

CONCEPT FACTORS IN CONCEPT SCHEME INTEGRATION

- G.P.I.D. as a case study

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The concepts governing the GPID project itself (see Annex 0) are used as the basis for a case study in an exercise exploring the possibilities of a more systematic approach to concept integration in complex projects.

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INTRODUCTION

This paper is a necessarily tentative exercise in applying the approach, advocated in a previous paper (1), to a specific case. The case is the concept scheme of the UN University's Goals, Processes and Indications of Development (GPID) Project of its Human and Social Development Programme. By the very nature of the approach, it calls for a special form of presentation. For this reason the paper is split into several parts. Background material collected in support of this paper, and intended as annexes to it, has been produced as annexes to a separate paper (2) which briefly discusses their significance. The annex therein (Annex 0) concerning the GPID concept scheme will be referred to here as though it was an annex to this paper.

In the body of this paper an argument is developed which is based on Annex 0. A formalized presentation arising from the argument is presented here in Annex 1. As will be seen, the argument here is influenced to varying degrees by the nature and ordering of concept schemes developed for other schemes embedded in psycho-cultural frameworks and philosophies. It is these which are presented in the annexes to the separate paper (2). It must be stressed, as is clarified in the earlier paper (1), that this material has been assembled as an indication of the ways in which the human mind has tended to distinguish concepts in relatively large or abstract sets.

As will become evident, the argument in the main part cannot be adequately presented in a linear fashion. For this reason transfer points are indicated where relevant at the end of certain sections (namely the next point to which readers could move on first reading), or at the beginning of certain sections (namely points from which they have been referred elsewhere in the text.

Since the paper is about the problem of the necessary progression in understanding and comprehension when faced with unfamiliar and elusive concept sets, there is a sense in which the paper has to be read several times so that the patterns of meaning interlinking non-linearly the different portions of text can be used to reduce the ambiguity of any particular concepts at different points in the pattern. There is therefore an iterative approach to understanding GPID concepts through the approach of this paper, although (it is to be hoped) the argument of the latter should not create such difficulties. The form of presentation is the main "message" here. It is hoped that through this form readers will be challenged by their own ability to comprehend what GPID attempts to encompass.

COMPLETENESS OF GPID SETS

The argument which follows assumes that the various concept sets in the GPID scheme are complete. By this is meant that the sets are not conceived as open to inclusion of additional concepts. Thus the set: "goals, processes, indicators, tools" is not considered to have a vacant "slot" into which a fifth concept can be inserted. This may not later prove to be true of all the sets, but unless the situation is left explicitly open-ended it will be assumed that any such development is from one complete set to another complete set. An example of "ambiguity" is to be found in the addition of "study groups" to the set of 24 "sub-projects". This will be discussed further. Associated with the notion of completeness is that of symmetry. It is also assumed that GPID sets are symmetrical, namely that a set of 8 does not have, for example, 5 closely related elements with the 3 extra elements only related to the fifth. Whilst sets with such "trailing" concepts may well have an important role in some instances, they are assumed to be beyond the immediate concerns of GPID.

The necessity for having complete sets does not arise from a concern for conceptual elegance or tidiness. Completeness is vital to the objective of GPID. A concept aspect of the "development of people" can only be left
 A set concerning some

deliberately incomplete if the omitted concepts are adequately dealt with in some non-GPID project, and the GPID set is conceived as a conceptual complement. If this is implicit, rather than explicit, the GPID set runs the risk of being perceived as incomplete, thus exposing GPID to the charge of inadequacy and irresponsibility. On the other hand, if the GPID sets are deliberately incomplete (and asymmetric), in order to concentrate resources on particular foci for strategic or tactical reasons in the intellectual arena, care must also be taken - particularly if circumstances may change so as to de-emphasize the importance of the selected foci.

As was discussed in the previous paper (1), completeness results from a usually protracted struggle for a good conceptual "fit". As the project evolves, an existing set (A) may be revised because a more compactly inter-related set (B) has been elaborated. Part of the purpose of this paper is to clarify how A was comprehended as complete, before the possibility of B was comprehended. For however successful GPID is, some people in comprehending wherever it gets to will have to progress in a succession of learning stages through comprehension of sets such as A.

KEY TO GPID INTEGRATION

A conventional approach to integration is to juxtapose the parts and then to consider how they may be interrelated. This bears some resemblance to an effort to fit "Humpty Dumpty together again". For even if all the parts can be appropriately positioned and "glued", there is a major step between correct assembly and viable function - unless it is assumed that GPID is dealing with a mechanical system (which can be "turned on"), rather than an organic one. A more interesting point of departure is to assume, as is stated on the back of the Last (Updated) Whole Earth Catalog (1974) that: "We can't put it together; it is together". We could then usefully focus attention on our difficulty in comprehending and communicating the nature of the developmental whole within which we are already all embedded. One possible approach is then to look at the way we have tended conceptually to take it apart (for whatever purposes we share). How we have done so is fairly well sign-posted by the concept sets that have been elaborated in the course of the development of GPID itself - although that development process should of course not be assumed to be linear. It is the conceptual wholes (sets), within which different elements have in their turn been treated as wholes (sub-sets), which provide a key to the integration of GPID. This is how the sub-projects arose, and how the concept sets within the sub-projects arose and how more detailed sets will arise as work progresses. Can this non-linear development be retraced from its origin?

ARGUMENT (PART I)

1. The first task is to determine the one category which determines the pre-occupations exemplified in the many sub-categories of the concept system in question. From Annex O, this may be taken to be "development". However several reasons prevent this term from being defined unambiguously at this point:

- a rigid definition would be of limited value in a project designed to clarify such a definition.
- a rigid definition, even at the termination of the project, would necessarily oppose any subsequent definition refinement and would compete with any definition formulated in parallel.
- the terms used in any such definition have themselves to be defined.
- irrespective of whether the terms used have been defined or not, there remains a problem of comprehending them. There are three aspects of this problem:
 - the problem of the specialist familiar with previous initiatives and needing to transfer between "jargons" (with their possible

ideological emphases)

- the problem of the non-specialist attempting to penetrate the special significance of such terminology.
- the problem of the person from another language/cultural framework within which such terms cannot be provided with meaningful equivalents.
- it is questionable whether those participating in any such exercise can define rationally the category which binds them across their rational differences and beyond any superficial agreements of the moment. (Could fish agree on the presence or nature of water?)

The category will therefore be labelled here in the form \mathcal{D} development \mathcal{D} . By this is meant that a domain or mind-set has been envisaged prior to any qualifications or distinctions. This is indicated by the brackets. The code within the bracket is there as a necessarily vague indication of the meaning to be associated with the bracketed domain. The word is merely a convenient reminder which may be more or less successfully associated with the bracketed domain by different persons (during a learning process). It may be argued that the use of brackets adds nothing to the everyday manner in which "development" is discussed. However here they are a specific reminder of the confusion concealed by the apparent ease of such discussion. In fact the intent of this approach could as well be illustrated by avoiding any use of the word and representing the concept domain as : $\mathcal{D}\dots\mathcal{D}$ ₁. Namely the first (and only) category in a concept set of one element. At this level no distinction can be made between kinds or factors of development

- 2.1 The second task is to examine what subsequently emerges from a first distinction made between two types of development (the minimum case). From Annex 0, the terms used are (positive?) "development" and "mal-development". These can be expressed as

\mathcal{D} development \mathcal{D} and \mathcal{D} mal-development \mathcal{D}

Note that \mathcal{D} development \mathcal{D} is necessarily different from \mathcal{D} development \mathcal{D} wherein kinds of development are not distinguished. \mathcal{D} development \mathcal{D} encompasses \mathcal{D} mal-development \mathcal{D} , whereas \mathcal{D} development \mathcal{D} excludes it.

But the bracketed terms should not distract from the possibility that other verbal first distinctions might have been made

balanced development	vs	imbalanced development
evolutive	"	vs involutive "
progressive	"	vs regressive "
indulgent, unconstrained		
development	vs	restrained, conditioned development

It is the synthesis of this set of meanings which is denoted by \mathcal{D} development \mathcal{D} vs \mathcal{D} maldevelopment \mathcal{D} . It is this basic two-fold distinction which engenders the energizing or driving force of the GPID project.

- 2.2 It is appropriate to consider the implications of Annex 1 (2) at this point with regard to the notion of a two-fold operator. Young argues that this may be associated with directionality in "time". This relates more to the distinction between progressive vs retrogressive development, or evolutive vs involutive. His argument that rather than oppose "negative" time to "positive", it is more fruitful to use "inverse time", is extremely valuable. For the weakness with \mathcal{D} development \mathcal{D} vs \mathcal{D} maldevelopment \mathcal{D} is firstly that it is too closely associated with "good development" vs "bad development" before the concept scheme has even been elaborated to the point at which such evaluative distinctions can be clearly drawn. And, secondly, there is the risk of an immature connotation whereby "development" is believed to be unfettered and that any constraint is viewed as a hindrance to be associated

with "maldevelopment" of some kind. This is a simplistic "eternal summer time" concept of development. Constraints are required to ensure appropriate development of an individual as well as of any species in an ecosystem. For such reason $\langle \text{development} \rangle_2$ should also include the "blind spot" of its own unconstrained excess, whilst $\langle \text{maldevelopment} \rangle_2$ should include the neglected constraining factors important to development as a balancing process between the two extremes. The tendency to view constraints as "bad" or "problematic" is however to be expected, just as is the drive to overcome them - a drive which is essential to the development process, as reflection on the static nature of a problem-free society will show. For these reasons, $\langle \text{maldevelopment} \rangle_2$ is replaced by $\langle \text{restrained development} \rangle_2$ here, particularly in Annex 1.

-3. The nature of the basic three-fold distinction made in relation to the project may now be examined. From Annex 0, this gives rise to:

$\langle \text{goals} \rangle_3$ $\langle \text{processes} \rangle_3$ $\langle \text{indicators} \rangle_3$

-4.1 The nature of the basic four-fold distinction made in relation to the project emerges from Annex 0 with:

$\langle \text{goals} \rangle_4$ $\langle \text{processes} \rangle_4$ $\langle \text{indicators} \rangle_4$ $\langle \text{tools} \rangle_4$

-4.2 The question must obviously be asked whether there is any distinction between the three-fold concept set and this four-fold set, other than "the addition" of $\langle \text{tools} \rangle_4$. If the three-fold distinction was well-made, such that each element balanced and complemented each other element, then there is no way that another element could be added without distorting that set. If however this "addition" results effectively in a balanced four-fold set, as would be necessary if the four-fold set is to be considered well-made, then the three concepts bearing the same word labels in the three-fold distinction as in the four-fold are not the same. There has been a shift in emphasis in moving to a four-fold set and this effects all elements irrespective of verbal labels - or else one or both sets have been mal-formed or at least are asymmetrical in some way.

-4.3 It is to be expected that the symmetry of the two-fold division of the conceptual domain will find its reflection in the four-fold division. This suggests that the four combinations of the two-fold categories should be equivalent to the four-fold, possibly in the form:

$$\begin{aligned} \langle \text{development} \rangle_2 \quad \underline{a} \quad \langle \text{development} \rangle_2 &\equiv \langle \text{goals} \rangle_4 \\ \langle \text{maldevelopment} \rangle_2 \quad \underline{a} \quad \langle \text{maldevelopment} \rangle_2 &\equiv \langle \text{processes} \rangle_4 \\ \langle \text{development} \rangle_2 \quad \underline{a} \quad \langle \text{maldevelopment} \rangle_2 &\equiv \langle \text{indicators} \rangle_4 \\ \langle \text{maldevelopment} \rangle_2 \quad \underline{a} \quad \langle \text{development} \rangle_2 &\equiv \langle \text{tools} \rangle_4 \end{aligned}$$

The equivalences are only indicated tentatively because the nature of the operator \underline{a} is not clear. But if some "unconstrained" aspect of $\langle \text{development} \rangle_2$ is considered primordial, then the combination $\langle \text{development} \rangle_2 \quad \underline{a} \quad \langle \text{development} \rangle_2$ does suggest the essentially unconstrained notion of $\langle \text{goals} \rangle_4$. The converse is true in the case of $\langle \text{processes} \rangle_4$. The situation is more uncertain in the case of $\langle \text{indicators} \rangle_4$ and $\langle \text{tools} \rangle_4$ especially because the operator functions such that $ab \neq ba$.

-4.4 The argument of the previous point needs further justification. If in a concept scheme a basic two-fold distinction has been developed - in this case $\langle \text{development} \rangle_2$ and $\langle \text{maldevelopment} \rangle_2$ - what is its relationship likely to be to any four-fold distinction? In an "unintegrated" scheme no relationship need be postulated. Any number unrelated sets is then admissible. But in an integrated scheme, the basic 4-fold distinction must necessarily be an articulation of the 2-fold. If this is not the case then another conceptual point of departure has been introduced - which would raise the important question for integration of how the second is to be related to the first. The answer would of course be significant for the relationship between other

sets based on each of these points of departure. The situation would of course be less clear when there are several 4-fold sets, of which some have been developed as articulations of other sets (e.g. as an articulation of the 6th concept in a 6-fold set). Examples such as this are evident from the Annexes (2).

-5.1 The basic five-fold distinction made in defining the project emerges from Annex 0 with:

{needs}₅ {conditions}₅ {dialogues}₅ {network}₅ {integration}₅

-5.2 It is probable that further insight into the GPID five-fold distinction may be obtained by considering the sub-sets of the 30-fold distinction, if this is accepted.

-6.1 In the absence of any explicit six-fold division from Annex 0, the nature of that division can be elaborated using the argument that it is probable that the symmetries of the two-fold and three-fold divisions will be reflected in it. The combination of the categories should therefore indicate the six-fold division:

{development} ₂	a	{goals} ₃
{development} ₂	a	{processes} ₃
{development} ₂	a	{indicators} ₃
{maldevelopment} ₂	a	{goals} ₃
{maldevelopment} ₂	a	{processes} ₃
{maldevelopment} ₂	a	{indicators} ₃

-6.2 It is probable that further insight into the six-fold distinction can be obtained from considering the sub-sets of the 24-fold and 30-fold distinctions

-7.1 No seven-fold articulation of GPID preoccupations appears to have emerged yet. As a prime number, the possibility is excluded of gaining some understanding of its possible nature through combining factors of smaller divisions (as with the six-fold division). As with the five-fold division, seven would represent a new pattern of conceptual relationships - an "irrational" breakthrough, or progression in understanding.

-8.1 A tentative eightfold division has been made in the form of a list of GPID "dimensions" (see Annex 0)

{space} ₈	{intellectual style} ₈
{time} ₈	{social success style} ₈
{social space} ₈	{GPID style} ₈
{level} ₈	{pragmatics} ₈

-8.2 Using the symmetry argument as before, combinations of the two-fold and four-fold divisions should also indicate the nature of the eight-fold division:

{development} ₂	{goals} ₄
{development} ₂	{processes} ₄
{development} ₂	{indicators} ₄
{development} ₂	{tools} ₄
{maldevelopment} ₂	{goals} ₄
{maldevelopment} ₂	{processes} ₄
{maldevelopment} ₂	{indicators} ₄
{maldevelopment} ₂	{tools} ₄

-8.3 The nature of the eight-fold distinction should also be evident as sub-sets of the 24-fold set.

INTERIM REMARKS

The previous section partially clarifies the advocated approach. Before considering further GPID sets, it may however be useful to summarize what is being attempted. This includes:

- a) Registration of existing GPID sets of a given N-foldness (as in Annex D)
- b) Bracketing set element descriptors to render explicit the challenge to comprehension which they may represent.
- c) Exploration of "conceptfactors" based on the degree of N-foldness of the set - namely how concepts of more "fundamental" (i.e. lower N-foldness) sets may modify each other in combination and thus engender elements in sets of higher N-foldness. (What might be referred to as a form of "conceptual genetics").
- d) Comparison of set elements generated as in (c) with elements already accepted within GPID: On the one hand, there is a question of determining equivalents and thus gaining an understanding of the operator "a". On the other, it is hoped that from exploring such equivalence a clearer understanding of the significance of the verbal descriptors used by GPID may be obtained.
- e) From the previous point (d), should also emerge a better understanding of:
 - how a given N-fold set of elements "fits together", namely how its parts are interrelated.
 - how different N-fold sets are related, in terms of the "concept factors" they share, if that is the case; this is the general question of GPID conceptual integration.
 - how the non-relatedness of sets of a certain N-foldness (e.g. 3-fold and 8-fold) can only be "absorbed" or "resolved" in sets of an N-foldness which is a multiple (e.g. 24-fold in the 3/8 case; or 30-fold in the case of 3-fold and 5-fold).
- f) By exploring the use of concept factors to generate missing sets not (yet) explicit in the GPID scheme, this may suggest complementary ordering schemes and may help to "bring out" (and give context to) concepts which could be useful to the development of GPID. For example, what is the nature of the GPID 6-fold set and what function could it serve? Of course, whilst this may focus attention on some useful missing sets, the trap of generating sets for their own sake must be avoided. But what is the appropriate constraint?
- g) Given the broad scope of GPID with 24 sub-projects, whilst these may be integrated by concepts of lower N-foldness, each sub-project will tend to initiate its own concept scheme. Thus the first distinction in each such sub-project already gives 48-foldness. And it must be expected that each sub-project will be working with distinctions up to 8-fold at least. It may therefore be necessary for the project as a whole to be considering distinctions of the order 8×24 -fold, namely 192-fold, or more. Whatever the figure, this is the number of explicit concepts associated with the GPID scheme. In a sense, the higher the figure the more specifically concrete the project is rendered, namely the more operationally relevant would be the concepts and the project as a whole - provided that transitions between the sets can be accomplished along explicit pathways.
- h) The material in the annexes (2), should also help to clarify the nature of sets of a given N-foldness, and their relation to other sets.

By using brackets to take the conventional emphasis off the "definitional" process and put it onto the "comprehension" process an important step is taken. For the act of defining (for others) is an act which confines (those others) and deprives them of the right to define in response to their own circumstances - it is an act of "conceptual imperialism". It would thus seem to follow that a characteristic of an appropriate form of presentation for GPID would be one which does not deprive the person or group of an analogue of the rights which the GPID approach is designed to protect and enhance.

In this light, any suspicion that the approach advocated here moves towards an "ideal" scheme must be rejected. No concept is imposed, since it is what the individual comprehends which is the key. A distinction may even be usefully made between:

- freedom to choose between a plurality of competing concept schemes each with overdefined concepts, namely the conventional approach. Here the individual, once the choice of scheme has been made, has no further freedom, because the concepts within the scheme must be accepted as they are defined.
- freedom to choose how to understand within a single concept scheme composed of underdefined concepts whose significance may be partially associated to those of other schemes seen as non-competing. Here the individual is constantly challenged with the freedom to understand particular concepts in some more significant manner in the light of the concept set within which it is embedded.

REFERENCES

- 1) A. J. N. Judge, Representation, comprehension and communication of sets: the role of number. International Classification 5, 1978, 3; 6, 1979, 1; 6, 1979, 2. (GPID Working Paper).
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ANALYSIS OF GPID CONCEPT FACTORS

INSERT 1

- 1-Element set: (De)₁
- 2-Element set: (De)₂ (Md)₂
- 3-Element set: (Go)₃ (Pr)₃ (In)₃
- 4-Element set: 1. (Go)₄ (Pr)₄ (In)₄ (To)₄
2. (De)₂a(De)₂ (De)₂a(Md)₂ (Md)₂a(De)₂ (Md)₂a(Md)₂
- 5-Element set: ((De)₁)₅ ((Go)₄)₅ ((Pr)₄)₅ ((In)₄)₅ ((To)₄)₅
- 6-Element set: 1. (De)₂a(Go)₃ (De)₂a(Pr)₃ (De)₂a(In)₃ (Md)₂a(Go)₃
(Md)₂a(Pr)₃ (Md)₂a(In)₃
2. (Go)₄b(Pr)₄ (Go)₄b(In)₄ (Go)₄b(To)₄ (Pr)₄b(In)₄
(Pr)₄b(To)₄ (In)₄b(To)₄
- 7-Element set: ((Go)₃)₇ ((Pr)₃)₇ ((In)₃)₇ ((Go)₄)₇
((Pr)₄)₇ ((In)₄)₇ ((To)₄)₇
- 8-Element set: (De)₂a(Go)₄ (De)₂a(Pr)₄ (De)₂a(In)₄ (De)₂a(To)₄
(Md)₂a(Go)₄ (Md)₂a(Pr)₄ (Md)₂a(In)₄ (Md)₂a(To)₄