12. Help families to use health and administrative bodies concerned with improving child health.

12.1 Ensure health coverage of all children living in his area

12.2 Enumerate the health structures that exist in his area

12.3 Enumerate the administrative, political and economic bodies in his area.

12.4 Assess the role played by each of the preceding in improving child health.

12.5 Organize optimum use of health facilities.

12.6 Promote and enforce measures aimed at improving child health

13. Plan training and retraining of health staff.

13.1 Remedy any gaps in the skills of members of his health team

13.2 Organize the training and/or continuous education of members of the health team.

13.3 Evaluate the training and further education activities of health team staff.

The definition of educational objectives has become almost a fashionable subject of conversation . . defining them is becoming a mark of modernity . . . but, as with all slogans, there is a danger that we shall get used to them without understanding their purpose, their nature, their advantages, their limitations and the risks involved

In drawing up educational objectives, what counts is not their formal definition but their relevance to the professional tasks of the personnel to be trained.

Before going any further, think about the concept of relevance and about the fact that educational objectives are a means and not an end.

It seems reasonable to believe that an educational programme has more chance of being effective if its purposes have been clearly expressed. Experimental research in the field of evaluation indicates that it is not possible to measure the results obtained from an educational system if its objectives have not been explicitly defined. But a desire for precision should not divert us from a much more important concern: the need for *relevance*

To be relevant an educational programme, rather than being the result of a non-selective mass of knowledge accumulated over the centuries, should be selectively shaped in terms of the aims to be achieved Each time the goal is modified, the programme too must be modified accordingly.

Thus relevance is the degree of conformity that exists between training programmes on the one hand and the population's health needs and resources on the other.

When determining educational objectives, therefore, we must take into account the health needs and resources of society, the health professions, the progress of science, the capabilities of the students, the social and cultural context, etc. Moreover, the study made of these factors must be ***prospective***[1] in nature since we are training personnel for the future.

The method traditionally used is to bring together eminent professors and the result of their deliberations is presented as a list of chapter headings. Often, existing programmes are used as the main source of data for the preparation of the new programme The professors indicate the ***number of hours*** to be devoted to the various subjects to be dealt with this generally leads to a conflict of personalities and it is the most forceful, the most persuasive, sometimes the most irascible or noisiest of the participants in the discussions who obtains the largest number of hours. The result is that the time factor becomes a ***constant*** and that ***competence remains an undefined variable*** [2]

In the absence of a definition of relevant educational objectives, discussions on programmes, teaching methods and evaluation methods are difficult and often futile.

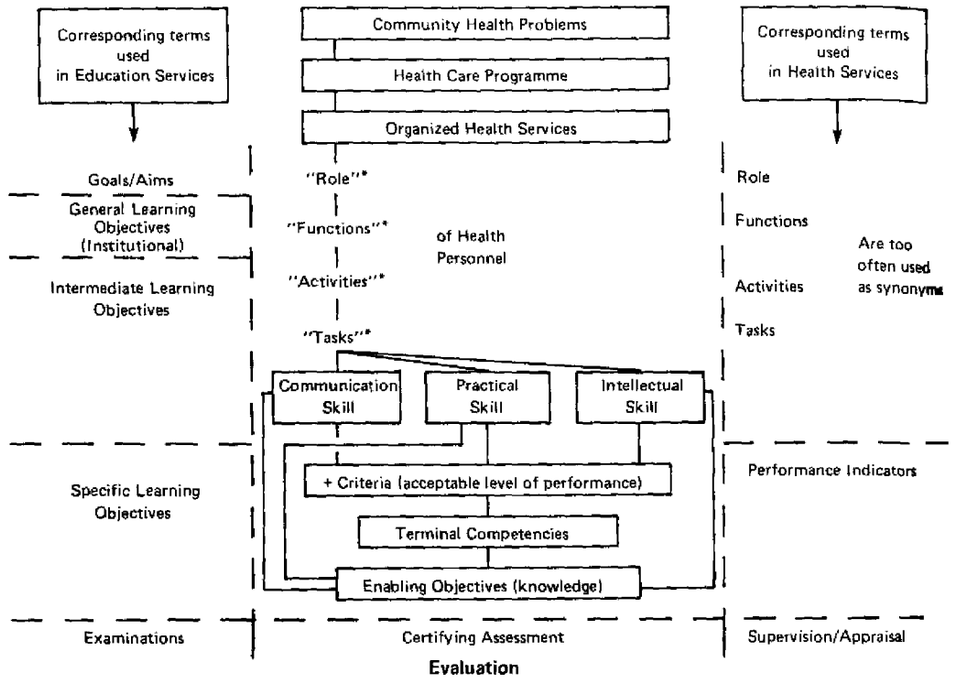
When educational objectives have been established at the intermediate level (lists of activities), it is then possible to determine with some precision which learning activities are likely to facilitate the attainment of an objective and which are not.

Methods of evaluation (of students, teachers and methods) will also depend on the objectives to be achieved. Evaluation consists in being able to say to what *exrent* and *how* the objective set has been achieved. If one has not bothered to lay down a ***measurable*** objective, it will be difficult to make any kind of evaluation. To select a type of examination (to use an old-fashioned term) without educational objectives makes no more sense that to try to choose a measuring instrument without knowing what has to be measured. Only over the last two decades have investigators in the field of testing and measurement begun to work out a solution to this problem. Here, too, the weight of tradition and emotional reactions make themselves felt.

[1] The epidemiological, sociological data, etc., and the operational research necessary for such a prospective analysis are not dealt with in this Handbook. For information on these matters the reader should consult specialized publications dealing with the organization of health services (see Bibliography, p 7 01 *et seq*)

[2] For example, the length of medical studies is fixed by administrative regulations at 6 years (or 7, 5 etc) this is the time constant On the other hand, there is hardly any definition of the competence of graduates, and this can lead to great variability

Built-in relevance approach to educational planning



some definitions *

Role: Pattern of motives and goals, beliefs, values, attitudes and behaviour (played by a person in society) which one has to assume (o); *functions* performed by someone (w); "the role of a teacher".

Function(s): A set of *activities*, expected of a person by virtue of his position. (The function of a chairman is to "preside over meetings") (w).

Activity: A combination of specific tasks whose fulfilment leads directly to the achievement of a function.

Task(s) Any piece of work that has to be done (o); a specific piece of work expected to be finished within a certain time; *a set of actions* necessary to the fulfilment of a given activity.

Competence (y) Ability required to carry out a task; sufficiency of qualification (o); the quality of being functionally adequate or having sufficient skill for a particular function; competence is a potential which is realized at the moment of performance.

Performance The carrying out of a task: the doing of any *action* or work; the execution of an action;

Action: The process of doing, working (o).

Skill Practical knowledge in combination with ability (o).

dexterity in the execution of learned physical or intellectual *tasks* (w).

*Sources: Oxford English Dictionary (o), Webster (w).

professional tasks and specific educational objectives

Having established the principal functions that outline the role of a health worker, we then went on to achieve a greater degree of precision by describing the activities corresponding to each function. Now we must go further and define each of the specific professional tasks corresponding to each activity. Let us continue with the example furnished by our Algerian colleagues.

They decided to define the tasks corresponding to activity 11.4: "Organize reception and surveillance of emergency cases" (see p. 1.31).

Here is the list:

11.4.1 Check the availability of equipment needed for emergencies (drugs, instruments, beds), using a checklist.

11.4.2 Treat, in order of urgency, several patients who arrive at once.

11.4.3 Support the vital functions of a child, in accordance with an *ad hoc* outline of procedures.

11.4.4 Avoid any action that could endanger the life of the child.

11.4.5 Handle the child gently.

11.4.6 Reassure the child.

11.4.7 Explain to the parents why the child must be kept in hospital.

11.4.8 Offer moral support to the parents.

11.4.9 Organize a surveillance schedule for an emergency case (cf. activity 1).

11.4.10 Decide to move the patient.

11.4.11 Plan the move.

11.4.12 Prepare a newborn baby for transfer.

11.4.13 Prepare a child for transfer.

11.4.14 Explain to the parents how the administrative structures involved in admissions and departures function.

11.4.15 Identify the various administrative structures involved in a referral.

11.4.16 Distribute work among health personnel assigned to the emergency service.

11.4.17 Elicit the reasons for various surveillance activities from nursing staff.

11.4.18 Explain the reasons for various surveillance activities to nursing staff.

11.4.19 Reassure the mother of a child admitted to hospital.

The definition of educational objectives must result from a collective effort, in which the students have a part to play.

Any hopes that teachers may have of developing the *motivation* of students will be realized only when the latter have really been able to make a choice, that is, to decide for themselves on the tasks (educational objectives) to be performed. For this the tasks (objectives) must be clearly defined and presented as a choice; *it is even better if the students can participate in their formulation.*

identifying the components of a task

An analysis of the tasks listed above shows that performance of some tasks involves not only ***practical skills*** (e.g., handle the child . . . . , 11.4.5) but also ***communication skills*** (same example; handle the child gently) and, finally, ***intellectual skills*** (e.g., distribute work among health personnel, 11.4.16). All three components are involved in some tasks, in others, only two (e.g., 11.4.5 or 11.4.16) and sometimes only one (11.4.11). In some cases the various components (practical, communication and intellectual skills) overlap to such an extent that it is possible only to identify the one that predominates. For example, "Offer moral support to the parents" (11.4.8) is ***principally*** a matter of attitude (communication skills). Of course, in some cultural contexts this could be expressed by an act, a gesture or a tone of voice. To know what attitude to adopt, previous ***knowledge*** of the milieu and its customs is obviously necessary. Another example is "Decide to move the patient" (11.4.10). This is primarily an

"intellectual" problem. The decision (intellectual activity) will be taken on the basis of the information available at a given moment. Of course, that information will have been obtained by means of practical skills (physical examination of patient) and the human aspect of the problem cannot be overlooked To sum up, it can be said that a professional task will often be represented by practical skills. Since those practical skills usually involve another person (the patient, his family, a colleague), a certain *attitude* (communication skill) will be appropriate. Lastly, some measure of intellectual skill *(knowledge)* will be needed for performance of the *task*

Identification of all the components of each task is therefore recommended, to ensure that each component is taken into account during the successive stages of the educational process. The learning process and teaching activities will be designed to facilitate assimilation of each component, and the same will apply when the time comes to evaluate the students.

The classification that follows will help you by providing more details about the three domains of practical, communication and intellectual skills.

If the jargon seems obscure, remember to consult the Glossary (p 6 01 *et.seq*).

classification of educational objectives into three domains: practical, communication and intellectual skills[1]

To help teachers in precise formulation of educational objectives, systems of classification into domains (practical skills; attitudes or communication skills; intellectual skills and knowledge) and within each domain (different levels of the process) have been put forward by various specialists in education and psychology.

One of their reasons was to try to clear up the confusion resulting from the use of ambiguous objectives such as "The student should have a good understanding (or knowledge) of . "

For some, "good understanding of the law of X" may mean that the student should be capable of giving the mathematical formula for the law or saying what it means, and for others that he should also be able to use the formula to solve a problem or show the interdependence of the law in relation to other phenomena. No one questions the need for students to have a "good understanding" of a particular phenomenon, law or principle, fact or theory. However, what satisfies one teacher and enables him to say whether a student has in fact achieved a "good understanding" may be very different from what would satisfy another teacher, unless they have agreed on what they mean by "good understanding" through the use of unambiguous terminology.

Education studies have often been criticized for the imprecision of their terminology and concepts. The chief value of a classification is that it enables educators to communicate more precisely among themselves.

This improved understanding will enable those responsible for programme construction to work together. A classification system could also be of use in evaluating the results of a system of education.

Definition and evaluation of the quality of the instruction in a school, country or region poses a very difficult problem, and a well-designed system of classification can play an important role in finding a solution. Another important function is to help educators to prepare examinations for students who have received instruction A classification is also useful in general as a research tool in education and evaluation

We do not feel that strict classification is possible. Overlapping of adjacent categories will occur everywhere, as is the case in all aspects of human thought and activity. What counts is not to label but to understand and to develop a common language.

We do not propose to give a detailed account of the various classification systems put forward by B. S. Bloom, D. Krathwohl, R. Gagne or E. Thorndike. We shall limit ourselves to presenting an appropriate and simplified classification for each of the three domains.

1. ***Domain of attitudes (communication skills)***. The dictionary tells us that an attitude is "behaviour representative of feeling or conviction; a persistent disposition to act either positively or negatively towards a person, group, object, situation or value". (Webster)

For the purposes of this Handbook we shall restrict this domain to everything concerning relations between health personnel and the members of the community they will serve It will therefore be almost entirely a matter of ***interpersonal relations*** This is why it is referred to as a communication skill. Three levels can be distinguished.

1.1 The first is the level of ***Receptivity*** or attention; it implies sensitivity to the existence of a certain phenomenon and includes a willingness to receive.

Example: **Noticing the anxiety of a patient awaiting the result of a laboratory test for a disease that can have serious consequences.**

1 2 The second level is that of **Response** This implies sufficient interest in the phenomenon noticed to do something about it.

Example: **In the case described in the previous example, the response would be to say a few reassuring words to the patient so that he does not feel alone**

[1] Summary of an article by Dr. J -J Guilbert, *Didakta Medica*, February 1971.

1 3 The third level is that of ***Internalization.*** This implies that your perception of a phenomenon has found a place in your scale of values and has affected you long enough for you to adapt yourself to the value system of the other person. This enables you to adapt your attitude to the other person *as if* you were experiencing the same phenomenon yourself.

Example. **On the death of a child, your attitude to members of his family will show them that you care about their grief and are ready to help them to get over it. This does not mean that you have internalized their grief but that you have internalized the attitude that enables you to offer them effective help.**

2. ***Domain of practical skills***

By this we mean the routine actions carried out by health workers (intramuscular injection, lumbar puncture, etc.).

Three levels can be distinguished.

2 1 The first level is that of ***Imitation.*** The student, exposed to an observable action, makes an attempt to copy it step by step, guided by an impulse to imitate: he needs a model.

Example: **A student nurse who has seen intramuscular injections performed before her several times tries to imitate the movements involved . . using an orange.**

2.2 The second level is that of ***Control.*** At this stage the student is able to demonstrate a skill according to instructions and not merely on the basis of observation. He also begins to differentiate between one set of skills and another and to be able to choose the one required. He starts to be adept at handling selected instruments.

Example: **The student becomes accustomed to carrying out certain acts while performing routine minor surgery under supervision.**

2.3 The third level is that of ***Automatism.*** A high degree of proficiency is attained in using the skill, which now requires only a minimum of energy.

Example: **An experienced nurse washes a bed-ridden patient carefully and without causing any discomfort, or a physician deftly intubates a road accident victim in the midst of the surrounding confusion.**

3. ***Domain of intellectual skills***

In 1963, C. McGuire[1] proposed a classification system derived from that of Bloom[2] and designed more specifically for use in the preparation of achievement tests for students.

Levels

1. Knowledge
   - 1.1 Recall
   - 1 2 Recognition of meaning
2. Generalization
3. Solving of a routine problem
   - 3.1 Interpretation of data
   - 3 2 Application
4. Solving of an unfamiliar problem
   - 4.1 Analysis of data
   - 4.2 Special application
5. Evaluation
6. Synthesis

Three levels are probably enough for the purposes of defining educational objectives and student evaluation. The three levels are taken from McGuire's system.

1 Recall of facts
2 Interpretation of data.
3 Problem solving.

3.1 The first level is that of ***Recall*** of facts. This involves remembering the facts, principles, processes, patterns and methods necessary for efficient performance of a professional task

Example: **The student must be able to converse with his fellows and his teachers using professional language which he should understand *without constant reference to a dictionary or other text;* or communicate orally with members of society; or communicate in writing (scientific articles, reports, findings, etc.).**

3.2 The second level is that of ***Interpretation of data.*** This is a process of application or use of ideas, principles or methods to deal with a new phenomenon or situation

Example. **After analysing observable data, the student interprets their meaning, grasps their relationships and arranges them into a known pattern.**

3 3 The third level is that of ***Problem solving*** (relating to diagnosis, treatment, organization, etc.). This at best should include finding solutions for a problem arising from new situations with no precedent to serve as a guide

Example. **The student, faced with a pathological condition for which he has not been prepared, is able to get on the right track by applying scientific methods and a sound experimental approach**

The only purpose of these classification systems is to permit analysis of the learning process and to help teachers in educational decision-making. It is obvious that human behaviour can rarely be divided neatly into practical, communication and intellectual skills. The same division in objectives is somewhat artificial Neither teachers nor those responsible for preparing programmes can separate them entirely

These differences will remain artificial as long as we lack the instruments of evaluation needed for simultaneous study of learning experiences in the various domains (practical, communication and intellectual skills). It is to be hoped that explicit definition of educational objectives will gain in importance so that research workers in education can solve certain problems and the choice of appropriate teaching methods will be made easier.

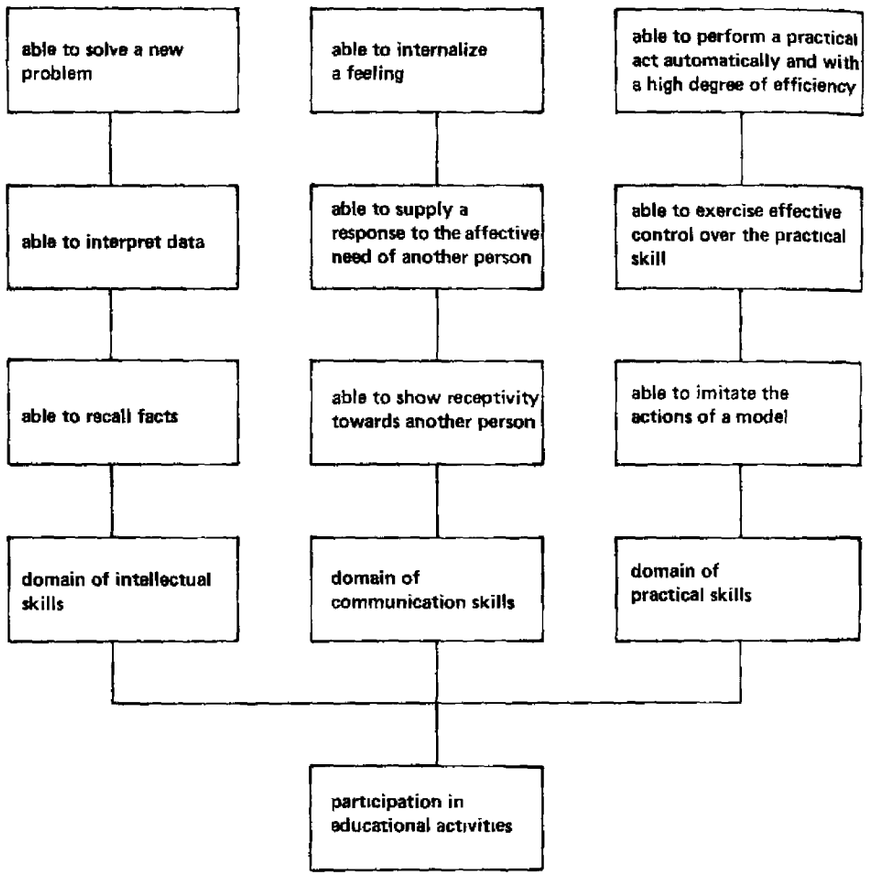
The coding of information for scientific purposes involves reduction of the individual to a few basic characteristics.

Beware! Oversimplification of data can lead to absurd conclusions

[1] Centre for Education Development, University of Illinois Medical School

[2] Bloom, B.S (ed.), Taxonomy of Educational Objectives, Handbook 1 The Cognitive Domain, David McKay, New York, 1956

the three classifications (simplified)



Note: Please remember that in human behaviour the three domains are often intricately connected.

EXERCISE

Indicate by a cross the components [practical skill (P), communication skill (C) or intellectual skill (I)] of each of the 19 tasks listed below.

Mark two crosses in the box corresponding to the dominant component

Domains			*List of Professional Tasks*
P	C	I	
			1 Check the availability of equipment needed for emergencies (drugs, instruments, beds), using a checklist.
			2. Treat, in order of urgency, several patients who arrive at once.
			3. Support the vital functions of a child, in accordance with an *ad hoc* outline of procedures.
			4. Avoid any action that could endanger the life of the child.
			5. Handle the child gently.
			6. Reassure the child.
			7 Explain to the parents why the child must be kept in hospital
			8 Offer moral support to the parents.
			9. Organize a surveillance schedule for an emergency case.
			10. Decide to move the patient.
			11. Plan the move.
			12. Prepare a newborn baby for transfer.
			13. Prepare a child for transfer.
			14 Explain to the parents how the administrative structures involved in admissions and departures function.
			15 Identify the various administrative structures involved in a referral
			16. Distribute work among health personnel assigned to the emergency service.
			17 Elicit the reasons for various surveillance activities from nursing staff.
			18. Explain the reasons for various surveillance activities to nursing staff.
			19. Reassure the mother of a child admitted to hospital.

Compare your answers with those of the author of the Handbook, page 1.51.

Personal Notes

definition of specific educational objectives

– Refer to the example of a task (p.1 19)

"Using a syringe, take a blood sample (5 ml) from the cubital vein of an adult".

– Break it down into components The main component is a *practical skill*, but the other two (*communication* and *intellectual skills*) are also involved

– The criteria proposed in this example (absence of haematoma, amount of blood taken within 10% of the amount required, not more than two attempts) confirm that the person who set the task considered the *practical skill* to be its principal component.

– This type of act occurs frequently in the daily routine of health workers. It resembles the administration of intramuscular injections, lumbar punctures, puncture of ascites, pleura or articulation, gastric intubation.

– The *communication skill* appropriate to all these acts will be the same It can be defined by acceptable types of behaviour which, when described in an observation table, can be used as criteria (introducing yourself to the patient, making sure that he knows what you are going to do, etc.).

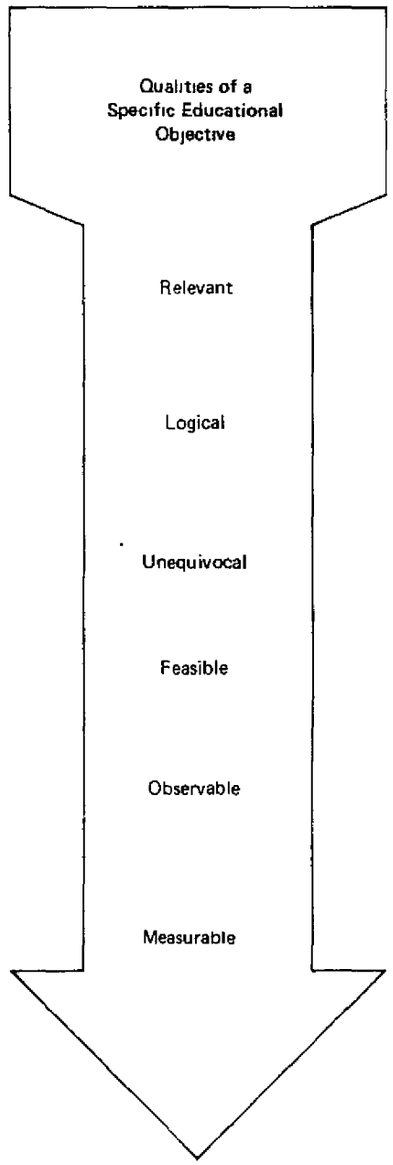
– For all these acts a certain amount of theoretical knowledge or *intellectual skill* is needed (anatomy, sterilization procedures, secondary effects, etc.)· this is usually the *prerequisite level* which in its turn can be defined in terms of specific *contributory* educational objectives: (also called enabling objectives):

- sketch from memory the position of the cubital vein.
- list the measures to be taken to ensure sterility during the act.

(in both cases criteria should be established from a textbook)

To sum up, a specific educational objective can be defined as a task accompanied by a criterion indicating an acceptable level of performance for its principal component.

Specific Objective = Task + Criterion



What are the qualities of a specific educational objective?

It must be all of the following:

- *Relevant* Its definition should be free of any superfluous material but cover every point ***relating to the aims in view***, i.e., the general objectives derived from the health needs of society
- *Unequivocal* "Loaded" words (words open to a wide range of interpretations) should not be used, to avoid any possibility of misunderstanding. What do we mean when we say we want a student to "know" something? Do we want him to be able to recite, or to solve, or to construct? To say merely that we want him to "know" tells him too little or too much. The objective is unequivocal when you describe what the learner will have to *do* to demonstrate that he "knows" or "understands", or "can do".
- *Feasible:* It must be ensured that what the student is required to do can *actually* be done, within the time allowed and with the facilities to hand. Remember, too, the basic condition for feasibility: the minimum (practical, communication and intellectual skills) to qualify for the course. This is the ***prerequisite level.***
- *Logical* the objective must be internally consistent
- *Observable.* it is obvious that unless there is some means of observing progress towards an objective, it will be impossible to tell whether the objective has been achieved
- *Measurable* One often hears "most of what I teach is intangible and *cannot be measured".* Even rough measurement is better than none at all, for if no measurement is made instructors tend to assume that a goal has been achieved just because they have taught the subject If your teaching skills cannot be evaluated, you are in the awkward position of being unable to demonstrate that you are teaching anything at all That is why the objective ***must include an indication of acceptable level of performance*** on the part of the student.

  This does not mean that an objective that does not lend itself to measurement by present-day techniques is necessarily a "bad" objective. On the other hand, the existence of a criterion for measurement will make it easier to choose or construct a valid evaluation mechanism, however sketchy this mechanism may be at the start.

Prerequisite Level

What the learner has to be able to "do" before undertaking an educational programme.

words often used but open to many interpretations	words open to fewer interpretations
to know	to write
to discuss	to identify
to understand	to differentiate
to really understand	to solve
to appreciate	to construct
to fully appreciate	to list
to believe	to compare
to have faith in	to contrast

etc.

Mager, 1962

List of active verbs for stating educational objectives

– nonrestrictive list –

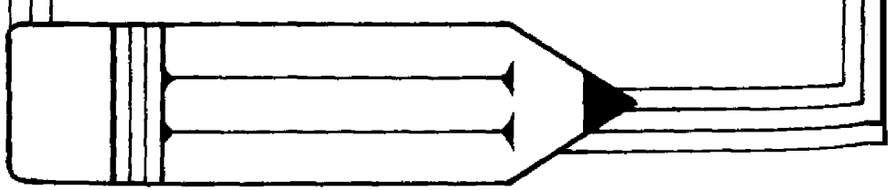
Abbreviate	Derive	Insert	Reconstruct
Act	Describe	Integrate	Record
Administer	Design	Isolate	Recount
Aid	Designate	Justify	Reduce
Allow for	Detect	Label	Regroup
Analyse	Determine	Lead	Relate
Apply	Develop	List	Remove
Appraise	Diagnose	Locate	Reorder
Arrange	Diagram	Maintain	Reorganize
Assist	Differentiate	Make	Rephrase
Ask	Direct	Manipulate	Replace
Assemble	Discover	Map	Request
Attend	Discriminate	Match	Reset
Audit	Display	Measure	Resolve
Avoid	Dissect	Meet	Respond
Bring	Distinguish	Mobilize	Restate
Build	Divide	Modify	Safeguard
Calculate	Do	Move	Select
Care for	Draw	Name	Send
Categorize	Edit	Narrate	Separate
Change	Effect	Note	Serve
Chart	Encourage	Obtain	Set
Check	Enumerate	Omit	Share
Choose	Enunciate	Operate	Simplify
Circle	Establish	Oppose	Solve
Cite	Estimate	Order	Sort
Clean	Evaluate	Organize	Speak
Close	Examine	Outline	Specify
Collaborate	Exchange	Paraphrase	Start
Collect	Execute	Participate	State
Communicate	Explain	Perform	Store
Compare	Extract	Pick	Structure
Compile	Extrapolate	Place	Suggest
Complete	Facilitate	Plan	Supply
Compute	Fill	Play	Support
Conclude	Find	Plot	Synthesize
Conduct	Follow	Point	Tabulate
Connect	Formulate	Position	Take responsibility (for)
Construct	Furnish	Practise	Teach
Contrast	Generalize	Predict	Tie
Contribute	Generate	Prepare	Time
Control	Get	Present	Trace
Convert	Give	Prevent	Translate
Cooperate	Guide	Prognose	Treat
Correct	Hold	Promote	Underline
Create	Identify	Protect	Use
Criticize	Illustrate	Provide	Utilize
Decide	Implant	Pursue	Verify
Decrease	Include	Put	Wash
Deduce	Increase	Raise	Weigh
Defend	Indicate	Read	Work
Define	Induce	Rearrange	Write
Delimit	Infer	Reassure	
Demonstrate	Inform	Recite	

EXERCISE

If you feel the list on the previous page is incomplete, go ahead . . . . add the active verbs relating to the category of health personnel that interests you.

Relevance is
the essential quality
of educational objectives

Objectives which have every
quality except relevance
are potentially dangerous



elements of a specific educational objective

the act
the content
the condition
} the task

\+ the criteria

To say what one means by an objective is neither to reduce the importance of the objective nor its profundity . the act of writing it down means merely that what was once secret is now open for inspection and improvement.

R F. Mager

description of the elements of a specific educational objective

- Act and Content

  — The ***act*** is the description of the task aimed at, expressed by an active verb.

  — The ***content*** specifies the subject, the theme or substance in relation to which the act is to be performed.

  Example: ***"Repair*** a binocular microscope" or ***"take*** a sample of venous blood" The ***act*** is the verb in italic, the rest of the sentence is the ***content (or subject)***.

  It is perfectly acceptable for the description of the *act* (of a specific objective) to be stated in terms of a ***"performance indicator"*** and not in terms of the ***actual act*** required, as long as the latter is quite clear.

  The ***performance indicator*** is the description of an act whose satisfactory performance implies that the student *is* able to accomplish the actual act required

  Example: ***"Underline*** in the diagram the names of all the veins that pass *in front* of the corresponding artery".

  Here it is obvious that if the act consists of "underlining" it is only a performance indicator from which it can be inferred whether the student is able to "distinguish veins passing *in front* from those in any other position".

  In all cases, the appropriate procedure with regard to the *act* (the actual act or a performance indicator) is as follows:

  1 Identify the act (for example, by underlining it in the sentence)

  2. Decide whether it is an ***actual act*** or a ***performance indicator***.

     2 1 If it is a performance indicator, decide whether it enables an inference to be made concerning the actual act.

     (a) If so, decide whether it can be simplified and whether it corresponds to the student's level.

     (b) If not, write another one

     2.2 If it is an actual act, decide whether it is explicit or implicit

     (a) If it is explicit, decide whether it can be simplified and whether it corresponds to the student's level

     (b) If it is implicit, include a "performance indicator"..

- Condition

  — This is the description of the circumstances in which the act must take place (data, restrictions and limitations).

- Criterion

  — The definition of the *acceptable level of performance* expected from the student

□ □

Let us take a *specific* educational objective and identify each of its ***elements:***

"Identify on frontal X-ray films of the thorax the presence or absence of opacities of the pulmonary parenchyma, of more than 2cm diameter in 80% of cases."

Act: "Identify the presence" indicates the act to be performed.

Content "Opacities of the pulmonary parenchyma."

Condition "Frontal X-ray films of the thorax" are provided to the student.

Criterion. The student must identify "in 80% of cases any opacity of over 2cm diameter".

□ □

EXERCISE

You can check your choice by turning to p. 1.60, questions 15 -- 20 and the answers on p. 1 62

Identify the four elements of the following objective:

To be able to: repair a binocular microscope (brand X, Y or Z) having been informed of the defect and given a descriptive diagram, appropriate tools and spare parts, so that the microscope functions according to specifications.

- *Act*
- *Content.*
- *Condition:*
- *Criterion:*

Answers to exercise on page 1.41

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
P		++	++		+							++	++					+	
C		+	+		++	++	++	++				+	+	+	+	+	++	+	++
I	++	++	+	++			+		++	++	++	+	+	++	++	++	+	++	+

If your choices were different, it does not necessarily mean they are "wrong". Possibly the active verbs used for some of the tasks are open to several interpretations.

EXERCISE

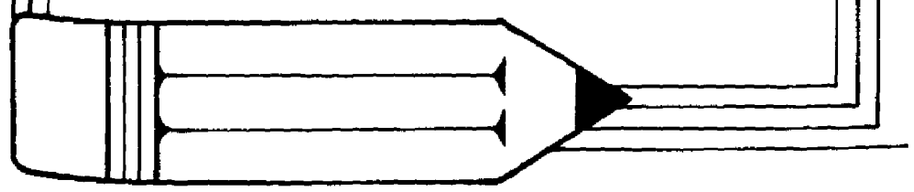
Please Note! Before starting this exercise cover the area inside the dotted line ○○○○○○○

Decide which of the specific educational objectives given below (prepared by participants in workshops) conform to the standards described in the preceding pages. Is each one really a professional task? Does it include an act and content, conditions and a criterion? (Answer Yes or No) What is its principal component?

	Specific educational objectives. The student must be able to.	Professional task	Act and content	Condition	Criterion	Principal component C	P	I
1	Make a differential diagnosis of anaemia on the basis of a detailed haematological picture described in the patient's records.	Yes	Yes	Yes	Yes			++
2	Determine the health conditions of a family in its environment by making three home visits.	Yes	Yes	Yes	No	+		++
3.	During a prenatal consultation, recognize at least three major symptoms of pre-eclampsia.	Yes	Yes	Yes	Yes		+	++
4	Give oral care with the available equipment (according to technical sheet X) to a patient confined to bed and conscious	Yes	Yes	Yes	Yes	+	++	
5.	Read one issue of a professional journal every fortnight, outside working hours. Criterion: write a summary (not more than 10 lines) of at least one of the articles.	Yes	Yes	Yes	Yes			++
6	During a prenatal consultation, carry out examinations for detecting and preventing complications of pregnancy (according to technical sheet Y).	Yes	Yes	Yes	Yes	+	++	+
7.	Make a survey (prepare questionnaires, carry out the survey, interpret the results) of the habits and customs of a population for the identification of those which represent a danger to health.	Yes	Yes	No	No	+		++
8.	Give from memory two *similar* and two *dissimilar* characteristics concerning the immunological value of and the epidemiological indications for (a) inactivated, and (b) attenuated polio vaccines	No	Yes	Yes	Yes			++
9	Measure the length of a newborn baby, using an infant measuring board, with a maximum error of 1 cm	Yes	Yes	Yes	Yes	+	++	
10.	Identify by microscopic examination three of the following micro-organisms: meningococcus; Hansen's bacillus; human tubercle bacillus; gonococcus.	Yes	Yes	Yes	Yes		+	++
11	Using an optical microscope (magnification x 40), diagnose granulation tissue on a slide in five minutes, indicating at least five points of recognition present on the slide.	Yes	Yes	Yes	Yes		+	++
12	Make a macroscopic diagnosis of a benign breast tumour in an operation specimen and indicate at least four characteristics of benignity observed.	Yes	Yes	Yes	Yes			++

Don't forget!

The essential quality of educational objectives is their *relevance* to the health needs of society



EXERCISE

1 Draw up **specific** educational objectives[1] corresponding to **three** professional tasks that are familiar to you, stating explicitly what you feel the student should be able to "do" in relation to the general and intermediate objectives.

2. Identify the principal component of each objective (domain of practical, communication or intellectual skills).

3. Define the *criterion* indicating the *acceptable level* of performance for each objective.

The student must be able to perform the following tasks:

1st task

2nd task

3rd task

[1] If necessary, refer back to the section dealing with their essential qualities, pp 1.35 – 1.50.

4 For one of the tasks, describe the theoretical knowledge you think the student should have if he is to be capable of working towards the corresponding objective.

Set out the content of this *prerequisite level* in the form of *specific educational objectives*. Check that they include all the necessary elements (act and content, conditions, criteria).

To show that he has the knowledge needed for task no. . . . . , the student must be *able to:*

5. For one of the tasks describe features of behaviour showing that the student has the communication skills you would regard as adequate were he responsible for a member of your own family. Describe this behaviour in terms of specific objectives.

For task no. . . . , the student should have the attitude shown by the fact that he is *able to:*

EXERCISE

Check your Results

Indicate whether each of the specific objectives you have defined above satisfies the following conditions.

(1) Is it really a professional task (or derived from one)? (2) Has the principal domain been identified? (3) Does it include the **four elements: act, content, condition and criterion?** (The criterion must relate to the principal component: communication skill (C), practical skill (P) or intellectual skill (I)).

Objective	Professional Task	Domain(s)[1]			Act	Content	Condition	Criterion
	Yes / No	C	P	I	Yes / No	Yes / No	Yes / No	Yes / No
1								
2								
3								
4								
5								

[1] Indicate the principal component by ++, others by +.

EXERCISE

Instructions: for each question select **one** answer.
(Check your answers on p. 1.62)

Question 1.

Which of the following statements is in **contradiction** to the theories expounded in this chapter:

A. The change in behaviour resulting from a learning activity is called performance.

B Final behaviour is the designation of the observable act which will be accepted as proof that the student has achieved a given educational objective.

C The definition of the objective of a course is a description or summary of the programme.

D. The teaching intent explained by the educational objective indicates what should be the final behaviour of the student.

E None of the above statements.

Question 2.

An educational objective corresponds to all the following elements **except one.** Indicate which.

A. It is sometimes also called a learning objective

B. It defines explicitly what the teacher should do.

C. It should be the basis for the preparation of the students' timetable.

D It can be general or specific.

E. It is defined in behavioural terms corresponding to the tasks to be accomplished.

Question 3

Mager stresses the need to define educational objectives in operational terms (description of the type of behaviour aimed at). Among the following qualities select the one **which does not** correspond to one of the advantages sought by this technique.

A It enables the student to evaluate his progress throughout his period of learning.

B It enables the instructor to choose relevant examination questions.

C. It enables the instructor to make a satisfactory choice of teaching methods.

D. It enables the student to acquire a thorough knowledge of the content, organization and timetable of a course.

E It enables the student to show clearly, at the end of the course, whether or not he has acquired specific types of behaviour.

Question 4.

A specific educational objective has all the following qualities **except one.** Indicate which

A. It clearly communicates an educational intent

B. It makes objective evaluation possible

C. It defines a measurable behaviour.

D. It establishes success criteria.

E. It facilitates analysis of functions and tasks

Question 5.

Indicate which of the following statements **does not correspond** to the principles of rational and effective educational planning:

A. Institutional objectives should be defined before selecting a student evaluation system

B. Institutional objectives should be derived from the objectives of the various departments of a school.

C. Regional health needs should be considered before drawing up an educational system for training members of the health team.

D. Educational objectives should be defined before selecting educational methods and learning activities.

E. National resources and budgetary constraints should be taken into account before defining general objectives.

Questions 6 to 11.

There have been numerous classifications of the intellectual process. One of them considers three domains:

1 domain of communication skills.
2. domain of practical skills.
3. domain of intellectual skills.

Using the following code.

A = 1	D = 1 and 3
B = 2	E = 2 and 3
C = 3	

indicate the domain(s) to which the following objectives correspond:

Question 6.

A The student should be able to name four new ideas concerning tuberculosis control.

Question 7.

B The student should be able to measure the length of a newborn infant with a maximum error of 1 cm

Question 8.

The student should be able, when contraceptives are requested by an 18-year-old girl, to give information on four available methods without expressing any moral judgement

Question 9.

The student should be able to avoid giving guilt feelings to a five-year-old enuretic child.

Question 10.

The student should be able to construct, using simple data already tabulated, a histogram including title, coordinates and additional details without any mistake in the curve.

Question 11.

The student should be able to make a health education poster for an anti-smoking campaign, given a model and the necessary materials (paper, felt, charcoal, coloured pencils, glue, scissors).

Question 12.

Indicate which of the following definitions corresponds to the prerequisite level:

A. What the student should be able to do at the end of the curriculum.

B. What the teacher should summarize before every course so as to place all the students on the same level.

C. The level reached by the student while pursuing an educational objective.

D. What the student should be able to do before undertaking an educational programme.

E. None of the above.

Question 13.

Which of the following statements best corresponds to the educational aim to be achieved:

A. The student is perfectly familiar with the anatomical structure of the thorax

B. The student appreciates the approach centred on the basic needs of the patient.

C. The student describes in writing the various steps of a nursing care plan in relation to the needs of a patient.

D The student has a thorough knowledge of the differences between a normal and a premature infant.

E. The student has a thorough understanding of professional ethics.

Question 14.

Indicate which of the following statements best corresponds to the four qualities of an educational objective:

A. The teacher will give five one-hour lectures to a group of 20 undergraduate students. The lectures will deal with the physiopathological mechanisms of the inflammatory process

B. During a simulation exercise, the student will give a brief written definition of the problem (at least 25 words) and list at least three alternative solutions, indicating which he would adopt and giving the reasons for his choice.

C. The student will show his knowledge of the mechanism of the action of aspirin on the subcortical cells.

D Using an optical microscope (magnification x 40), the student will diagnose granulation tissue in five minutes, indicating at least four diagnostic elements present on the slide.

E. The student will demonstrate to his teacher, at the patient's bedside, that he has a good grasp of clinical method and sound critical judgement, without any prejudice to his relationship to the patient.

Questions 15 – 20.

Instructions. The following statement comprises certain elements numbered 1 to 4. Using the code given below, select the element(s) that correspond to each of questions 15 – 20.

(1) Repair (2) a binocular microscope (brand X, Y or Z) (3) having been informed of the defect and given a descriptive diagram (of brand X, Y or Z), appropriate tools and spare parts, (4) so that the microscope functions according to specifications.

A 1	E 1, 2
B 2	F 1, 2, 3
C 3	G 1, 2, 3, 4
D 4	

Questions 15: Which is the task? E

16: Which is the act? A

17: Which is the specific educational objective? B

18: Which is the content?

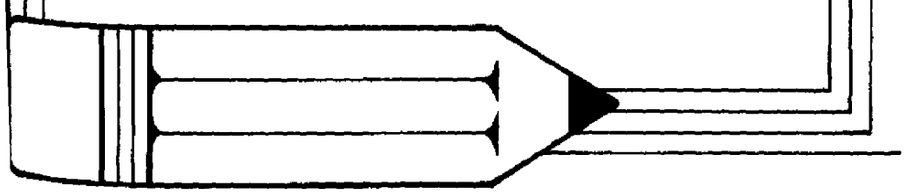
19: Which is the condition? C

20: Which is the criterion? D

If you help each learner to develop his/her learning objectives you may not have to do much else.

adapted from Mager

What if it were true?.....



Suggested answers for the exercise on pages 1.57 – 1.60

Questions	Suggested Answers	* If you did not give the right answer, reread the following pages:
1	C	1.03 – 1.36
2	B	
3	D	
4	E	
5	B	
6	C	1.36 – 1.41
7	B	
8	D	
9	A	
10	E	
11	B	
12	D	1 44
13	C	1.43 – 1.50
14	D	1.49 – 1.52
15	F	
16	A	
17	G	
18	B	
19	C	
20	D	

notice to the reader

With some effort you have probably been able to reach most of the *objectives* indicated on page 1.02, this is the first and most important step but there is still a long way to go Even to define all the specific objectives of your present teaching will be a long job And after that you must make sure that they correspond to the general objectives, whether explicit or not . . and it would be reassuring to know that they are really geared to the health problems of tomorrow's population. Never forget relevance! And that is not all! Recent studies seem to show that teachers do not know how *to use* the educational objectives they have defined. There is no point in defining thousands of specific objectives if they are not then used as a reference for preparing the educational activities which will lead to their achievement

There are other awkward questions. Do the objectives you have defined really reflect what is important or merely what is relatively easy to set out in the form of objectives? Will they really help the students, and will the latter be better trained than if . . etc.

You will be faced with these arguments sooner or later, probably by those who make no attempt to define their own objectives or to learn how to use them Whatever the limits and drawbacks of this approach is has the undeniable advantage of enabling studies to be made and research to be carried on To find replies to the questions raised above and many others there is an urgent need for research whose scientific rigour will increase the credibility of the arguments, theories and hypotheses *put* forward by education specialists For, however logical arguments may be, they must be backed up by some proof Thus any attempt at dogmatism in this field or insistence on defining objectives at all costs should be avoided These indispensable studies will call for considerable experimentation.

You can help in carrying out such experiments.

If all this has not discouraged you, go on to the next chapter. Good luck!

It would be dangerous to measure with ever-increasing precision and objectivity educational objectives that are easy to measure (intellectual skills) and to neglect the more difficult ones (communication skills) what must be measured are those that are important for the patient and the community.