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9241700357

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Typesetting and page layout by the Audio-Visual Unit, Dundee College of Technology, Dundee, Scotland

Printed in Switzerland by Imprimeries Populaires, Geneva

81/5137- 7500

PRINTED IN SWITZERLAND

84/ 6261 - Populaires - 2500 (R)

Educational Handbook for Health Personnel

How to help educators to increase their skills so
as to make learning easier for the students

1981

objectives of the handbook

When you have studied this handbook you should be able to:

- define the professional tasks which will provide the basis for determining educational objectives
- plan a curriculum
- construct tests and other measurement devices

These skills will be based upon a measurable gain of knowledge concerning:

- relationship between professional training programmes and subsequent practice;
- principles of learning and role of the teacher;
- role of objectives in educational planning;
- principles and methods of curriculum planning;
- principles and practice of educational evaluation.

You will also have strengthened your desire to go on learning and acquiring skills in education and will have mastered an effective way of setting about it.

Contents

	page
○ Objectives of the Handbook	2
○ For whom is this Educational Handbook intended?	6
○ How to use the Handbook	7
○ Identification of your needs as an educator	8
○ Pre-test	9
○ List of educational objectives	12
○ Theoretical background that will help you reach the educational objectives	14
○ Table of exercises proposed in the Handbook	15
Chapter 1 Educational Objectives	1.01
● The educational spiral	1.05
● Importance of defining professional tasks	1.07
● Selection of training goals	1.09
● Example of services provided by rural health units	1.12
● Types of educational objectives	1.19
● General objectives: professional functions	1.23
● Professional activities and intermediate objectives	1.29
● Built-in relevance approach to educational planning	1.34
● Professional tasks and specific educational objectives	1.35
● Identifying the components of a task	1.35
● Construction and critique of specific educational objectives	1.43
Chapter 2 Evaluation Planning	2.01
● What is evaluation?	2.12
● Formative and certifying evaluation	2.15
● Aims of student evaluation	2.19
● Selection of an evaluation method	2.21
● Advantages and disadvantages of different types of test	2.30
● Qualities of a measuring instrument (validity, objectivity and practicability)	2.33
● How to organise an evaluation system	2.40
Chapter 3 Programme construction	3.01
● Distinctive attributes of education for the professions	3.05
● Curriculum planning principles	3.14
● The purpose of teaching is to facilitate learning	3.18
● Teaching a complex but challenging task	3.33
● Teaching methods and educational media	3.41
● Self-learning packages	3.48
● The concept of integrated teaching	3.59
● The concept of integrated learning	3.61
● Planning of programme reform	3.66
● The use of specification tables	3.73
Chapter 4 Test and Measurement Techniques	4.01
● Why evaluate?	4.04
● Guidelines for evaluating a training programme	4.05
● Points to consider in evaluating programme changes	4.07
● Guidelines for evaluating educational objectives	4.10
● Programme evaluation by the students	4.15
● Evaluation of students' level of performance	4.21
Assessment of practical skills	4.22
Assessing attitudes	4.23
Written tests	4.28
The programmed examination	4.41
● Stages of assessment	4.49
● Test construction specification table	4.54
● Relative and absolute criteria tests	4.61
● Item analysis	4.65
Chapter 5 How to organise an educational workshop	5.01
Chapter 6 Glossary and Index	6.01
Chapter 7 Bibliography	7.01

preface to the fifth edition

This fifth edition (1981) is a fairly substantial revision, featuring in particular more concrete examples and more exercises than the 1977 edition. It is a collective work taking into account the critical comments and suggestions of numerous users of the earlier editions and the results of a survey carried out among 200 selected readers, whom we take this opportunity of thanking.

The first edition was prepared on the basis of documents distributed during a workshop organized by the Regional Office for Africa, Brazzaville, in December 1969 with the assistance of consultants in medical education.¹ It has been widely used in the Region and served as a basic document for many educational planning workshops.

It then became evident that it would be useful to give the reader better guidance during his progression through the whole educational planning cycle. Although this objective would most likely be achieved by a completely programmed presentation it seemed that the complexity of the problems involved was not great enough to justify a method which would be so intricate and long to prepare. Only practice could say whether this was correct. In 1975 a fully revised text was field tested and led to the 1976 revision distributed in over 10,000 copies in four languages. The 1977 edition was translated into 11 languages as a

result of national initiatives. It too was used at many "educational workshops", during which interesting and constructive criticism was expressed to the same effect as the comments received from the readers participating in the survey, who included many experienced educators: need for greater clarity (less jargon), more concrete examples and more practical exercises.

An attempt has been made in this fifth (1981) edition to take this advice into account.

Like the previous ones, this new edition will be revised in its turn, in the light of the suggestions we hope to receive from users. To order copies in French or English, please see the list of addresses on the back cover. For editions in other languages, or *if you would like further information or explanations*, do not hesitate to write to:

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1211 Geneva 27
Switzerland

Your suggestions will always be welcome. There is a special sheet you can use for them at the end of this handbook.

¹ Dr. S. Abrahamson and Dr. H. Peterson (USC, Dept. Med. Educ., Los Angeles).



Dear Colleagues,

In our common struggle to achieve the objective of "Health for all by the year 2000", the place of basic training and continuous education of health personnel is a crucial one.

The Conference of Alma-Ata recommended, among other things, that governments "[define] the technical role, supportive skills, and attitudes required for every category of health worker according to the functions that need to be carried out to ensure effective primary health care...". It also recommended that "health workers, especially physicians and nurses, should be socially and technically trained and motivated to serve the community; that all training should include field activities", and that due attention should be paid to the preparation of teachers of health workers.

All these reasons lead me to regard the publication of this revised edition of the *Educational Handbook for Health Personnel* as particularly useful, in that it will facilitate the application of those recommendations.

It is also a practical example of the technical support that an international organization such as ours must offer to back up national efforts in favour of primary health care.

Of course it is only one element among many; a small stone that helps pave the difficult way to health for all.

I hope this Handbook will continue to meet with the success it has enjoyed for over 10 years among its many users.

A handwritten signature in dark ink, appearing to read "H. Mahler".

Dr. H. Mahler
Director-General

for whom is this educational handbook intended?

Originally, in 1969, the first edition was written *for teachers* of the health sciences. Subsequently, however, the Handbook was used above all by hundreds of participants in meetings organized by WHO or held with WHO assistance (educational planning workshops, teaching methodology seminars, etc. ...)

A survey of 200 users carried out in 1975 revealed the following opinions

A very small minority (10%) felt that the Handbook should be supplied only to participants in controlled educational activities (workshops, seminars, courses, etc.) or reserved for "teachers of teachers" *The majority, however, felt that dissemination should be as wide as possible*, and be directed to all teachers of health sciences at all levels, to health administrators with staff supervision responsibilities, *and to students*, so as to help them to draw maximum benefit from their learning activities and participate in their

organization. The latest poll, conducted in 1978, produced very apposite comments from about 100 users in all parts of the world and the consensus is still in favour of the widest possible distribution. Many teachers of the various health professions (dentists, nurses, sanitary engineers, physicians, pharmacists, etc.) have stated that the Handbook answers their needs, but some think that the author's training as a physician has still too often biased the choice of examples. A further effort has been made with this 1981 edition to produce a text better suited to *everyone* working in the health professions. It is, however, very difficult to strike a perfect balance, for many reasons. While it is still true that most of the examples relate to the medical and nursing professions, it is the author's hope that each user of the Handbook will make a personal effort at *adaptation*, replacing the examples given by other more suitable ones whenever necessary.

jargon and meaning of words

Many users of the previous editions have asked for special care to be taken to simplify the language used. We hope they will be satisfied. It has not, however, been possible to avoid using certain technical terms (for example, discrimination index). Neither has it been possible to avoid assigning precise and restricted meanings to words which are often used interchangeably in everyday parlance (for example task, activity and function). In all such cases the words are defined in the

Glossary (p 6 01 *et. seq.*).

It is very important that we should understand one another, and for that we must give identical meanings to the words we use. But it is just as important not to get bogged down in endless discussions. Your aim is not to draft definitions of words for a dictionary.

So please accept the definitions proposed in this Handbook, at least while you are using it.

how to use the handbook

The presentation and layout of this Handbook are unusual

- It should be stressed at this point that the approaches suggested in this book are the result of a deliberate choice by the author and reflect his ideas in the field of education. Various theories sometimes regarded as contradictory are explained to the reader so as to give him food for reflection, rather than to subject him to any philosophical constraint. It is for the reader to make his choice, to draw initial conclusions and, in particular, to seek solutions for his own teaching problems by taking what is worth using among the various theoretical approaches suggested. To reject them wholesale would hardly be constructive, it would be preferable to propose better ones.

- For each chapter a list of objectives is included (yellow pages) to give you an idea of what you will get out of the chapter.

The theoretical input (white pages) is presented in the form of original documents or short quotations from texts listed in the bibliography.

All through the Handbook there are exercises (blue pages) to help you to determine whether you have increased your skills (see check list, page 15).

Certain documents are printed in large type so that they can be easily made into transparencies for use with an overhead projector (see technique on page 3.45).

- The page numbering is also unorthodox: every chapter begins with a number ending in 01 (for example page 3 01 is the first page of the third chapter), however many pages there may be in the previous chapter. This makes it easier to find a specific passage in the Handbook.

Rather than try to explain the whys and wherefores of this unusual layout, which

some find irritating and complicated at first, and others as intriguing as a detective story, it seems simpler to invite you to use this book just as it is. You will then draw your own conclusions as to the "reasons" for its layout. There must be some... even if the author is not aware of them all!

In any case you are warned not to *read* this Handbook like a conventional book, starting with the first page and hoping to get to the last. It is meant to be used as determined by the questions you put to yourself, your needs, and the teaching problems that bother you — by your own objectives, in short, whether or not they are already articulated.

This is why we are going to try and help you in this essential but unusual and therefore difficult undertaking.

- First situation: you are alone (on a desert island) or else you are accustomed and prefer to work alone. You are going to need grit, perseverance and 35 to 50 hours of free time.

Good Luck!

- Second situation: a colleague also has the Handbook and agrees to work with you. It will not be such an uphill task. If you can get together a small working group of five persons, still better.

- Third situation: you are taking part in an educational workshop. The working methods for such a meeting are described in this Handbook (pp 5.10 — 5.12) and group dynamics will do the rest.

In any case, the first thing to do is to *identify your needs*.

You are invited to proceed in three stages.

identification of your needs as an educator

First Stage

- What are the educational “questions” that you would like to have answered? (For example “what is an educational objective?”, “what does the word ‘validity’ mean with reference to an examination?”).
- What are the educational “tasks” that you would like to take on? (For example, “organizing a nutrition course for student nurses” or “teaching how to interview a patient”)
- What are the educational “problems” you would like to solve? (For example, “I am in charge of 600 students in different university years. how am I to organize field work in preventive medicine?”)

Now Try to draw up a preliminary list of your “questions”, “educational tasks” or “problems” for the coming 12-month period

EXERCISE

identification of your needs as an educator

Second stage

Would you like to find out how much you know *before* studying the rest of the Handbook? One way of doing this is to try to answer the questions in a *pre-test**

To do so, read *straight away* the questions on pages 1.57 – 1.60, 2.45 – 2.47, 3.79 – 3.83 and 4.75 – 4.80 and enter your answers on the answer sheet, page 10.

If your score is low in this pre-test, this should be a source of satisfaction, for it may show that you were right to start perusing this Handbook and that it will be worth your while continuing so that you can improve your weak spots

The test will help you make a personal diagnosis of the teaching areas you need to bring

up to date. Your aim in doing this test is not to find the right answer but *simply to take note of the fact that you do not find it!*

You may also rest assured that your score in the *post-test* (page 5.34) will be another occasion for satisfaction for it will show an appreciable gain after you have used the Handbook.

If your score in the pre-test is high, you should choose areas which are still “uncertain” (those for which you did not find the correct answer) and go into the matter more thoroughly

*This pre-test deals only with theoretical knowledge relating to group 2, page 2. You will have an opportunity of gauging how far you have achieved the group 1 objectives by doing other exercises which appear throughout the Handbook (blue pages)

answer sheet for pre-test*

Chapter I									
1	A	B	C	D	E	9	C	CF	
2	A	B	C	D	E	10	C	CF	
3	A	B	C	D	E	11	C	CF	
4	A	B	C	D	E	12	C	CF	
5	A	B	C	D	E	13	C	CF	
6	A	B	C	D	E	14	C	CF	
7	A	B	C	D	E	15	C	CF	
8	A	B	C	D	E	16	C	CF	
9	A	B	C	D	E	17			
10	A	B	C	D	E				
11	A	B	C	D	E				
12	A	B	C	D	E				
13	A	B	C	D	E				
14	A	B	C	D	E				
15	A	B	C	D	E	F	G		
16	A	B	C	D	E	F	G		
17	A	B	C	D	E	F	G		
18	A	B	C	D	E	F	G		
19	A	B	C	D	E	F	G		
20	A	B	C	D	E	F	G		
Chapter II									
1									
2	A	B	C	D	E				
3	A	B	C	D	E				
4	A	B	C	D					
5	A	B	C	D					
6	A	B	C	D					
7	A	B	C	D					
8	A	B	C	D					
Chapter III									
1	A	B	C	D	E				
2	A	B	C	D	E				
3	A	B	C	D	E				
4	A	B	C						
5	A	B	C						
6	A	B	C						
7	A	B	C						
8	A	B	C	D	E				
9	A	B	C	D	E				
10	A	B	C	D					
11	A	B	C	D					
12	A	B	C	D					
Chapter IV									
1	A	B	C	D	E				
2	A	B	C	D	E				
3	A	B	C	D	E				
4	A	B	C	D	E				
5	A	B	C	D	E				
6	A	B	C	D	E				
7	A	B	C	D					
8	A	B	C	D					
9	A	B	C	D					
10	A	B	C	D	E				
11	A	B	C	D					
12	A	B	C	D					
13	A	B	C	D					
14	A	B	C	D					
15	A	B	C	D					
16	A	B	C	D					
17	A	B	C	D	E				
18	A	B	C	D	E				
19	A	B	C	D	E				
20	A	B	C	D					

*see page 9

To check your raw score compare your answers with those given on page 5.34

identification of your needs as an educator

Third stage

To use this Handbook effectively for your own needs, it is proposed that *you* choose from among the following educational tasks or objectives (broken down into four main themes) the ones which interest *you* and in which you would like to achieve a degree of competence.

The time required for personal work (study of the text, practical exercises) on some of these tasks will be more or less long. Some call for a few minutes' work, others several hours to allow for study of the documents suggested (p.14)

To guide you in this first choice, do not forget to take into account the "questions and problems" you listed on p.8 and your weak and strong points (results of pre-test, p. 5.34).

Limit this initial choice to *about 10* tasks, circling the numbers of those that seem most important for you on the list (numbered 1 – 40) appearing on pages 12 – 13.

It is natural that you should have some difficulty in making your choice at this stage, for you are not yet familiar with "educators' jargon". Do not forget the Glossary (pp.6.01 *et seq*) Don't worry ... in any case there is no risk involved!

Moreover, you can always adjust your choice as your work progresses

Once your initial choice has been made, turn to p 14 and follow the instructions given there: study the suggested pages and do the corresponding exercises (blue pages.)

educational objectives 1

1. Define the following terms: professional task, activities, functions, role, institutional objective, specific objective, domains of practical skills, communication skills and intellectual skills.
2. List the qualities of an educational objective and the sources necessary to ensure its relevance.
3. Define the professional functions of a member of the health team whom your teaching institution is responsible for training (*general* educational objectives) so as to deal with the health problems of society.*
4. Analyse a major professional function by defining the various *intermediate* components (activities) making it up.*
5. Define a professional task and identify its components (domains of practical skills, communication skills and intellectual skills).
6. Draw up a list of the *specific* educational objectives relating to a professional task, stating explicitly what you feel the student should be able to "do" after a given course of instruction (that he was not able to do previously) and corresponding to the domains of the communication skills or practical skills involved in this activity.*
7. Taking a specific objective in a non-cognitive domain (i.e. practical or communication skills), define in the form of specific educational objectives what theoretical *knowledge* you feel the student should possess if he is to attain that objective.*
8. Make a critical analysis of specific educational objectives (listed by a colleague), indicating in particular whether they include all the requisite elements (act, content, condition, criteria).*
9. Draw up a list of the possible reactions of colleagues in your faculty to the idea of having to define educational objectives derived from professional tasks and propose strategies for overcoming those reactions.*

evaluation planning 2

10. Draw a diagram showing the relationship between evaluation and the other parts of the educational process.
11. Define the principal role of evaluation, its purpose and its aims.
12. Describe the difference between formative and certifying evaluation.
13. List the good and bad features of a test.
14. Compare the advantages and disadvantages of tests in current use.
15. Define the following terms: validity, reliability, objectivity, and describe the relationship that exists between them.
16. Choose an appropriate evaluation method (questionnaire, written examination, "objective" test (MCQ or short, open-answer question) or essay question, oral examination, direct observation, etc.) for measuring the students' attainment of a specific educational objective. Compare the alternatives in a specification table.*
17. Define (in the form of an organizational diagram) the organization of an evaluation system suitable for your establishment, and list the stages involved.
Indicate:
 - (a) the most important educational decisions you have to take,
 - (b) the data to be collected to provide a basis for those decisions,
 - (c) the aims of the system and sub-systems in terms of decisions to be taken and the object of each decision (teachers, students, programmes).*
18. Identify obstacles to and strategies for improvement of a system of evaluating students, teachers and programmes.*

* See footnote, p. 5-19

programme construction 3

19. Explain the differences between "education", "teaching" and "learning", and describe the new trends in the teaching/learning system and the various learning situations.
20. Define the concept of relevance of a programme.
21. List 10 conditions which facilitate learning and evaluate a learning activity.
22. Indicate the aims and general methods of teaching.
23. Specify at least two advantages and two disadvantages for each technique and medium used in teaching.
24. Select a teaching method that will make an educational objective easier to achieve.
Compare the alternatives in a specification table.*
25. Indicate the steps involved in constructing a programme.
26. Construct a programme or decide whether a programme or course needs revision, using a specification table.*
27. Construct a self-learning package.*
28. Define the role which, as a teacher, you would like to assume in order to motivate and facilitate the learning of students for whom you are responsible.*
29. Identify the obstacles liable to be encountered in setting up a competency-based curriculum geared to the health needs of the community and describe strategies for overcoming them.*

implementation of evaluation 4

30. Indicate the different elements that should be considered in the evaluation of a teaching programme.
31. Indicate the different elements that should be considered in the evaluation of the educational objectives of a teaching programme.
32. Define the advantages and limitations of a system of evaluation of teaching *by* the students.*
33. Construct an observational rating scale and/or a practical test to evaluate the behaviour of a student in the domain of communication and/or practical skills.*
34. Propose a question for a written (open-book) examination of the "essay" type or a series of six short, open-answer questions and indicate the norms of performance permitting objective marking (marking table).*
35. Draw up three multiple choice questions (MCQ) in the domain of intellectual skills — at least two of the objectives must measure an intellectual process superior to level 1 "simple recall" (either level 2 "interpretation of data" or level 3 "problem-solving").*
36. Indicate the advantages and limitations of a programmed examination.*
37. Define the following terms: prerequisite level test, pre-test, interval test, comprehensive pre-final, indicate their purpose and the stages at which they are set.
38. Explain the difference between a *relative* and an *absolute* criteria test.
39. Calculate the acceptable pass level for a MCQ examination and establish the scoring criteria and norms which permit determination of the passing grade of a mini-test (made up of the questions mentioned in objectives 34 and 35).*
40. Do an item analysis of a question (calculate the difficulty index and the discrimination index) and draw the relevant conclusions.

Theoretical background that will help you reach the educational objectives of the workshop

For objective	Study the following pages of the Educational Handbook	For objective	Study the following pages of the Educational Handbook
1	Glossary and pp. 1.05-1.07, 1.17, 1.23, 1.29, 1.33-1.36	21	pp. 3.28, 3.29
2	pp. 1.20, 1.33, 1.43-1.45, 1.48-1.50	22	pp. 3.21, 3.22
3	Obj. 1 and pp. 1.09-1.27	23	pp. 3.41-3.47
4	Obj. 3 and pp. 1.29-1.32	24	Obj. 6, Obj. 23 and pp. 3.22, 3.23, 3.55-3.58
5	pp. 1.17-1.19, 1.33-1.41	25	pp. 3.03-3.15
6	Obj. 2, Obj. 5 and pp. 1.43-1.53, 1.56	26	Obj. 25 and pp. 3.59-3.75 or pp. 1.27, 3.73, 4.04
7	Obj. 6 and pp. 1.54-1.56	27	Obj. 16, Obj. 24 and pp. 3.49-3.54
8	Obj. 6 and p. 1.56	28	Obj. 20 and pp. 3.33-3.40
9	Obj. 1 and pp. 1.63, 3.71, 3.75	29	Obj. 28 and/or Obj. 26 and pp. 3.71, 3.75-3.78
10	pp. 2.03-2.05	30	pp. 4.03-4.09
11	pp. 2.02-2.14, 2.19	31	pp. 4.10-4.14
12	pp. 2.15-2.18	32	pp. 4.15-4.19
13	pp. 2.26-2.29	33	Obj. 16 and pp. 4.22-4.27
14	pp. 2.30 and 2.31	34	Obj. 16 and pp. 4.28-4.30
15	pp. 2.33-2.37	35	Obj. 16 and pp. 4.31-4.40
16	Obj. 6 and pp. 2.21-2.23, 2.27, 2.38	36	pp. 4.41-4.48
17	Obj. 11 and pp. 2.40-2.43	37	pp. 4.49-4.53
18	Obj. 17 and pp. 2.44, 3.71, 3.75	38	p. 4.61
19	pp. 1.04, 3.18-3.29	39	Obj. 35, Obj. 38 and pp. 4.62, 4.63
20	pp. 1.33, 3.04-3.12	40	pp. 4.65-4.73

and do the corresponding exercises (blue pages): see list on next page.

Recapitulative table of exercises proposed in Handbook

Objective	Exercise	Page
3	Identifying professional activities	1.15
3	Defining the main functions of health personnel	1.23/1.24
20/26	Analysis of the relevance of a programme	1.27
5	Identifying components of a professional task	1.41
6	Selecting active verbs relating to a task	1.47
8	Identifying the elements of an educational objective	1.51
8	Evaluating an educational objective	1.52
6	Drawing up specific educational objectives	1.54
7	Drawing up enabling educational objectives	1.55
8	Critical analysis of an educational objective	1.56
1/11	Evaluation of knowledge about educational objectives	1.57/1.60
17	Statement of educational decisions	2.09
12	Distinguishing between formative evaluation and certifying evaluation	2.16/2.19
13,14,16	Selecting a method of evaluation	2.23
15,16	Comparing several methods of evaluation	2.38
17	Graphic representation of an evaluation system	2.43
18	Identifying obstacles to and strategies for applying an evaluation system	2.44
10/18	Evaluation of knowledge about evaluation planning	2.45/2.47
19	Describing learning situations	3.29
28	Describing the teacher's functions	3.39
24	Selecting a teaching method	3.57
24	Comparing several teaching methods	3.58
29	Constructing an organizational chart for programme implementation	3.77
29	Identifying obstacles to and strategies for introducing a new programme	3.78
19/29	Evaluation of knowledge about programme construction	3.79/3.83
32	Listing advantages and limitations of evaluation by students	4.19
33	Drawing up a practical test or project test	4.22
33	Constructing an attitude table	4.25
34	Preparing an essay question	4.29
34	Preparing short open-answer questions	4.30
35	Preparing multiple-choice questions (MCQ)	4.39/4.40
36	Preparing a programmed test	4.48
36	Completing a specification table for a test	4.55/4.57
39	Calculating the acceptable pass level (APL) for an MCQ test	4.71
40	Calculating the difficulty index and discrimination index for a question	4.75
30/40	Evaluation of knowledge about test and measurement techniques	4.75/4.80

acknowledgments

This revised edition of the Handbook has involved a lot of meticulous and time-consuming work over the last three years. Many people have offered advice and help and have supplied documents used in the text.

From the start, the encouragement, support, advice and patience of T. Fülöp, Director of the Division of Health Manpower Development, have been invaluable.

B. Pissaro (Paris) has followed our work with

unfailing interest and has carefully read and re-read the intermediate drafts.

We wish to express special thanks to:

S. Abrahamson (Los Angeles), C. McGuire and G. E. Miller (Chicago) for their appreciative comments and even more for their useful and judicious advice.

We should also like to thank all those who have sent us helpful comments and suggestions:

B. Adjou-Moumouni (Lomé), Z. S. Al-Alway (Dacca), P. Alexander (Minneapolis), L. Allal (Geneva), J. L. Argellies (Tunis), W. Barton (Geneva), G. R. Beaton (Johannesburg), A. Benadouda (Algiers), D. Benbouzid, (Algiers), J. Beneke (Copenhagen), D. Benor (Beer Sheva), V. Bergk (Heidelberg), P. J. Blizard (New Delhi), C. Boelen (Tunis), J. Brines (Valencia), S. Bukkavesa (Bangkok), L. Burke (Mogadiscio), F. Canonne (Paris), P. Carteret (Lomé), P. Chaulet (Algiers), D. Clark (London), A. Coelho (Lisbon), A. L. Courtieu (Nantes), K. R. Cox (Sydney), T. O. Crisp (Dacca), L. Daufi (Barcelona), R. Debré (Paris), H. Dieuzède (UNESCO), J. F. D'Ivernois (Paris), C. Di Pasquale (Dakar), S. R. Dodu (Accra), M. A. C. Dowling (Geneva), C. Engel (Newcastle), V. Ermakov (Moscow), W. Felton-Ross (Bloomfield), J. -J. Ferland (Quebec), D. Flahault (Geneva), H. H. Freihofer (Bern), A. T. Garcia (Aden), S. Goriup (Geneva), J. P. Grangaud (Algiers), J. P. Grillat (Nancy), V. F. Gruber (Basel), R. M. Harden (Dundee), E. Harper (Allahabad), H. D. Houran (Kuwait), C. Iandolo (Rome), T. Jaoude (Mogadiscio), C. Jaramillo Trujillo, H. Jason (Miami), T. Javor (Pecs), O. Jeanneret (Geneva), M. Jegathesan (Kuala Lumpur), S. Jones (Visakhapatnam), J. Kadish (Washington), I. Kapoor (Bombay), F. Katz (Geneva), J. Kemp (San José), H. Kolb (Vienna), X. Kondakis (Patra), S. R. Kottegoda (Colombo), M. Ladjali (Algiers), G. Lavoipierre (Geneva), T. B. Lee (Kuala Lumpur), M. Lenghi (Benghazi), G. Lotti (San Remo), I. M. Lovedee (Rangoon), E. Mabry (Bangalore), V. G. MacDonald (Wellington), N. McIntyre (London), J. M. McLachlan (Kuwait), S. Maes (Antwerp), A. Maglacas (Geneva), M. Manciaux (Paris), W. F. Maramis (Surabaya), A. Mazer (Marseilles), D. Melliére (Paris), A. Mejia (Geneva), P. I. Mintchev (Sofia), S. Mokabel (Alexandria), R. Mol (Veldhoven), K. Mowla (Islamabad), E. Muret (Paris), M. Nichol (Katmandu), G. Nicolas (Nantes), C. Nihoul (Ghent), N. M. O'Brien (Amman), G. H. Pauli (Bern), M. Pechevis (Paris), P. Pène (Marseilles), S. L. Purwanto (Djakarta), C. A. Quenum (Brazzaville), A. A. Rahman (Jitra), A. Rodriguez-Torres (Valladolid), J. E. Rohde (New York), L. Roy (Geneva), A. M. Sadek (Alexandria), J. C. Salomon (Paris), G. Scharf (Woipy), C. Searle (Pretoria), J. D. Shepperd (Bangkok), S. Slimane-Taleb (Algiers), A. Stewart (Dundee), V. Subhadra (Calcutta), A. E. Suliman (Dacca), G. Szabo (Debrecen), A. Thein (Rangoon), A. Tigyi (Pecs), A. Torrado da Silva (Coimbra), E. Varga (Debrecen), F. Vilardell (Barcelona), K. Vuylsteek (Ghent), J. Vysohlid (Prague), J. S. Wasyluk (Warsaw), W. Warkentin (New Delhi), M. Yamamoto (Tokyo), J. Yip (Djakarta).

We trust that anyone who has been overlooked will forgive us. Indeed, among the 1250 colleagues who have taken part in workshops with the author, there are many whose questions and opinions have helped in our efforts to ensure that the Handbook is tailored to meet the needs of its users. These contributors are too numerous to be mentioned by name.

Finally, our thanks go to:

P. Duchesne, P. Etienne, M. Magnin, E. Riccard, M. Schaltegger and M. Wolff and to the English editors R. Binz, K. Grinling and C. Stevenson without whose untiring work this document would never have been completed.