

Special Needs Institutions: Description, Recording and Analysis of Interventions and Services

Formal Model and Practical Applications

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Abstract

We present here a model of description and classification of the interventions and services given by institutions of special education based on a formal model of componential analysis. By proceeding in this way we obtain comparable data despite the heterogeneous nature of the practices and theoretical references of the given institutions. This procedure allows us to determine if the material and human organizational means deployed by these institutions during the time these children are under their care can produce the desired effects. In a second phase we envisage the possibilities of application of this model to the analysis and follow up of individual pedagogical, educational and therapeutic projects on the one hand and projects concerning the institutions themselves on the other.

Keywords : classification of the interventions, analysis of activity, assessment, special education, special needs institutions.

Résumé

Nous présentons ici un mode de description et de classification des actes et prestations délivrés par les établissements sociaux et médico-sociaux, fondé sur un modèle formel d'analyse componentielle. Ce mode de description permet d'obtenir des données comparables en dépit de l'hétérogénéité des pratiques et des références théoriques des établissements concernés. Ce dispositif permet de déterminer si moyens organisationnels, matériels et humains mis en œuvre par ces établissements spécialisés dans la prise en charge d'enfants en difficulté permettent de produire les effets attendus de ces prises en charge. Nous évoquons ensuite les possibilités d'application de ce modèle à l'analyse et au suivi des projets individuels pédagogiques, éducatifs et thérapeutiques d'une part, des projets d'établissements d'autre part.

Mots-clés : description des actes, classification des actes, analyse de l'activité, évaluation, éducation spécialisée, établissements médico-sociaux.

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1. Introduction

We can define assessment here as a way of determining to what extent the organisational material and human means deployed in these institutions manage to produce the desired effects of care and allow the institutions to reach the objectives that have been assigned to them.

This definition implies the bringing together of two main elements.

1/ Description and analysis of the means used and with a special emphasis on the interventions and services given to children in care.

2/ Description and analysis of the changes observed in the children concerned as well as in their family and social environment.

This implies that the interventions and services can be effectively characterised, recorded and categorised. The formal model used allows us first, to establish correlations between the contents of the given services and the changes observed in the state of the children concerned; secondly it allows us to carry out logical inferences concerning the correctness of the means used and their adequacy to the objectives already defined and operationalised (See fig. 1 below).

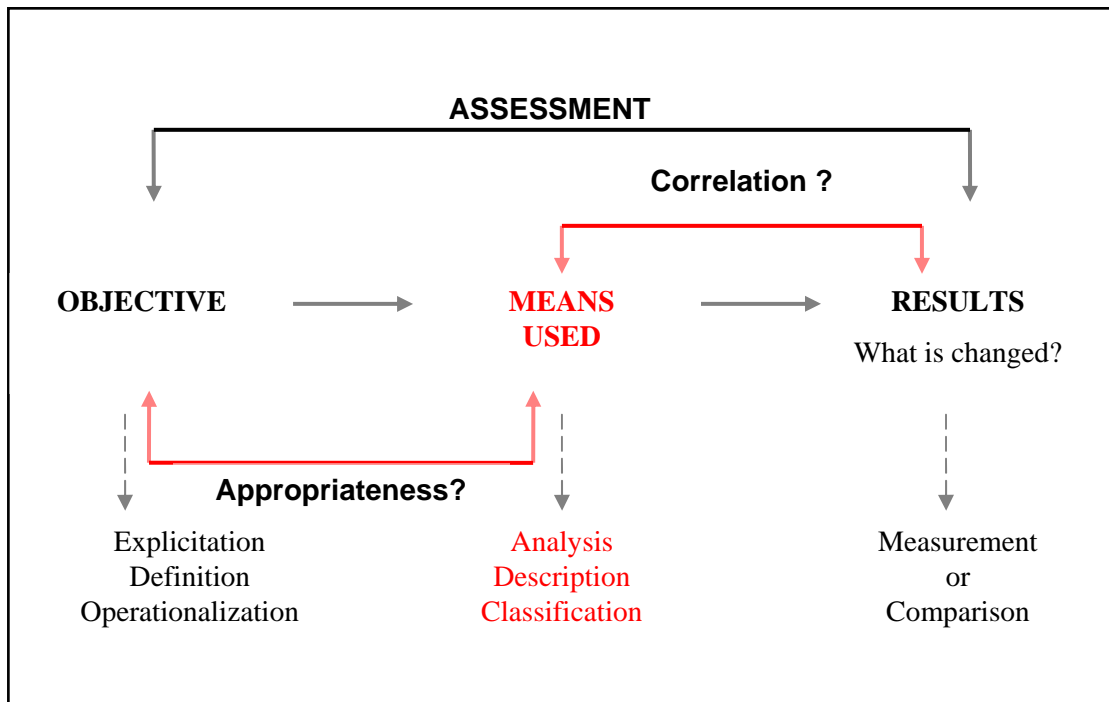


Figure 1

2. Description and classification of the interventions: present situation

At a time when the problem of the description and classification of interventions and services is being resolved as far as strictly medical practices are concerned, regarding the practices of special needs education this is not the case.

2.1. Present situation in medical and medico-social sectors

In the medical sector, the personnel – doctors, nurses, paramedical staff – are used to thinking, describing and recording their activities as a succession of technical acts and individualised services whose objectives are identifiable. This is not the case regarding the staff of medico-social institutions.

This difference is notably due to the fact that, with a few exceptions, medical acts are essentially technical acts that we are used to individualising, to describing and to categorising in univocal terms as for example in “ablation of the appendix”, “dialysis”, “lung x-ray” and so on.

A common classification of medical acts (CCAM) has been in existence for some years. It defines and classifies these acts according to a set of characteristics such as the system concerned (18 categories: nervous system, ear, cardiac system, etc.), the object of the act (diagnostic or therapeutic), the technique used, the topography of the act, what is accomplished, etc.

In the medico-social sector; the situation presents itself differently.

The interventions and services offered cover a vast area which includes notably interventions whose finality is educational, pedagogical, therapeutic or psychotherapeutic etc.

The care is often considered as being global. The personnel is not used to thinking of their activity in terms of individual interventions and services but rather as a sort of little differentiated continuum. In such a continuum it is difficult to individualise precisely defined and recordable acts.

Even if this individualisation would be possible in some cases, the practices differ greatly from one institution to another. They are conceived with reference to different doctrines and are thereby organised in such a way that the limits of individualised entity are not the same.

As a consequence there exists, up to now, neither nomenclature nor common classification of services given in medico-social institutions.

The attempts made to classify interventions have been made mainly in invoicing, management, or in staff time tables and not for research and evaluation.

2.2. Existing nomenclatures

Regarding the timetables of their employees, the organisations that manage this type of institution have often left them free to define their own nomenclatures of interventions. When this procedure has been followed it has led to nomenclatures which consist mainly of simple lists of words without any precise definitions and to systems of intuitive categories which very often overlap.

As an example, an institution uses a nomenclature consisting of 85 “activities” regrouped into twelve categories called : “family times”, “accompaniment”, “educating time”, “care”, “environment”, “indirect environment” or “meeting”, “other indirect”, “conventional time”, “illness”, “mandates” and “recuperations”. However neither the categories used nor their hyponyms have definitions. Each user is free to understand as he wishes and we can look with a critical eye on the numerous possible interpretations of terms such as “socialisation” or “expressive activities”. The users of such nomenclatures are left with a great freedom of appreciation when classifying the interventions and services that they give, in one category or in another. Such interventions can be classified differently according to the user. For instance, the meal can be classed under the term “lunch or dinner” in the category of “family time” but also under the term “communal meal” in the category of “educational time”

Another institution of the same type uses a very simplified version of this nomenclature. The interventions carried out with the children are regrouped in five categories only – still without being well defined – : “educational time”, “nights”, “outings”, “care”, “meeting with the child and/or family”.

Such nomenclatures have, in some cases, allowed a certain control of staff timetables, a summary quantification of means used and an economically optimal placing of billable interventions over the days of

the week. On the contrary they do not allow the collecting of reliable data, and comparisons between institutions cannot be made and neither can reproducible analyses. Therefore we cannot use them when in an evaluative context such as that which we have just defined.

In order to resolve this problem two “solutions” have been considered.

2.3. The two solutions already considered

An approach that can be qualified as “classical”, such as that used for the French “common classification of medical acts” or for the classification of the professions and socio-professional categories of INSEE¹ cannot be excluded *a priori*. It would imply creating a hierarchical system of categories which allow a classification of interventions and services given whatever the institution or the type of institution considered. The construction of such a categorical system, – if this were possible – would represent an amount of work far beyond the means available. Moreover, if this proved to be possible, the system of data description which would result from this, would inevitably contain a large number of categories and its utilisation would probably be extremely complicated. Its use for the daily recording of a large number of interventions would come up against technical difficulties.

A “normative” approach and which aims, by the definition of references of good practices at imposing a normalisation of these practices by the means of a typology of the interventions. The administration seems to favour this second solution to the extent that it makes the control of the institutions easier and would no doubt allow a certain categorisation of the interventions. We have shown however in previous research that the validity of this proposition implies a non verified presupposition and that it comes against a double technical difficulty.

The first inherent difficulty in the normative approach is that, by defining a reference of good practices, we presuppose that “good practices” have already been defined and that we have the necessary criteria and technical means at our disposal to distinguish the “good practices” from those which are not before deciding on the “standard”. But this is not the case and in these conditions the trend is to replace the missing technical means by a political means.

Two concepts vie with each other regarding the definition of good practices. They can be schematised as follows:

The first which is found in texts voted by parliament and in technical and scientific publications relative to evaluation, considers that a good practice is that which has the expected effects and which reaches the goals ascribed to it. In other words the good practice whose efficiency has been established by technical and scientific means whose quality is not put into question.

The second concept which is found in the texts of professional organisations and also in those of the administration and the technical centres which it controls, consists in considering that a good practice which has been judged as such following a consensus established between the representatives of the administration and of its preferred partners and of organisations that manage the institutions. In other words following a political consensus.

Such a practice is widely accepted in the medical field since each type of act or service has before any consensus been the object of serious studies. Thanks to these studies its effectiveness and the risks it presents and the side effects which may occur have been evaluated. This is not the case in the socio-medical field where there is no system of description of the interventions nor has any serious study been done to evaluate the effectiveness, the risks and the side effects of the services given. In these conditions we may fear that conflicts of interest between the administrations and the sartorial organisations weigh heavily on the decisions taken consensually to the detriment of effectiveness.

¹ National Institute for Statistics and Economic Studies.

The second difficulty resides in the fact that to impose “practices” defined *a priori* as good according to political or economic rather than technical criteria, tends to reduce drastically the possibilities of research and innovation. Such a choice would discourage experimentation and the search of efficiency in a sector in which both are cruelly lacking. The risk would be that the institutions would try, with a few discursive alterations, to insert their time-old practices into the pre-established categories of “pre-validated” practices that are imposed on them.

In other words, such a decision would only be justified if the interventions and services, whose qualities would have been established by a consensus, have been precisely described beforehand and if their efficiency had been established by scientific and technical means. Up to now that has not been the case and it seems that the administrative body today follows the precept that a problem is resolved, when in fact it is not.

3. Description of the problem to be solved

In order to fulfil the research and evaluation functions assigned to it, the system of description of interventions and services to be constructed should respect the following guide-lines.

The categories which make it up should be defined in an intentional way respecting the methodological and logical rules that apply to the formation of concepts.

The institutions should nevertheless keep the possibility of designing , organising and naming the categories of interventions that they emit by using their own notions as long as they are defined according to the rules set out above.

These systems of categories – which could possibly or even necessarily be different from one institution to another – should nevertheless allow comparisons from an institution to another.

The definitions and the organisation of categories should allow them to be modified so as to take into account the evolution of the practices and the texts that rule them, without breaking the continuity of the statistics series.

To create a system which respects the series of rules which we have just set out may appear at first sight to be an unsolvable problem. We shall show that this is not the case and that a particularly economical solution exists which can be applied without using important means.

3.1 The theoretical framework

The aim of this study is to resolve a practical problem. We shall therefore not be going into the theoretical bases of componential analysis on which the study is based. We shall only briefly describe the context of reference.

The most rigorous theory that we know concerning the relation of signification remains, in our opinion, that formulated by Hjelmslev in 1943². This theory has been the subject of numerous reformulations since then.

His architecture can be represented by the diagram (Figure 2) which we have borrowed from Umberto Eco and where the part that interests us is lightly coloured.

² HJELMSLEV, L., 1943 *Prolègomènes à une théorie du langage*, French translation by U. CANGER, Paris, Éditions de Minuit, 1968-1971.

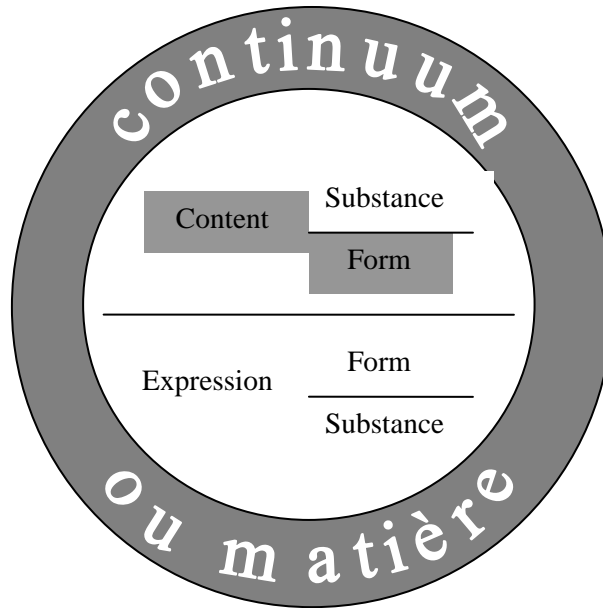


Figure 2. The relation of signification according to Hjelmslev

For practical reasons Hjelmslev distinguishes between expressions (lower half of the diagram) and content (upper half of the diagram). These represent for him two systems analysable in formal entities structured by differential oppositions.

What he calls form of one or other of these planes results from the organisation into relevant units of a continuum that is *a priori* undifferentiated.

This undifferentiated continuum, for Hjelmslev, represents what philosophers would call a “thing in itself” that is to say something which can only be known through the organisation given by the content.

The content is therefore not a given thing, which has an autonomous existence, but something which is built up. The problem of the construction of the signified from the continuum is closely linked with the problem of knowledge as an attribution of meaning to experience. It is this type of research, in other words the shaping of a content that will be carried out here.

However, even though in linguistics it is relatively easy today to imagine a system of expression – the phonological system of a language for instance – it is nevertheless impossible – even if only ideally – to conceive a system of content which could structure the totality of the expressible or knowable continuum.

For reasons which we will not go into here, the attempts which can be made to structure content can only be limited into building or rebuilding particular portions. They consist in the construction of systems of types – in other words of typologies – that is to say systems of categories structured by differential oppositions. This is the case for instance of the system of colours, of the classification of living beings, of some systems of legal rules, and so on.

The practical problem to be resolved here consists in structuring, in order to know it, a portion of the continuum that the field of practices of special education constitutes.

This portion of the continuum to be structured is constituted of practices whose limits are not precisely defined and whose whole is already more or less structured by a natural language that is difficult to characterize but which is in some way a language of speciality and in an other way a pseudo scientific jargon.

It borrows its items and notions from different disciplines such as linguistics, psychoanalysis, economics, sociology etc. Thus, notions such as “system”, “structure”, “process”, “paradigm” etc. to quote only those

that are borrowed from linguistics, are used in this language but they are used in a more or less metaphorical way and the links with the theoretical framework in which they are defined have become loose. They can thereby mobilise multiple networks of associations which make them, on the other hand, supple and adaptable to the necessities of political and self-justifying rhetoric.

In other words these notions are particularly well adapted to a use in discourses whose object is not to know and show but to convince. However, because of their polysemy and consequently because of the textual strategies, in which they participate, they cannot be used in scientific studies, nor can they be used in an evaluation study.

As I have already shown, an evaluative study must base itself on a typology of interventions and practices in such a way that each type of intervention, each type of service should be described and defined in an intensional way by a set of traits or properties.

Why not then, following the example of zoologists or botanists, who, in their field, have succeeded so well, try and build from scratch a universal classification based on scientific criteria? The naturalist does not care how such and such a people, or tribe or culture name and classify plants and animals in function of criteria relative to their needs, to their social practice, to their beliefs.

Why not try, from precise observations, to construct a taxonomy of interventions and practices which replies to criteria of scientific rigour while at the same time letting the practitioners of special education speak and think their practices as they wish, with their own notions, their own metaphors, their own beliefs?

For several reasons we cannot do this. Let us simply say that unlike botanical and zoological classifications, the typology we have to construct is designed to be used not only by the scientists who will have elaborated it but also and mainly by the practitioner themselves. It would be almost as incongruous to ask them to use a classification constructed from scratch by scientists as it would be to ask a tribe of fisherman from Taiwan to use the classification of Cuvier to sort and sell its fish. In both cases, such a system would turn out to be uneconomical and its principal users would not know how to use it or would refuse to use it.

We must remind ourselves here that more often than not, the lexical system of a natural language can only be superimposed very approximately onto the categories of a scientific taxonomy. For example we call "tree" an elm or a pine. But a naturalist will say that the first is an angiosperm and the second a gymnosperm. And there is no scientific equivalent of the word "tree" just as there is no natural equivalent of "angiosperm".

4. The formal model proposed as a solution to the problem

Our study consists, from portions of content already partially structured by usual language, in making notions precise in order to construct typologies answering to the specifications described above.

The notions usually used in the institutions will form the object of definitions produces from a finite set of traits. These "traits" that we can also call "properties" or "elementary categories" or "semantic components" and which we will call henceforth in this study "primitives" are in fact elementary concepts univocally defined.

Each type of intervention or service will be defined by the values taken by the elements of a sub-set of this set of primitives. This sub-set will categorise all the occurrences of this type and only these. In other words, this set of defintory traits will distinguish this type of intervention from all the other types of interventions composing the nomenclature.

The description of the occurrence of a type (in other words of such an intervention of this type actually carried out) can, besides the defintory traits corresponding to the category to which it belongs, be completed by the mention of a set of traits which we will call optional variants taken by the primitives which do not enter into the definition of the type but which allows us nevertheless to complete the description of a particular occurrence of that type.

For example: we can define the type “interventionX” by a series of defintory traits : P1, P2, P3, P4 and the description of a particular occurrence of this type can be completed by adding: P5, P6, P7, P8 which are properties not entering into the definition. For example “animal, biped, capable of language” are defintory traits of the “human” type, whereas the size, sex or hair colour are optional variants which can characterise a particular individual, in other words a particular occurrence of the “human” type.

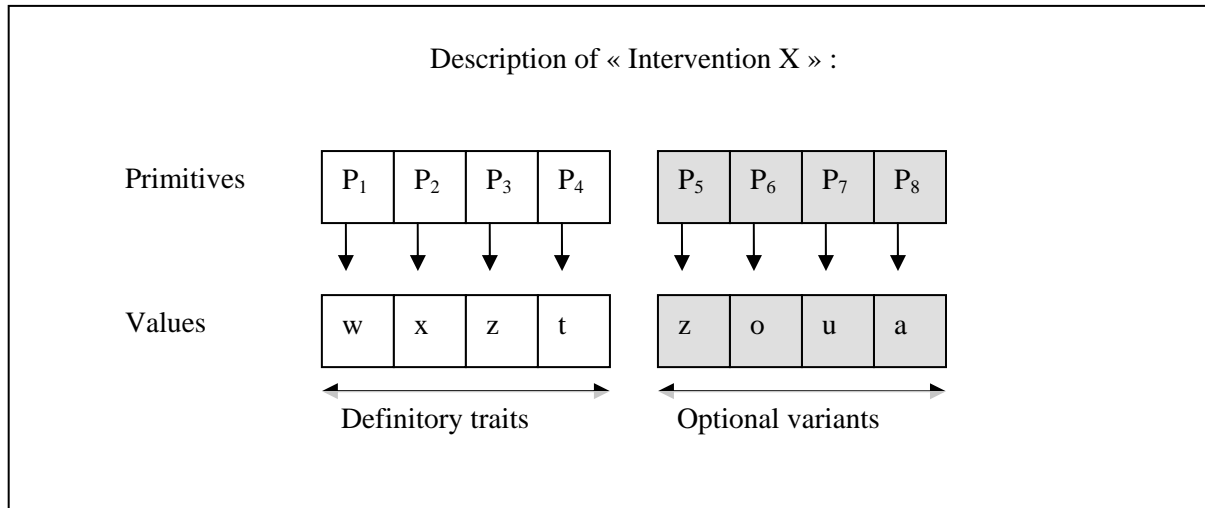


Figure 4. Definition and description of an intervention

This model, which is simple in its principle, allows us to describe and define notions that have already been used, from a finite set of elementary concepts which function like the terms of a theoretical metalanguage. It enables us to formulate definitions and to clearly distinguish the content of each term or category, separate from the semantic label that is attributed to it.

This model allows us moreover to manage phenomena such as synonymy, homonymy, and semantic difference: it allows the translation of the “language” adopted in a particular place in terms of another without altering the quality of the information gathered. It can therefore allow the comparison of the business activity of institutions which think, organise and describe their practices in different ways.

It permits as well, if necessary, a hierarchical organisation of categories (into hyponyms and hiperonyms) that can make the collecting and classifying of data more economical.

It remains for us to show concretely how this model can contribute to resolve the given problem while at the same time respecting the constraints described in point 3.

5. Example of a practical application

The aim is to individualise in a continuum more or less structured by a professional culture and a vernacular language, a set of types of interventions or services while staying as close as possible to the spontaneous organisation of the notions used in this language and culture.

The first phase of work consists therefore in determining how the practitioners of a given institution conceive and organise spontaneously the notions that they use to think and describe their interventions.

5.1. The exploratory phase

In order to do this we conducted interviews with one or several practitioners from each speciality (educator of boarding school, psychologist, primary school teacher, head teacher, speech therapist, physiotherapist, nurse, social worker, etc.)

We asked them to describe, as precisely as possible, the different types of interventions that they carry out with the children and to explain on which differences this spontaneous “categorisation” of their practice lies. Then we tried to produce with them a preliminary series of approximative definitions of each type of intervention.

For reasons we have explained elsewhere, we have only kept for our description the interventions that concern the child directly and have eliminated the meetings connected to the running of the institution such as union meetings, pedagogical meetings, training etc.

5.2. The system of description of interventions and services: the primitives

Each type of intervention or service is then described and defined from a finite set of elementary concepts which we will call primitives and each one of which can take several values.

Although there is no theoretical limit to the number of primitives used, it was preferable, for practical reasons, that the inventory of the primitives be the shortest possible. The experimental version of our system of description of interventions uses the following nine primitives :

1. *The place of the intervention*: where does the intervention take place? (6 values)
2. *The target of the intervention*: Who is targeted by the intervention? (5 values)
3. *The finality of the intervention*: What is the aim of the intervention (17 values)
4. *The status of the agent*: what is the status of the person in charge of the intervention or of the main participant? (4 values)
5. *The profession or quality of the agent*: what is the profession of the person responsible for the intervention? (26 values)
6. *The number of practitioners taking part*: how many practitioners take part, (4 values)
7. *The participation of the children*: How many children and which children participate in the intervention? (4 values)
8. *The participation of the family*: which family members participate in the intervention? (3 values)
9. *The fields of competence concerned*: what is the field of competence concerned by pedagogical or evaluative intervention (8 values)

However, given that an intervention or service can have several finalities, we record in the description of an intervention, a principal finality (3.1) and a secondary finality (3.2). In the same way, given that a service may be given by several practitioners acting simultaneously, we record in this case the profession of the principal agent (5.1) and eventually that of the second participant (5.2). Finally, as an educational or evaluative intervention can target several fields of competence, we record a principal field (9.1) and a secondary field (9.2). This brings the number of usable traits to define and describe an intervention up to 12.

Each primitive can take the following values:

1. The primitive PLACE: where does the intervention take place?
 - a. *Institution*: the intervention takes place in a room in the institution or depending from the institution.
 - b. *Home of the child*: the intervention takes place in the home of the child or the legal representative of the child.
 - c. *School*: the intervention takes place in a school
 - d. *Host family*: the intervention takes place in the host family home where the child is placed.
 - e. *Another public or private place*: the intervention takes place in another place, as for example, a leisure centre, a doctor’s surgery, etc.
 - f. *Vehicle*: use of a vehicle to transport the child from one place to another.

2. The TARGET of the intervention: Who are the person or persons targeted by the intervention?
 - a. *The child*: or the person in care.
 - b. *The parents*: father and/or mother or the legal representative.
 - c. *A relative*: a relative other than the legal representative.
 - d. *A professional*: a professional acting on the child's behalf.
3. The FINALITY of the intervention: what is the aim of the intervention?
 - a. *Pedagogical in the field of school skills*: to transmit and develop knowledge and competence in the field of school skills.
 - b. *Pedagogical outside the field of school skills*: to transmit and develop knowledge and competence outside the school curriculum.
 - c. *Educative*: make known to the child the rules which concern him/her and the reason behind these rules or guide him to respect them.
 - d. *Therapeutic*: cure an illness, make a identified symptom disappear or mitigate it.
 - e. *Palliative*: reduce the consequences of a symptom without acting on its cause, reduce pain, alleviate suffering.
 - f. *Preventive*: foresee the appearance of a predicable sign of illness or its worsening.
 - g. *Diagnosis*: carry out the necessary examinations and investigations to identify a symptom or an illness.
 - h. *Multidisciplinary evaluation*: evaluate the competences and difficulties of a child in several fields or carry out a synthesis of the evaluations made by several specialists.
 - i. *Evaluation in one field*: evaluate the competences and difficulties of a child in a specific field.
 - j. *Evaluation of the means*: evaluate the means put into place to carry out the individual project regarding one child, control its setting into place, compare the intended means with the means effectively put into place.
 - k. *Individual project*: elaborate, follow, modify or up-date the individual, pedagogical, educative and therapeutic project of a child.
 - l. *Assistance*: help the person with something he cannot do alone. For example: transfer a person from a bed to an armchair.
 - m. *Recreation and leisure*: relax or give physical or intellectual pleasure.
 - n. *Moving and transferral to another place*: move or accompany the transferral of a child from one place to another, ensure his safety and watch over him during the journey.
 - o. *Decision*: decision making.
 - p. *Other finality*: the service does not correspond to any of the finalities defined above [add this finality in a note]
 - q. *No particular finality*: free time for the child, the service involves solely watching over him.
4. STATUS OF THE AGENT: what is the status of the person in charge or the main agent?
 - a. *Salaried employee of the institution*: salaried staff employed by the institution.
 - b. *Paid outside staff*: paid outside personnel (liberal profession or employed by another public or private institution).
 - c. *Volunteer*: non paid staff.
 - d. *Parent or legal representative*: a parent or legal representative of the child.
5. PROFESSION OR QUALITY OF THE AGENT: what is the profession or the speciality of the person in charge of the intervention or of the person involved in it?
 - a. *Educator*: specialised educator, specialised technical instructor, coach instructor, educator for younger children or acting as such.

- b. *Auxiliary personnel*: medico-psychological assistant, medical assistant.
- c. *Primary school teacher*: primary school teacher or school instructor with a CAP diploma
- d. *Specialised primary school teacher*: special needs primary school teacher or special needs school instructor (with a CAEI diploma)
- e. *Secondary school teacher*: in general or technical education.
- f. *Technical instructor*: holding a technical diploma.
- g. *Socio-educative coach*: holding a specialised diploma or the equivalent of this diploma.
- h. *Sports teacher*: teacher or instructor of physical and sports education holding a diploma or specific professional certificate.
- i. *Coach or person in charge of sports*: instructor or sports coach with no professional diploma corresponding to the subject.
- j. *Social Worker*
- k. *Physiotherapist*
- l. *Occupational therapist*
- m. *Speech therapist*
- n. *Psychomotor therapist*
- o. *Other therapists engaged in re-education or paramedical activities*: podiatrist, osteopath, dentist etc.
- p. *Nurse*: nurse, psychiatric nurse, children's nurse etc.
- q. Department head: department head or assistant director.
- r. *Director of the institute*
- s. *Psychologist*
- t. *Psychiatric doctor*
- u. *Other specialist*
- v. *General practitioner*
- w. *Childminder*
- x. *Parent or guardian*: parent, guardian of the child or his agent
- y. *Other*
- z. *None*

6. NUMBER OF PROFESSIONAL PARTICIPANTS:

- a. *A specialist*
- b. *Two specialists*: two specialists working together.
- c. *Several specialists*: several specialists giving the service together.
- d. *No specialist*

7. PARTICIPATING CHILDREN : which children and how many are benefiting from the service?

- a. *No child*: the service concerns a given child but is given without him being present.
- b. *One child*: this is an individual activity with or without a specialist being present
- c. *With a majority of children who are in care*: this is a group service with several children who have been taken into care by a special needs institution.
- d. *With a majority of children not in care*: this is a group service with several children who are not taken into care by a special needs institution participate.

8. PARTICIPATION OF THE FAMILY : which members of the family take part in the intervention?

- a. *None*: no member of the family takes part or is present during the service or intervention.
- b. *Guardian or guardians*: at least one parent or the guardian of the child is present during the intervention.

- c. *Other member of the family with no guardian*: one close relative at least other than the father or the mother.

9. FIELD OF COMPETENCE CONCERNED: (interventions with a pedagogical or evaluative goal)

- a. *Language*: written or oral communication.
- b. *Logical operation and reasoning*: numerical calculation, mathematics, logical reasoning, creation of concepts etc.
- c. *Non linguistic expression*: communication non involving language (for example: dancing, mime, painting, sculpture, music)
- d. *Culture*: history and civilisation, geography, knowledge of art, etc.
- e. *Motivity*: physical activities, individual and collective sports, martial arts, etc.
- f. *Autonomy in daily life*: preparing meals, washing oneself, taking public transport, etc.
- g. *Rules of life in society*: adopting behaviour adapted to society
- h. *Not applicable*

5.3. Definitory traits and optional variants

5.3.1 Definitory traits

For each institution a nomenclature of interventions is established. This nomenclature is generally comprised of between 20 and 40 types of intervention. Each intervention is defined by a set of properties which characterise all the occurrences of this type and only these. It is therefore this set of characteristics, called definitory traits which will distinguish this type of intervention from all the other types of intervention which constitute the nomenclature. Here are two examples.

Example 1: The “speech skills assessment” type

This “speech skills assessment” type, in other words the realisation by a speech therapist of an assessment of competence in the field of oral and written language, will be defined by the values taken by the following four primitives : 3.1, 5.1, 7, and 9, in other words:

- 3.1: a particular field = (i)
- 9: The field of competence concerned = linguistic expression = (a)
- 5.1: The profession of the main agent = speech therapist =(m)
- 7: The participation of the child = individual service = (c)

This implies that:

1. Every intervention presenting these four traits will be classed in the “speech skills assessment” and that reciprocally every intervention classed in this category will be supposed to present these four traits.
2. Every change in the value of one of these four primitives leads to a change in category. Thus for example if the principal finality of the intervention is no longer (g) evaluative but (a) pedagogical, this intervention will be classed in another category, that of “speech therapy re-education of reading and writing”

5.3.2 Optional variants

The description of a particular occurrence of a given type, in other words of an intervention effectively carried out, can be completed by adding the values taken by the other primitives which do not constitute definitory traits. In the example quoted, it can be useful to add:

- The place where the intervention takes place, for example in the institution (1 = a) or in the surgery of a liberal profession speech therapist (1 = e)
- The status of the practitioner, for example salaried by the institution (4 = a) or liberal profession (4 = b)

- If the service takes place in the presence or not of a member of the family (8 = a) or (8 = b) or (8 = c).

In these cases, the change in the value of these primitives does not bring about a change in category of the intervention; this is why we shall call them “optional variants”. Two interventions which present the same definitory traits and which differ by optional values are considered as two variants of the same type of intervention.

1	2	3.1	3.2	4	5.1	5.2	6	7	8	9
a	a	i	j	a	m	z	a	b	a	a

Figure 5. Coding of a skills assessment carried out in the institution by a speech therapist belonging to the institution alone with the child. In bold type the definitory traits, in grey the optional variants.

Example 2: the “psychotherapy” types

Paul Gerin and Alice Dazond, researcher at INSERM (1992) have been able to identify and class up to 400 different types of psychotherapies. As well as the difficulty that the use of this type of nomenclature would represent, its use here would be even less justified In that it is very rare that, in a given institution, more than two or three different types of psychotherapy would be carried out. One institution will propose individual analytical psychotherapies, systemic psychotherapies or family group psychotherapies: another institution would exclusively propose behavioural psychotherapies or cognito-behavioural ones.

As an example, an individual analytic psychotherapy can in one institution (A) be defined as an individual interview with a therapeutic goal that can be conducted by a psychologist or a psychiatrist from the institution or by an outside practitioner. The intervention can be characterised in this case by 4 definitory traits (3.1, 5.1, 7 an 8) and codified as in the diagram below. In this case, the place where the activity takes place (1) and the status of the agent (4) are optional variants.

1	2	3.1	3.2	4	5.1	5.2	6	7	8	9
a	a	d		a	s o u t	z	a	b	a	h

Figure 6. Codification of an individual psychotherapy session in institution A

However in another institution (B) analytical psychotherapies cannot be carried out in the institution itself and must absolutely be conducted by independent practitioners working outside the institution. In this case, the place and the status of the practitioner become definitory traits and the “individual analytical psychotherapy” will be defined and codified in the following way:

1	2	3.1	3.2	4	5.1	5.2	6	7	8	9
e	a	d		b	s o u t	z	a	b	a	h

Figure 7. Codification of an individual analytical psychotherapy session in institution B. (compulsorily carried out by an outside practitioner)

5.4. Properties of the system

This componential analysis of interventions and services system comprises the following characteristics:

5.4.1. The concepts and categories which comprise the system of description and categorisation of intervention are defined in an intensional way according to the logical and methodological rules stated above. In other words, the categories are defined by a set of properties, common to the elements of the category and by them alone. These properties, characteristics and attributes themselves belong to a finite set of primitives defined in a quasi univocal way.

5.4.2. The institutions thereby retain the possibility of creating their own nomenclature of interventions and of using notions in agreement with the doctrines they adhere to; the only constraint being that each type of intervention or service should be defined from a set of pre-established primitives that are common to the different institutions using this system.

5.4.3. The number of interventions making up the nomenclature, the definitions, the names (or semantic label) attributed to each type of intervention or service, can vary from one institution to another. Two interventions given the same name of X can be defined and categorised differently in two different institutions (homonymy). In the same way two interventions defined and categorised in an identical way, can be named differently in one institution and in another (synonymy). These phenomena alter neither the possibilities of analysis, nor the possibilities for comparison between institutions as long as the analyses are carried out not from semantic labels but directly from elementary categories or “primitives”.

5.4.4. This system of description and categorisation of interventions is evolutive to the extent that is possible to modify the organisation of the categories or to create others, without changing the statistical continuity of the data collected. One can also, in the case that an evolution of practices or of the texts which govern them would make new distinctions, which cannot be established from existing primitives, necessary add a new primitive or a new value to an existing primitive so as to allow the recording of these new distinctions.

5.5. Collecting of information, recording and data analysis

Each intervention or service undertaken can thus be characterised by a code composed of 12 characters to which should be added the identification number of the child, the date and time when the intervention took place and also, if necessary, the person who carried out the intervention or service.

A computer programme whose details we shall not describe here allows the recording of all the characteristics of a given intervention in the space of a few seconds.

Each specialist thus has the possibility of recording in real time the interventions and services given. The time it takes to record an intervention varies from 10 to 30 seconds according to whether the intervention is part of the weekly pre-recorded time-table of a child whose details are already recorded or whether it is an unplanned intervention (not part of the timetable) and which must be categorised and whose description has to be completed.

In the latter case, the data entry is made in the following way: the person who has made the intervention makes a first choice from a list of interventions that he is qualified to undertake or which he usually carries out. The programme automatically records the definitory traits and optional variants by default. The agent can then detail these variants in spaces presented as rolling lists or as boxes to be ticked.

6. Conclusion: analysis possibilities and interest of the system

All the interventions and services given to the children in care by an institution are recorded onto one database.

The data recorded according to this method allow one, to make automatically, thanks to a software management application, the different types of analyses.

6.1. Analyses child by child, for a follow-up in real time of the individual project

We can, from recorded data, visualise, and reconstitute the timetable of a given child over a given period.

This system also allows the analysis of all the services given over a given period according to different criteria such as the different finalities of the interventions, the places where the services took place, the participation of the parents, the proportion of interventions carried out in normal surroundings according to time spent or according to the number of interventions.

These different analysis results can then be confronted, on the one hand with the individual project previously defined and on the other with the results obtained.

6.2. Analyses institution by institution for a follow-up in real time of their projects

The data recorded in the database allow the staff to analyse simply and within the institution their business activity from the types of service defined by the institution itself.

However, these same data also allow, by proceeding directly from primitives and without taking into account the systems of categories used by each institution the detailed analysis of the business activity of one or several institutions. Then it will be possible to evaluate, from objective data the business activity of the institutions concerned and to compare the evolutions observed with the goals laid out by the business plan.

In other words we can now describe the evolution of the business activity of an institution or a group of institutions by referring to objective data. Consequently it is now possible to find precise answers in real time to questions which up to now have been difficult to answer other than by subjective judgements that are often influenced by political objectives or by the individual interests of those who formulate them.

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