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**TRAINING AND PREPARATION
OF TEACHERS FOR SCHOOLS
OF MEDICINE AND OF
ALLIED HEALTH SCIENCES**

Report of a WHO Study Group

WORLD HEALTH ORGANIZATION

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FOR SCHOOLS OF MEDICINE AND OF ALLIED HEALTH SCIENCES

Geneva 2-6 October 1972

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TRAINING AND PREPARATION OF TEACHERS FOR SCHOOLS OF MEDICINE AND OF ALLIED HEALTH SCIENCES

Report of a WHO Study Group

1. INTRODUCTION

A WHO Study Group on the Training and Preparation of Teachers for Schools of Medicine and of Allied Health Sciences met in Geneva from 2 to 6 October 1972. Opening the meeting on behalf of the Director-General, Dr P. Dorolle, Deputy Director-General, welcomed the participants and the representative of UNESCO, an agency with which WHO has continuously worked in close partnership in the field of teacher training. He noted that, whereas WHO had initially confined its efforts to content preparation, there is now general agreement that in the medical and allied health professions teachers need to be prepared not only in their specific subject but also in the process and methods of education.

The Study Group had been convened to review the needs, purposes, and modalities of teacher training and existing training programmes in countries as well as those carried out by the Organization, notably the special programme initiated on the advice of a WHO Consultation on Teacher Training for Health Personnel that met in 1969. It was thus hoped that the Study Group could give advice on the principles of teacher training as well as on practical action that would enable WHO to give effective assistance to countries in developing their manpower for teaching the members of the health team.

2. THE NEED FOR TEACHER TRAINING

One of the objectives of WHO, as laid down in Article 2 of its Constitution is "to promote improved standards of teaching and training in the health, medical and related professions". In all countries, this function has increased in importance with the increased demand for health manpower caused by the growth of world population and rising expectations for health care.

In response, an effort has been made to expand enrolment in existing schools for health professions and to establish new schools to meet the demand for more numerous and more varied health care services. This movement has highlighted the fact that one of the critical impediments

to an increased production of health workers is a shortage of teachers not only for training the health professions (medicine, nursing, dentistry, pharmacy, sanitation, etc.) but also for training auxiliary workers.¹

2.1 Quantitative considerations

It is probably not possible to estimate the need for teachers in quantitative terms. The WHO Consultation on Teacher Training in 1969 reaffirmed an earlier estimate² that 25 000 – 75 000 additional teachers would be required to establish the 250 – 750 new medical schools then projected as necessary to produce an acceptable physician/population ratio. That estimate did not include the teachers needed in a growing number of other health professions and occupations for which there is worldwide demand, and present projections of the number of teachers required are much larger.

2.2 Qualitative considerations

The problem is further complicated by the need for a qualitative as well as a quantitative change in the preparation of future teachers. Traditionally, in higher education, faculty members have qualified as teachers by becoming particularly knowledgeable in some subject and then acquiring special competence in adding to that knowledge through research or in applying it in skilled professional practice. Whatever instructional competence was acquired was usually acquired through an apprenticeship system — or through trial and error.

Over the last decade there has been a growing conviction among educators in the health professions that, while a solid grounding in subject matter and competence in research or practice are essential preparation for the tasks of teaching, they are not enough. This view has been reinforced by an increasingly critical and articulate student body. It has forced educators in the health professions to seek some alternative to the traditional system of preparing teachers, which no longer seems adequate to meet changing qualitative and quantitative needs.

2.3 Other considerations

The foregoing quantitative and qualitative considerations appeared to the 1969 WHO Consultation sufficient to justify further action. (A summary of the programme built on their specific recommendations appears

¹ The term "auxiliary worker" is used by the United Nations and the specialized agencies to designate a paid worker in a particular technical field, with less than the full qualification in that field, who assists and is supervised by a professional worker.

² *Wld Hlth Org. techn. Rep. Ser.*, 1966, No. 337.

later and in Annex 1). There is as yet not enough proof that participation in a teacher-training programme produces a better teacher, just as there is little evidence that participation in continuing medical education produces a better practitioner.

The Study Group agreed, however, that:

(1) There *is* a body of knowledge which is justifiably described as educational science.

(2) It follows logically that health professions educators should be familiar with that science and skilled in its application.

(3) Since that science gives promise of increasing both educational efficiency and educational effectiveness, as well as economizing in the use of scarce resources (particularly teacher time and student time), it is worthy of systematic application.

(4) There is widespread evidence of serious deficiencies in present educational practices, some of which can be corrected by training teachers in the sound application of educational principles.

(5) The growing interest of faculties of medicine and of other health professions in such training strongly suggests that individual teachers and administrators find the results personally satisfying or professionally rewarding (for example, more than 2000 health professions teachers in Europe were engaged in some training activity during 1971, and in Brazil a medical teaching component is now required to be included in accredited postgraduate training in a medical specialty).

(6) The increasing array of practitioners, auxiliaries, and students who participate in the instruction of health professions students makes some kind of training programme essential.

3. SETTING AND SCOPE OF TEACHER-TRAINING PROGRAMMES

The question remains, however, whether such training requires the establishment of special units within schools for the health professions rather than utilization of the training resources available in schools or colleges of education. In favour of the view that special units were probably necessary, the Group stressed the importance of the individuals who conduct such programmes being sufficiently familiar with the unique problems of health professions education to be able to address themselves to the issues directly and not merely use experience derived from elementary or secondary education.

While familiarity with health professions education is essential for training teachers for these professions, the Study Group also acknowledged

the contribution that must be made by those whose primary training is in education rather than health. It was their conviction that educationists are most effective in working with health professionals if they have a base in and identification with a health professions school rather than a school of education.

The creation of a special unit for teacher-training activities within a health professions school will probably be necessary if regional or national training responsibilities are to be met, but some institutions may find other less formal arrangements suitable for this purpose.

The primary task of a teacher-training unit (or programme) for health personnel is that of faculty development in its broadest sense. This will require that teachers not only engage in the planned formal and informal learning experiences that are conventionally identified with training, but also have opportunities to take part in other activities, such as educational research and educational services.

4. FUNCTIONS FOR WHICH TRAINING SHOULD PREPARE TEACHERS

In the broadest sense the purpose of a teacher-training programme is to assist faculty members in preparing health personnel who can provide the health care services demanded by society. The first step in defining that programme is to clarify the functions of health professions teachers. The basic task is to assist students to acquire the professional competence required to practise their respective disciplines (e.g., medicine, nursing, medical technology) in order to satisfy the needs of the community they will serve.

To meet this challenge teachers must engage in the following activities:

4.1 Educational planning

Regardless of the setting, teachers must be able to design a workable plan for their day-to-day teaching activities. This planning requires working with colleagues, professional organizations, students, educational specialists and community resources to define objectives relevant to local health service needs and consistent with students' prior learning experiences. Teachers must also plan their instructional strategies in such a way as to provide varied pathways for achieving each objective, all consistent with generally accepted principles of adult learning. The plans must also reflect recognition that the health professions school is part of a social system, not an isolated entity.

4.2 Programme implementation

In addition to planning, teachers must be able to translate programme plans into action through instructional activities, which may take place in a classroom, clinic, hospital ward, laboratory, or the community.

To ensure that learning takes place during these experiences, teachers must create a climate that facilitates the resolution of conflict or misunderstanding between students and teachers or among teachers, provides feedback to teachers as well as students, and allows students to share in the responsibility for their own learning. It is also necessary not only that teachers should be skilled in the use of a variety of instructional methods (see Annex 2), but also that the methods be used according to their respective advantages in facilitating learning.

4.3 Programme research and evaluation

Teachers must also be able to conduct evaluation and action (or applied) research in connexion with the educational programmes. While it is unrealistic to expect them to become sophisticated educational investigators, it is necessary that they acquire sufficient skill in this area to improve the quality of their programmes as well as record and report the results of innovative educational efforts. This includes working with colleagues to define criteria to judge teaching effectiveness, utilizing diagnostic evaluation procedures (e.g., interim examinations) throughout the instructional programme, and certifying evaluation procedures (e.g., terminal assessment). Teachers must therefore be able to use a variety of evaluation techniques that measure knowledge, skills, and attitudes and to employ the basic statistical methods required to design evaluation and research and interpret the results.

5. TRAINING ACTIVITIES

The Group identified 4 categories of teachers for whom programmes must be designed:

- (1) *Health professions teachers*, who perform the most direct instructional function, dealing with students in their day-to-day learning activities.
- (2) *Educational specialists*, who bring particular expertise to the solution of general and specific educational problems; they may have basic training in one of the health professions or in the field of general education.
- (3) *Educational leaders*, who, regardless of academic rank or title, exercise independent judgement and make decisions that have a significant

impact upon educational programmes (deans and department heads are obvious examples, but leadership may also be exercised by other faculty members).

(4) *Teachers of teachers*, whose primary task is not that of directly instructing health professions students, of following the special pursuits of an educational specialist, or of exercising institutional leadership (although they may do any or all of these things), but rather of helping others to learn how to perform those roles more effectively.

In the following pages the training goals, activities, and curriculum content appropriate to each of these categories are elaborated. They are not mutually exclusive, since individuals may serve in more than one capacity. However, each category is characterized by specific competences that provide the focus for specific training programmes. The duration of these programmes will depend on (a) the initial characteristics and needs of the participants; and (b) the competences to be achieved.

5.1 Health professions teachers

5.1.1 Goals

(a) In educational planning, the ability to:

- (i) define instructional objectives that are consistent with the student's health service role upon completion of training;
- (ii) define instructional objectives that are consistent with a school's educational philosophy and mission;
- (iii) formulate objectives in terms of final expected student behaviour;
- (iv) involve students in the process of defining objectives;
- (v) apply accepted principles of adult learning in the design of instructional strategies;
- (vi) provide varied learning experiences for achieving objectives;
- (vii) seek and use the assistance of educational specialists for planning when appropriate;
- (viii) select appropriate content from a large body of expanding knowledge;
- (ix) organize course content in a fashion that is understandable to students.

(b) In programme implementation, the ability to:

- (i) use varied teaching techniques (e.g., the lecture, group discussion, role playing, case study, individual supervision and educational

media) with appropriate skill in situations that capitalize upon their effectiveness in facilitating learning;

(ii) make a commitment to self-assessment through peer review or student feedback.

(c) In programme evaluation, the ability to:

(i) utilize diagnostic as well as certifying evaluation procedures;

(ii) select or construct evaluation procedures that assess knowledge, attitudes, and skills;

(iii) use and interpret the results of standardized tests;

(iv) identify in the literature areas for personal study in medical education, both for himself and for students;

(v) understand basic statistical concepts that facilitate communication with specialists.

5.1.2 *Content*

The learning experiences designed to facilitate achievement of these competences will vary with the setting, availability of resources, and cultural influences. However, the Study Group recommends that training actively involve trainees in the application of educational principles to real problems (i.e., learning by doing) and emphasize inquiry into the nature of problems rather than mechanistic solutions.

The programme appropriate to the above competences includes:

(a) Principles of learning: An understanding of how adult learning occurs is an essential element of teacher training. In its absence a teacher will engage in instruction that is at best successful by chance, and at worst may actually impede the student's progress.

It is not necessary for all teachers to become experts in educational psychology, but they should be familiar with such generally accepted — and practically useful — theoretical concepts as:

(i) learning is an individual process, accomplished by individual students, at an individual rate, by individual means; it is not something accomplished by magical transmission from a teacher;

(ii) learning is more rapid and more efficient if the learner understands clearly what he is expected to learn;

(iii) learning is more efficient and effective when the student perceives that what he is expected to learn has relevance to his general goals;

(iv) learning is facilitated by rapid and complete individual feedback on the extent to which required learning is being accomplished;

(v) learning rarely occurs without motivation, but there are significant differences in the effect of internal and external motivating forces.

(b) Curriculum construction: It is important for teachers to grasp principles for the organization of all those factors that facilitate achievement of educational objectives, not merely the arrangement of courses and hours. The construction of a curriculum, i.e., the selection and organization of content and methods, includes consideration of such items as:

(i) the educational philosophy of the institution, the social milieu in which the education occurs, professional and health care determinants, as well as the objectives to be achieved;

(ii) the organizing principles around which instruction is built (e.g., body systems, problem-solving, community issues, subject matter disciplines, development of defined competence rather than completion of a set time);

(iii) the sequence in which instruction is offered (what activities must precede a given exercise and how does the next build upon those that have already been completed);

(iv) the timing of the curriculum and the limits within which individual differences can be accommodated.

The implications of such principles for programme organization and implementation, as well as for teacher activities, are profound. Unless the principles are understood, it is unlikely that they will be applied; to the extent that they are neglected, learning will be slowed and made less efficient and less effective.

(c) Teaching methods, instruments, and educational media: An important component of a teacher-training programme is to assure that participants gain an understanding of, and skill in employing, a variety of instructional methods and instruments. The central issues related to these matters were outlined by the 1969 WHO Consultation and are included here as Annex 1.

It is worth emphasizing that an effective teacher is more than a skilled technician in such activities as leading a group discussion, presenting a lecture, or using an overhead projector. He assists students through flexible application of a variety of instructional strategies, which are determined by the objectives being pursued, the characteristics of the students, and local conditions. He should at least be equipped to employ effectively and appropriately didactic presentation, demonstration, discovery techniques, guided independent learning, and peer instruction.

(d) Assessment of achievement: Three methods of assessment are worth considering — testing the achievement of individual students; assessing the accomplishments of teaching staff and instructional programmes; and the application of basic statistical concepts.

(i) *Student achievement.* This is the most familiar, but unfortunately teachers seem more likely to use tests in a routine manner than in a thoughtful and analytical fashion. Test methods, it seems, are employed more because they are readily available and easy to use than because they are appropriate. Teachers must be conversant with the respective merits and shortcomings of various examination methods (the essay; the objective test; the oral examination; student self-evaluation; peer evaluation). No single method is sufficient to assess all the objectives of health professions education programmes. Teachers must understand all the methods and acquire sufficient skill in their use to employ one, or more than one, as may be appropriate.

It is also important for teachers to have a clear understanding of the difference between formative and summative evaluation. Formative evaluation is essentially diagnostic—to help both students and teachers identify what has been learned and what remains to be learned. Summative evaluation is assessment of the evidence about whether the required learning (competence) has been achieved. The distinction between the two and their separation are important if a student is to feel free to reveal his ignorance for the purpose of learning (as in formative evaluation), rather than attempt to conceal his ignorance lest an adverse judgement be made (as in summative evaluation).

(ii) *Teacher and programme evaluation.* Assessing the instructional programme is likewise important if the most effective and economical utilization of teachers and other resources is to be assured. The results of student examinations provide one indication of programme effectiveness. It is equally useful to examine the educational process directly in order to determine to what extent sound principles of adult learning are being employed or the skill with which instructional methods are being used. A simple method is to invite students to provide written comments; alternatively, a more structured questionnaire may be given to them, or a systematic analysis, using precise observational rating scales, may be made.

The findings may be reviewed by a teacher alone for his own information, or by the faculty of the whole programme—either with or without the assistance of education specialists. The review may be enlarged to include such matters as the original motivation of students and the extent to which the teaching was planned to reach relevant goals; or it may include the identification of the community needs that the instruction is designed to serve, and of the major tasks the person trained is to carry out later. The fact that there is an established system of assessment of teaching in an

institution has been found in itself to be an element contributing to improved instruction.

(iii) *Statistical concepts.* It is unlikely that health professions teachers will become deeply involved in the design of educational experiments. The improvement of evaluation practices, however, requires a systematic approach to the development of evaluation instruments and their interpretation. Advice in statistical analysis can often be provided by other individuals not specifically designated as educational specialists (e.g., epidemiologists, health care research teams). Such advice can also facilitate communication with members of these disciplines. Specifically psychometric concepts, such as reliability and validity, however, may require consultation with educationists.

5.2 Educational specialists

5.2.1 Goals

The training of highly specialized experts in education is the primary responsibility of agencies other than a health professions teacher-training unit. Some examples of appropriate areas of expertise would include group dynamics, psychometrics, curriculum theory, and computer-assisted instruction. But those who already have such special qualifications will generally need to acquire some additional understanding of the health professions if they are to work effectively in that setting.

The health professional who seeks extended training in education may not achieve the depth of knowledge and experience that characterizes the educational specialist, but he will be expected to exhibit upon completion of training the broad competences outlined below:

(a) In the application of educational expertise, ability to: (i) design and implement research programmes in health professions education; (ii) instruct teachers and students in his discipline; (iii) identify and criticize relevant literature references in health professions education.

(b) In the knowledge of the health professions educational setting, ability to: (i) distinguish appropriate areas of applicability of his special skills; (ii) communicate with health professions, using their accustomed vocabulary; (iii) demonstrate a familiarity with the concerns and points of view of teachers in health sciences.

(c) In providing consultation, ability to: (i) clarify the needs and expectations of those who seek his assistance; (ii) formulate responses appropriate to the client's needs; (iii) develop effective working relationships through

the use of skilled communication; (iv) accept working relationships with individuals whose opinions and goals differ from his own.

Experience indicates that training to achieve the goals outlined above requires opportunities to engage in teaching, research, and consulting activities in a health professions setting. It also requires supervision by an individual whose background enables him to provide guidance and feedback to the trainee.

5.2.2 *Content*

The content appropriate to educational specialists falls into two broad categories:

(a) *Sociology of the health professions.* While it is not necessary for the educational specialist to adopt the values and customs common to the health professions, he must be aware of their characteristics. Of particular importance are: (i) the values used to judge acceptable and unacceptable professional performance; (ii) problem areas that receive priority when allocating resources; (iii) social structures and sources of power within health institutions and the nature of the interaction between them; (iv) the vocabulary of the health professions.

(b) *Consulting skills.* Expertise possessed by an individual who is unable to develop effective working relationships with colleagues represents wasted resources.

Some basic skills that are useful to the consulting relationship relate primarily to the areas of communication and group dynamics: (i) filling task and maintenance roles within groups that are required to facilitate achievement of goals; (ii) dealing with problem areas that interfere with group efficiency, such as competition for leadership, a climate that suppresses risk taking and lack of goal clarity; (iii) exhibiting communication skills in questioning and listening.

5.3 **Educational leaders**

5.3.1 *Goals*

Individuals who perform the function of educational leader must develop many of the basic competences in educational planning, programme implementation, and educational evaluation outlined earlier for health professions teachers. This function also calls for competences in the areas of consulting skills, such as those for the educational specialist. It especially demands an additional set of competences in the management of groups, which includes the ability to: (i) demonstrate a concern for the

professional growth of his colleagues and institution; (ii) make decisions and see them through; (iii) share authority and responsibility with others; (iv) recognize the values and priorities that motivate his colleagues.

5.3.2 *Content*

Just as the goals for this function are similar to those defined for the health professions teacher and the educational specialist, so too are the training activities. For the goals unique to this category (management of groups) learning activities must be basically learning by doing, with consistent, reliable, and systematic feedback on performance. Representative examples of appropriate content include: (i) the process by which organizations determine priorities, reach decisions, implement programmes, and evaluate outcomes, including exploration of the impact of various leadership styles (e.g., democratic *versus* authoritarian, non-directive *versus* directive); (ii) motivational theory and the factors that influence or provide internal and external sources of motivation.

5.4 **Teachers of teachers**

5.4.1 *Goals*

Those who perform the first three functions inevitably influence their colleagues' professional performance as teachers. However, this informal interaction is an insufficient means of ensuring systematic improvement of teaching practices. This goal requires a planned interaction between teachers and those who have the responsibility of serving as teachers of teachers. Individuals who provide this function must possess many of the competences described for other categories. Just as the cardiologist, surgical nurse, and medical assistant must be skilled in their discipline if they are to teach others, a teacher of teachers must have knowledge and skill in educational science and leadership. However, this role also requires the ability to help others apply principles of education.

Included among the special training goals for this group are those described for health professions teachers, educational leaders, and specialists. In addition they must develop the ability to: (i) demonstrate ways in which educational principles can be put into practice; (ii) create and maintain a climate with fellow teachers that has the characteristics of a peer relationship rather than one of student and teacher; (iii) facilitate self-criticism among colleagues.

5.4.2 *Content*

The functions of teachers of teachers represent a synthesis of most of those described in the preceding three categories. The training experi-

ences and content reflect a similar integration. This competence can only be achieved through ample opportunity to “teach teachers”. It is this experience that constitutes both the major learning activity and provides the principal content. Knowledge of the methods used to provide opportunities to practise teaching in a simulated situation (e.g., microteaching) is also particularly important.

5.5 Evaluation of training activities

The goal of training is to increase educational knowledge and skills as well as to influence attitudes about the educational process. It is desirable, therefore, to gather data on a participant prior to training, during training, immediately upon completion of that training, and at some later date. This might require assembling information about performance in the home setting both before and after training. Such evaluation might be carried out by both internal and external experts.

Methods that might be employed in accumulating such data include:

- (i) written tests of knowledge and understanding of the content areas of the training programme;
- (ii) peer assessment of change as a teacher after training (e.g., by means of rating scales or interview) and of change as an educational leader within the institution (e.g., by interview or free description);
- (iii) assessment by his students of change in teaching performance, using rating scales with explicit criteria to guide judgement;
- (iv) personal assessment of the impact of training and description of behavioural change that has resulted from it;
- (v) review of instructional materials, curriculum plans, evaluation instruments and educational research produced by a participant following training;
- (vi) visits by training programme staff to see the teacher at work, particularly in order to observe some of his practices in relation to interpersonal and interprofessional communication.

6. RESEARCH ACTIVITIES

Teacher-training centres/units must engage in research for three basic reasons: (i) to create a climate of analysis and experimentation and thus encourage trainees to acquire the attitudes of continuing inquiry that need to be incorporated into instructional programmes in the health

sciences; (ii) to add to the body of information about educational science in general and health professions education in particular; (iii) to initiate or document change.

The view was expressed that research activities should focus on areas or problems in which health professions teachers can make a unique contribution. Three types of research seem both desirable and feasible: (i) research to test hypotheses, which may be experimental or non-experimental in nature depending on the research questions being pursued and the local circumstances, and which should be limited to the manageable elements of the complex problems that concern those in a health professions setting; (ii) descriptive research, which provides for systematic accumulation of data to guide future research endeavours and ensures that decision-making will be based upon scientific evidence, not random impressions; (iii) action research, which is essential in order that the centre/unit gather knowledge that leads to and/or documents the effects of changes in the educational system, including all the activities of the centre/unit itself.

7. SERVICE ACTIVITIES

Those engaged in teacher training, either as individuals or as members of a centre/unit, must offer educational services to their teaching colleagues. However, these should be professional services that further a spirit of inquiry, rather than technical services that often merely cover up inappropriate teaching practices. Service, whether in the institution or in the field, is an inescapable part of centre/unit functions. It provides the necessary interaction with teaching personnel and leads to training and research opportunities that are essential to bringing about changes in teaching practices. It also provides an informal setting in which trainees can work under staff supervision in real-life learning situations.

Three categories of service were identified: (i) *demonstration*, e.g., providing models of self-instructional materials, analysis of the procedures used in their development, and guidance to health professions groups who want to develop these materials in new content areas; (ii) *dissemination*, e.g., bringing together various groups of health professionals (and when relevant, members of other professions) to explore common problems or to develop greater insight into each other's resources; (iii) *consultation*, e.g., helping a clinical instructor develop criteria for evaluating the performance of his students, or guiding the design of evaluation instruments for a student-faculty committee charged with the assessment of teaching practices.

8. THE WHO COMPREHENSIVE COORDINATED LONG-TERM TEACHER-TRAINING PROGRAMME

The 1969 Consultation on Teacher Training recognized that it was imperative to develop further the worldwide effort to improve the preparation of health professions teachers. They also recognized that it was necessary to make the most economic use of scarce resources. The programme they proposed, which was designed to be comprehensive, coordinated, sequential, and with a multiplier effect, aimed at identifying inter-regional centre(s) and at fostering and supporting the establishment of other centres to serve regionally (Annex 1). The latter would in turn assist in the development of national centres, which would ultimately encourage the creation of institutional (individual school) units devoted to teacher training and educational research and development. This plan had as its target an increase in the educational expertise of faculty members in all the health professions schools. It was based upon 4 principles:

(1) The principle of *critical mass*, which implies that a significant and sustained educational impact requires (a) at least one health professional with a thorough training in educational science, and (b) a larger faculty group sufficiently familiar with and receptive to educational science to support his efforts at translating these concepts into institutional action. While critical mass in this context has a quantitative aspect (its dimension may vary from region to region or institution to institution), the qualitative element is equally important.

(2) The principle of *continuity*, which implies a protracted relationship between a training centre and the institution whose teachers are being trained.

(3) The principle of *growing independence*, which implies that from the beginning trainees will be assisted in working towards assuming independent responsibility for an institutional programme rather than that they should continue to be dependent on the centre in which they have been trained.

(4) The principle of *local training* for first-line health professions teachers, preferably in their home country.

The 1969 Consultation recommended prompt and simultaneous initiation of teacher-training programmes of various degrees of sophistication at inter-regional, regional, national, and institutional levels. The recommendation for implementation emphasized the establishment of an inter-regional centre (or centres) that would assist in the development

of regional centres at such a pace that within 4 to 5 years the WHO regions would become self-sustaining and within 10 years all Member States wishing to establish them might have independently functioning national centres. While this strategy appeared to offer the greatest promise, it was recognized that other methods of attack upon the problem might also be explored.

The Group reviewed the progress that had been made in the 3 years since the Consultation and was impressed by the reports from the 4 regions that had taken part in the programme. Although they are at different stages of development, 5 regional centres (in 4 regions) are now being established and are becoming active, with a sixth moving toward activation within the next year. Six fellows have completed one-year training programmes at the inter-regional centre and have returned to work in regional programmes. Short-term assistance workshops have been held in 4 of the regional centre institutions, and faculty groups from 3 of these centres have also spent additional time in abbreviated programmes at the inter-regional centre. (See Annex 1 for further details.)

The Group therefore concluded that the initial programme objective of establishing a critical mass of concerned and qualified persons in a series of regional sites is being accomplished. The questions arise whether the pattern of operation described is still valid, whether other principles should be employed in developing future plans, and whether other approaches might be utilized in resolving some of the problems that further deliberation and experience have identified. In the view of the Group, the programme has reached a sufficient level of maturity to justify immediate attention to three further goals: (i) systematic evaluation of the progress in and problems of developing teacher-training centres/units for their benefit and for the benefit of other members of the growing network; (ii) defining new areas for research and development in the educational process toward which those concerned with health professions training might address their attention; (iii) fostering cooperative efforts between health professions schools, other educational groups, and government agencies through joint research, development, and training activities.

In carrying out the programme outlined in the 1969 report, attention was first given to the principle of establishing a critical mass of concerned and informed individuals initially at regional sites, then providing for continuity of relationship between inter-regional, regional and national groups while working toward the growing independence of all. The momentum achieved suggests that additional principles can now be incorporated in further programme implementation: (i) while central coordination of such a programme will remain important, the principle of greater flexibility and diversity at regional and local levels will contribute to furthering the development of the programme; (ii) the principle of greater support for local and national centres/units that develop on their

own will further the programme, whether or not a regional centre exists. The experience of certain countries illustrates the need to foster alternative strategies when circumstances delay the identification of a regional centre or when for other reasons it may seem undesirable.

9. CONCLUSIONS AND RECOMMENDATIONS

In order to prepare the increasing number of students for the complex health care needs of the growing world population, there is an urgent demand for more and better teachers in all the health professions. Ways and means by which present and future teachers' ability as instructors can be developed are discussed in the report.

Essentially this requires a training programme encompassing not only formal instruction in the processes of teaching and learning but also a continuing involvement of the teachers in educational development and research activities, including self-evaluation. The emphasis should be on the identification and promotion of individual competence rather than on the amount of time devoted to training. The establishment of centres charged with the training and preparation of faculty for all the health professions — as teachers, educational specialists, educational leaders, and teachers of teachers — is described. In addition to training, these institutions must engage in a continuous process of research and development of institutional and individual educational programmes and processes, as well as in evolving ways of rewarding good teaching.

Indeed, most important for developing more and better teachers is the creation of an atmosphere in health professions educational institutions in which instructional innovation and the continuing search for quality, are recognized, rewarded, and supported, the teacher who has particular gifts for work with students and for educational leadership is identified and encouraged, an attitude of openness and critical inquiry regarding all aspects of the educational programme is promoted, and the continuing education of teachers themselves is fostered.

The process of contributing to the elevation of the quality of teaching in the health professions involves a variety of approaches and strategies. While primary attention is focused on the explicit steps involved in the training of teachers, it should be understood that such steps while essential are only part of the total programme that is required.

The ultimate purpose of the WHO sequential programme proposed in 1969 (outlined in Annex 1) was to improve the delivery of health service. The mechanism was that of improving health professions education by pursuing three goals of more immediate importance: (i) preparing a larger number of health professions teachers with greater competence in educational science; (ii) influencing the receptivity of institutions and policy makers

to sustained efforts in health professions teacher training; (iii) at the national level, aiming such training at all health professionals and their auxiliaries.

These goals are still essential. The Study Group strongly endorsed continuation of the programme at least until the end of the Second United Nations Development Decade (1980).

In order to build upon the enthusiasm and achievements which are now present, two additional activities are specifically suggested:

(1) Information dissemination and exchange:

There is need to improve communication about teacher training for the health professions. This could be achieved by the provision of information on printed and other materials (e.g., films) relating to new developments in the field; a semi-annual bibliography of relevant publications; the distribution of reports prepared by various centres and programmes; the promotion of interaction and communication among staff and trainees from different centres; periodic meetings of centre directors to share experiences, data, and plans; and the encouragement of contacts between these professional groups and other agencies (such as UNESCO and ministries of education).

(2) Centralized research into and evaluation of teacher-training activities:

Areas of study to which attention might be directed include:

(a) the need for teachers in developing countries; (b) analysis of progress and problems experienced by teacher-training centres; (c) exploration of the effectiveness of instructional strategies and media in the health professions; and (d) documentation of the effectiveness of individual training programmes (using external as well as internal assessment).

An advisory committee on educational development would be valuable for the purpose and in enhancing the image and status of medical education as a scientific enterprise which, along with research endeavours in other disciplines, deserves full financial support.

Guidelines for teacher-training centres/units are recommended as listed in Annex 3. They include (i) criteria for identifying a potential teacher-training centre; (ii) a required minimum for teaching staff, space, equipment, and facilities; (iii) principles and methods for selecting participants; (iv) relationships with other institutions and related programmes; and (v) training programmes for teachers.

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Annex 1**THE WHO COMPREHENSIVE COORDINATED LONG-TERM
PROGRAMME FOR TEACHERS OF MEDICAL
AND ALLIED HEALTH PROFESSIONS**

The organizational concept of this programme is based on the assertion made by the Consultation on Teacher Training for Health Personnel which met in October 1969 that the economical use of scarce educational resources calls for the training of an adequate minimum number of teachers for the establishment of certain centres, thus putting an end to the support of scattered activities. This means that from among the very few available training centres now capable of training larger numbers of teachers one should be selected as an *inter-regional centre* to train educational leaders and teaching personnel for the future regional centres. These *regional centres*, each of which would serve the countries of one of the six WHO regions, might also be set up in already existing institutions and could organize the training of teachers (not actually educational practitioners, but rather educational leaders who will later teach in the *country* and inter-country *centres* to be created later). The country centres should eventually train health professions teachers for all the schools of health personnel of the country concerned or — in the case of smaller countries where inter-country centres serve more than one country — of the countries concerned. Finally, it would be useful to set up units for educational research and development in the schools for health personnel, the main task of which would be to offer the school's teaching staff opportunities for continuing

education in educational science and practice as well as for research in the field of health personnel education. These units would thus provide the necessary scientific basis for decisions to be taken as to changes to be effected in the educational pattern of the school concerned (See Fig. 1).

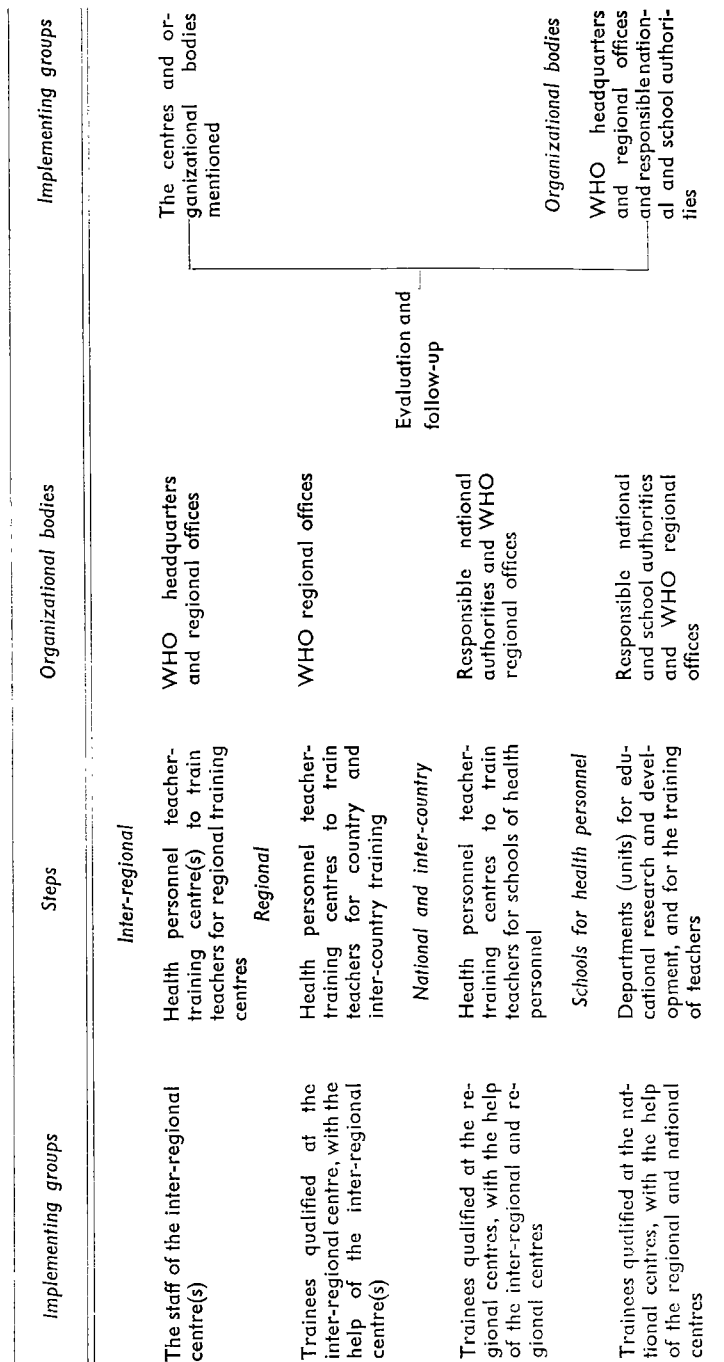
It is expected that, within four to five years, the implementation of this plan will render all WHO regions self-sufficient in the preparation of teachers for health personnel and in educational research; this would also enable all those Member States that so wish to become self-sufficient in this field — possibly within about 10 years. WHO is providing consultants and fellowships for this programme, thus helping its Member States to build up their own facilities in teachertraining; it is therefore envisaged that the inter-regional centre will be phased out as such as soon as all the regional centres become self-sufficient. In turn, regional centres will be phased out as such as soon as national centres become self-sufficient.

The underlying concept of this plan is that health professions teachers should preferably be trained in their own country, in their own cultural setting, in their own language, and with funds provided by their own government. The international (inter-regional and regional) centres should be used exclusively and temporarily for training the staff required for the national centres, where the health professions teachers will be taught for *all* sorts of schools for health (and not only medical) personnel.

At this stage, the programme covers only the special preparation for teaching, taking it for granted that all those selected for teaching are already, or will become, fully competent in their particular discipline.

Teachers for schools of health personnel should be well versed not only in their own subject matter but also in educational planning and in its underlying concepts — such as educational psychology, educational measurement, and group dynamics. They should be able to assess the real health needs and demands of the entire community in order to establish their educational objectives on the basis of those needs and demands. On the other hand, the educational objectives, reflecting the needs and demands and expressed in behavioural terms, should serve as a basis for curriculum construction and for selection of proper methods. An appropriate ongoing evaluation should then assess how far the objectives have been met. The information obtained from this feedback, which should be a continuous type of activity, will be used for further planning. This approach to educational planning, based on the assessment of local health needs and demands, should be learnt by all teachers of schools for health personnel. Furthermore, it seems preferable to speak not about teaching teachers how to teach but rather about teaching them how to help the learners learn more relevant material more effectively, and how to assist students to become as efficient as possible in meeting their

FIG. 1. COMPREHENSIVE COORDINATED LONG-TERM TRAINING PROGRAMME FOR TEACHERS OF MEDICAL AND ALLIED HEALTH SCIENCES



community's real health needs and demands. This is the basic concept that has been used in designing the content of the WHO teacher-training programme.

A Memorandum of Agreement was signed between WHO and the University of Illinois on 30 September 1970. In its preamble, it states that "it is the desire and intention of the parties to bring about a comprehensive and coordinated training programme for teachers from schools of medicine and allied health sciences which will enable the participating WHO Regions to set up Regional and local (inter-country and country) Health Personnel Teacher Training Centres thereby helping to improve the teaching standards of schools of health personnel and also to meet the quantitative needs, i.e., manpower planning in relation to teaching staff". In the operational paragraphs it is said that:

"(1) The University shall provide in each of the academic years 1970/71 through 1973/74 within and by its Center for Educational Development various training programmes and courses for selected candidates from each of WHO's participating Regions," and

"(2) . . . the training programmes and courses shall include the following:

(a) A programme of one-year duration for two to four fellows each academic year which may lead to a degree in Medical (Health Personnel) Education;

(b) One course (seminar/workshop) of four weeks duration each academic year for 12 to 14 participants per course from WHO's participating Regions;

(c) One, two to four week workshop on-site in the Regions each academic year for a maximum of 25 participants."

The one-year course is designed to train the future full-time members of Regional Teacher Training Centres (RTTC's), among them the directors and deputy directors. The four-week seminar/workshops are intended for those who will become part-time teachers for the RTTC's. Finally, the two-week on-site workshops are designed to "prepare the ground" for the RTTC's by discussing relevant problems with the teaching staff of the institution where the RTTC's will be located.

The goals and objectives for these three types of training have been properly defined. The training activities, within the framework of this Agreement, started in June 1971. Thereby the Center for Educational Development (CED), University of Illinois College of Medicine, Chicago, Illinois, started to function as an Inter-regional Teacher-training Centre for Schools of Health Personnel (IRTTTC).

Annex 2**TEACHING METHODS AND INSTRUMENTS****A. Teaching methods**

(1) *Lecture.* This, perhaps is the method most frequently employed in health professions education. Yet teachers must still learn that it is neither the most efficient nor the most effective method of imparting knowledge. Acquisition of skill in lecturing may allow the lecturer to enliven a topic, to summarize what is new or otherwise unavailable, to demonstrate his own method of thinking. But he should also learn to use it sparingly in order to maximize its effectiveness.

(2) *Group discussion.* This has been adopted as an important instructional device in many curricula for the health professions. Unbiased observers, however, are often struck by the frequency with which it resembles a lecture given to a small group. Effective group leadership requires that a teacher acquire very special skills, not the least of which is the ability to listen rather than to talk.

(3) *Tutorial.* It is often regarded as the ideal toward which educational programmes should strive. However, tutorials frequently become a drill or quiz session rather than an opportunity for the student to express himself, to explore ideas, and to gain guidance (not direction) from a sensitive mentor.

(4) *Clinical, laboratory, and field teaching.* These are commonly used methods in education for the health professions, though frequently employed more to satisfy the teacher's eagerness to show something than to seize the opportunity of letting the students themselves explore and do something.

(5) *Research and project teaching.* Though costly, these are invaluable methods that allow students to gain experience in problem identification, problem pursuit, data analysis, and synthesis.

(6) *Testing.* Commonly regarded as a means of assessing achievement, testing is perhaps the most powerful instructional device at a teacher's command — and the least frequently, as well as the least skilfully, used.

(7) *Team teaching.* Health professionals talk increasingly of the team approach to patient care. However, neither team teaching (several disciplines within a profession, several professions within a broad field) nor learning as a team have become of common usage.

(8) *Simulation*. Although clinical experience, for instance, is prominent in health professions education, the necessity to protect patients often precludes students from being provided with the opportunities to perfect management skills in real situations. Simulation is an easily available and readily adaptable supplement to reality. Various techniques are possible: for example, the utilization of models (for learning gynaecological or funduscopic examinations), or the employment of trained actors (for learning history-taking).

There are many other instructional methods — case study, role playing, demonstration, experiment, on-the-job training, to mention a few — to which attention should be directed in a teacher-training programme, but for illustrative purposes those noted above will suffice.

B. Instructional media

Among the instructional instruments that deserve consideration in such a training programme one might mention:

(1) *Blackboard*: Widely available, widely abused.

(2) *Visual aids*: These include slides, charts, models, overhead projector transparencies. Anyone who has watched the aids commonly employed, even in educational programmes for the most advanced health professions, must recognize that teachers need some instruction in their construction and use.

(3) *Films*: Although standard films have been widely available, they have not been widely utilized. Teachers need some guidance in the use of these and in the newer single-concept films and the simple devices that make them so easy to introduce as supplementary or complementary to other instruction as well as to self-instructional materials.

(4) *Television*: Closed or open circuit programming may be available only to limited numbers. It has, however, become increasingly prominent. The health professions teacher needs to learn the most effective means of utilizing both the materials stored on tape and the opportunity for live production and playback.

(5) *Literature and library*: Although printed materials have long been available, they are often ineffectively employed or even ignored. Teachers should be able to advise their students in the most productive use of these resources.

Among other instruments to which attention should certainly be directed are: radio, audiotapes, programmed instruction, and computers.

Annex 3

GUIDELINES FOR TEACHER-TRAINING CENTRES/UNITS

A. Recommended criteria for identifying a potential teacher-training centre/unit

1. *Primary criteria.* There are criteria that must be satisfied at the time of the centre's initiation in order to permit its satisfactory development.

(a) Administrative and faculty willingness to accept responsibility for developing and sustaining the centre as manifested by commitment of resources. Examples of such commitments for a regional centre would include the provision of office space, materials, and clerical staff; access to the necessary educational equipment; and readiness to release academic personnel from other responsibilities to attend training programmes in educational science for one month to one year, and later to establish a regional centre that will provide teacher training for local and national centre personnel in the WHO Region.

(b) Commitment to the achievement of excellence in training, research, and service. Evidence of such commitment would be manifest as self-critical examination of educational and service activities by evaluation committees, curriculum committees, etc., and ongoing research programmes, the results of which are critically appraised by professional colleagues in publications or meetings. Further, this self-scrutiny should be seen to lead to appropriate changes in structure, staff, or priorities.

(c) Staff willingness, and commitment of appropriate facilities to postgraduate education in several subject-matter areas. This is manifested among other things by regularly scheduled programmes open to health professionals from other institutions and countries.

(d) Willingness of the institution and faculty at which the centre is based to serve as a laboratory in which trainees can apply their knowledge and skills.

2. *Secondary criteria.* These are criteria of conditions that would facilitate the achievement of goals for teacher training. Development of the centre could begin even if these criteria are not satisfied, but there should be a reasonable probability that the following conditions will ultimately be present:

(a) Training programmes in the health sciences designed to meet local needs for health care, and research activities aimed at identifying these needs.

(b) Availability of training programmes in several health sciences coupled with a multidisciplinary and multiprofessional approach to the delivery of health care.

(c) Educational research activities, such as a study of the competences required of physicians or other health professionals to meet local health needs, or the correlation of student performance with the frequency or duration of specific learning experiences.

(d) Availability, within the host institution or nearby, of examples of departures from conventional educational practices. These innovative efforts should be accessible to the trainees, both for observation and for their direct participation.

(e) Professional relationships between the regional centre and other institutions in the region. Evidence would be the participation by individuals from other countries in educational or research activities and, conversely, participation by faculty members in similar activities in other institutions.

B. Recommended minimum initial teaching staff and facilities

The *minimum* staff, space and equipment requirements for a newly initiated centre are outlined below. As the demands for training, research and service increase it is anticipated that further facilities will be required. Similarly, the requirement of two full-time staff and the equivalent of two additional staff provided by part-time personnel represent basic requirements for the first phase of the centre's growth. Since these staff members must function as teachers of teachers, it is essential that they possess the competence outlined in section 5.4 of this report.

MINIMUM SPACE, EQUIPMENT, AND STAFF REQUIREMENTS FOR A REGIONAL TEACHER-TRAINING CENTRE

Space:

- 1 office, 15 m² (director);
- 1 office, 15 m² (assistant director);
- 1 office, 25 m² (secretaries);
- 1 office, 15 m² (1-year and 1-3-month fellows);
- 2 offices, 15 m² each (12 participants, short-term training programme or part-time staff);
- 1 classroom, 25 m².

Total: 7 rooms = 125 m².

Materials and supplies:

stationery, carbon and other paper etc.
 data processing expenses = \$500 per year

Equipment:

1 overhead projector	10 videotapes
5-cm × 5-cm slide projector	2 dictaphones
tape recorders	1 transcriber for dictaphone
blackboards	3 typewriters
12 desks, chairs	1 Xerox copier
6 filing cabinets	1 mimeograph
1 videotape recorder	15 chairs and table space (13 m ²) for classroom

Staff:

- 1 director (full-time)
- 1 assistant director (full-time)
- Part-time staff (M.D. with limited training in educational science, or educationalist with orientation in medical (health professional) education)—total equivalent to 2 full-time staff
- 2 secretarial and clerical staff

C. Recommended principles and methods of selecting participants

The selection of educational specialists, leaders, and teachers of teachers whose professional competence must make them acceptable both to the health and education professions, is critical for a long-term programme's success. There is great need for continued study of absolute criteria but the following are considered to be minimum selection criteria at present:

- (a) sufficient personal interest to seek such training;
- (b) age low enough to offer sufficient prospect of an adequate number of years of service;
- (c) ability to provide evidence of leadership qualities and personal interest in educational matters;
- (d) undertaking by the candidate's institution to utilize and assist him, after his return, in developing teacher-training activities;
- (e) adequate professional standing (personality, and competence in the candidate's own discipline);
- (f) personal interest in and commitment to teaching for its own sake, rather than only for research possibilities and the provision of consultant services.

D. Recommended relationships with other institutions and related programmes

Professional inter-relationships must exist prior to the establishment of a teacher-training centre. Following programme initiation, the centre should be expected to work with other schools within its institution and with other institutions within its region or country, depending upon its status as a regional or national centre, in the following activities (work with other departments within its school is mentioned in section 7 of this report).

(a) *research activities* in the field of health personnel education in collaboration with other departments, faculties or centres of the university, other health personnel schools and, in the field of educational technology, other interested groups;

(b) *service* to be given in educational matters, whenever required, in the form of consultation, both to the departments of the university and to health personnel schools.

E. Recommended training programmes

Training of teachers in pedagogy may take many forms, but among those that seem most useful at present are:

(a) at regional centres a one-year programme, which might lead to a Master's Degree in Medical (or Health Personnel) Education, for future full-time educational specialists;

(b) 4-week to 8-week courses for future part-time instructors in other centres;

(c) 3-day to 5-day single-topic workshops and 1-week to 2-week seminars for teachers;

(d) programmes specially designed for teachers;

(e) 2-week to 4-week workshops at other health professions schools;

(f) seminars and on-the-job training for teachers.
