacher should be informed of them so that he can adjust his performance accordingly. In any case there should be scope for an exchange of ideas, opinions and points of view between the assessor and the teacher. When an assessment is being undertaken, observation should last from beginning to end without interference. Afterwards the tutor should help the teacher to make his own evaluation of what he has just done. The teacher needs to possess this skill if he is to improve his work after completing his training course. Any written comments that are made should be based on the evaluation made by the tutor and the teacher together. A copy should be given to the teacher for his file.

Characteristics which tutors may find useful starting points for discussion before, during, and after observing a teacher at work are:

1. Teacher Personality and Characteristics
Is punctual and businesslike
Knows his subject matter
Quickly establishes responsive relationships
Is relaxed and at ease: shares in humorous situations
Is readily approachable
Is able to maintain a productive emotional climate
Generates confidence: is supporting, encouraging, stimulating

2. Planning Skills
Makes a sound pre-assessment of the students
Anticipates learning difficulties
Chooses clear, definite, specific objectives which are neither too easy nor too difficult for the students
Selects material, activities and learning aids appropriate to objectives
Carefully plans each step of the lesson

Plans learning tasks achievable in the time available
Plans tasks so that all may experience some success

3. Instructional Skills
Is able to motivate students
Is effective in gaining and holding attention
Adequately prepares the class for new learning
Uses a variety of techniques and teaching methods
Chooses challenging learning situations
Encourages students to seek explanations, solve problems, and discover relationships
Speaks in a clear, precise, and interesting way
Asks questions that stimulate divergent as well as convergent thinking
Makes use of responses, including wrong ones
Shares ideas with students
Balances teacher and student participation
Elicits discussions and directs them well
Elicits questions from the students and makes good use of them
Makes good use of the chalk-board and a variety of teaching aids
Acts as a resource person
Relates the subject with others in the curriculum and to long-term educational objectives

4. Organization and Management
Effectively arranges the room and the equipment
Effectively initiates, organizes, and sustains group activity
Gives well-timed, relevant, adequate and clear instructions
Handles routines efficiently
Makes good use of the time available
Handles unexpected situations skilfully
Anticipates and solves disciplinary problems skilfully

5. Awareness
Displays an understanding of individual students and their needs
Is quick to identify opportunities and learning difficulties
Attemps to involve silent, hesitant, and diffident students
Is aware of restlessness and lack of interest
Is skilled in handling the unexpected

6. Evaluation
Assesses effectiveness of instruction
Uses student participation in evaluation
Keeps a continuous record of each student's progress
Uses well constructed tests, observation, check-lists
Is concerned with skills and attitudes as well as with content
Effectively uses the results of evaluation in future planning

No one, of course, can be expected to display all these characteristics in a single lesson. But over a period of time the check-list can help the tutor and teacher together to analyse strengths and weaknesses and enable the teacher to continue to improve his work in the years to come.

When grades are required, assessment can usefully be made on a five-point scale:

A. Exceptional. These are outstanding people who will make their mark in any technical college and under any circumstances.
B. Very Good. These are people who will do an efficient job irrespective of

the quality of the teaching environment.

C. Average. In most circumstances these people will do a reliable, steady, unexciting job without much originality.

D. Below Average. These are people with marked weaknesses who need sympathetic guidance from principals and supervisors in their first years of teaching.

E. Fail. These are people who are completely ineffective.

Course Work: Progressive (or Cumulative) Assessment

In some countries a formal examination system is not considered to be necessary in a training institution dealing with mature students who already have good technical qualifications, who may have given up good posts in industry, or for whom a technical teacher training course is not a compulsory professional requirement. The place of formal examinations is taken by a process of progressive assessment. This is a good thing. Examinations can create an intellectually inhibiting circle of cramming, memorizing, rehearsing, spotting questions, and regurgitating tutor's notes. They affect tutors, too. The syllabus comes to be interpreted in terms of answers to past examination papers, and the challenge to educational experiment and innovation is stifled. In such circumstances there is no incentive for tutors to keep themselves abreast of industrial change and technological innovation, or to prepare young technicians for modernizing and developing industry.

Progressive (or cumulative) assessment, consisting of tests given at the conclusion of each assignment, project, or unit of work, enables teachers to pace their own learning. It also enables tutors to be more venturesome, and experiment with less formal kinds of class and work organization and management. However, it can become a source of tension for students if they are not fully informed of the criteria on which the assessments are made and if they feel that the assessments are not sufficiently objective, valid, and reliable. Good organization is required to overcome these problems. Tutors can be given commitments with several groups of students so that they can keep in close touch with a cross-section of the whole student body. Their assessments can be correlated in a number of ways and validated by internal and external examiners. The external examiners would normally see examples of written and practical work, observe practical teaching, see records of all cumulative data used in arriving at an assessment, interview individual students with complete folders of work and notebooks, have discussions with groups of students, and follow the progress of a sample group of students right through the training institution.

A training institution proposing to use a system of progressive assessment should set up a study group to consider such questions as:

1. What are the advantages of assessment over a final examination?
2. What are the aims of progressive assessment?
3. What is likely to be progressively assessed?

4. What will the final assessment tell the student about himself?

5. What professional knowledge, skills, attitudes and achievements are to be assessed?

6. What criteria should be used throughout the progressive assessment and at the end of it?

7. What part will the individual student play in collecting and evaluating his own data, and in rating himself?

8. What part will a group of students play in making assessments?

9. What devices should be used to obtain data for progressive assessment?

10. What will be the minimum requirements in each area of study?

11. Can use be made of a credit/hour/mark system for assessments?

12. What administrative system is needed to ensure comparability of standards?

13. What internal examining system should be used as an integral part of the assessment?

14. How can individual student differences be identified and catered for in the assessment?

Post-Initial Technical Teacher Training Courses

Many countries have, or are planning to have, pre-experience and post-experience diploma courses, and first degree and higher degree courses in further or technical education, or industrial training, or a combination of these.

Training Industrial Training Officers

In Britain courses for training officers employed in industry have been an important, expanding activity since the passing of the Industrial Training Act in 1964 and the establishment of Industrial Training Boards. The introductory study courses are normally located in an institution for further or higher education.

Courses of this kind can be organized on a sandwich basis with two three-week periods in college separated by a period of six weeks during which course members are required to undertake a project relevant to their own and their company's training needs. About six months afterwards it is useful to have a short follow-up programme to review a topic at a more advanced level.

The aim of such a course is to help new or recently-appointed training officers to realize their own capabilities, to develop sound attitudes to industrial training based on objective appraisal of existing needs and training methods, and to start undertaking worth-while training work in the organization in which they work. Essentially, the course caters for full-time training officers, with sufficient practical experience of industry or commerce to allow them to participate actively.

Course Content and Objectives

The basic subjects and supporting studies in the course are listed below, together with the main skills and abilities they are intended to develop in the training officer.

BASIC SUBJECTS IN THE COURSE	RESULTING SKILLS AND ABILITIES
1. Identification of Training Needs and Resources	To state the main factors which must be considered in identifying training needs and to be able to investigate training needs within his company. To help management establish priorities to maximize effectiveness of training resources. To identify the personnel in any training situation whose support is important, and be able to involve them in preparing plans for systematic training.
2. Job Analysis	To analyse non-supervisory jobs using interview and observation techniques to determine job content in sufficient depth to allow the construction of an effective training programme. To examine the jobs of individual managers and supervisors using documentary and planned interview procedures so that training programmes can be planned in outline on an objective basis.
3. Specifying Training Objectives	To specify training objectives (based on the training specification) appropriate to a specific situation. Objectives will, as far as possible, be established with respect to (a) the desired terminal performance of the trainee; (b) the important conditions under which this performance will be attained; and (c) the criteria of acceptable performance.
4. Design of Training Programmes	To design effective training programmes with respect to (a) training specification; (b) sequence and timing of learning experiences; (c) training methods, aids and instructors; (d) validation methods; and (e) presentation matters.
5. Training Methods	To state the main characteristics and uses of the following training methods and be able to select an appropriate method for a given situation: (a) training talk lecture; (b) demonstration; (c) group discussion; (d) case study; (e) role playing; (f) projects and practical work; (g) programmed learning.
6. Training Costs	To define those accounting terms and procedures which are applied in the costing of training. To describe how training budgets are established and how training costs are identified.
7. Training Technology	To state the materials, equipment and procedures available for use in producing and presenting material. To operate basic equipment and implement instructor- or machine-presented material in a training situation. To prepare material for presentation and use available techniques to help trainees to learn a specific part of a training programme.

8. Validation and Evaluation of Training	To effect internal validation using tests and other measures of performance. To effect external validation by identifying and analysing job performance subsequent to training. To state the main factors by which the value of training can be assessed.

SUPPORTING STUDIES

1. Trainees and how they learn	To state the characteristics of the main types of learning and illustrate their application to training methods and training technology. To list the most common areas of difficulty encountered by trainees and to state how these difficulties can be tackled.
2. Administration of Training	To analyse the training system within a company and identify those areas where information needs to be made available on a regular basis. To establish a record-keeping system so that feedback is provided effectively and information made readily available. To examine critically existing paperwork (forms and registers, etc.) and make suggestions (where possible) designed to improve its effectiveness.
3. Principles and Methods of Personnel Specification	To list the methods available and describe their uses and limitations. To prepare a personnel specification and an interview note-sheet using the appropriate job analysis so that selection becomes as structured and objective as possible.
4. Individual Differences of Trainees	To describe the way in which individual differences of trainees affect their ability to learn, with reference to (a) young people, and (b) older workers.
5. Objective Testing	To describe the principles underlying the construction of objective tests to validate the knowledge element of training programmes, and be able to assess their usefulness in industrial training.

Workshops in particular activities may be mounted for more experienced industrial training officers. Here are two examples, together with their aims:

1. Workshop on Management Development

This course does not concentrate on any one approach to management development. Instead it helps course members to consider and evaluate alternative approaches. Course members are viewed as Management Development Advisers whose main aim is to help management accept responsibility for management development. By the end of the course each member should have prepared a set of proposals for discussion with his own management.

The course is best arranged as a sandwich, with a major project being carried

out by each member during the in-company part of the sandwich. Members are visited by a tutor before and during the course. By the end of the course, members should be able to:

1. State the main factors which could be included in a Company Development Plan.
2. Generate information which will help management clarify their own thinking and facilitate the setting of priorities.
3. Propose a 'shape' for the Management Development Programme, indicate the main alternative strategies, and help managers evaluate these alternatives.
4. Prepare a detailed programme for the development of individual managers, work teams and the whole management process, and an evaluation system to enable the effectiveness of the programme to be monitored and improved from time to time.
5. Select learning situations for individuals and groups on and off the job, and provide tutorial advice as required.

2. Workshop on Industrial Relations Training

This short (one-week) residential course can assist personnel and training specialists (and managers who are responsible for developing and implementing industrial relations policies) to identify training needs and design programmes to meet these needs. The course should include: (a) a background to current industrial relations practice; (b) factors affecting attitudes and behaviour at work; (c) identification of training needs; (d) the design and evaluation of training in relevant skills and techniques; and (e) the selection of training methods with particular reference to the development of interpersonal skills. Its structure should allow for the examination and discussion of problems and situations in the members' own companies.

By the end of the course each member should be able to:

1. Relate the legal framework governing employer/employee relationships to the policies operating within his organization.
2. Identify the essential features of good employment practices.
3. Define the role of the employee representative and describe the trade union structure within which he operates.
4. Identify situations which may create poor industrial relations within an organization.
5. Identify the basic industrial/human relations training needs of manager, employees and employee representatives.
6. Select appropriate training methods, and design training programmes.
7. Develop criteria for evaluating industrial relations training.
8. Identify external resources which may be used within an industrial relations training programme.