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ABSTRACT

A discussion of language development and its role in the educational process focuses on the ways in which children use language to order experience. It is proposed that if human experience is construed in the form of language, then the way in which language is acquired can give insight into the fundamental nature of learning These conclusions are drawn: (1) in the process of individual language development, children are re-enacting the history of human knowledge; (2) knowledge first becomes dialogic; (3) major steps in language developmert renew the connection between self and the outside world; (4) children are progressively reconstruing experience away from immediate and concrete to abstract and metaphorical categories, creating new dimensions of semantic space; (5) the learner is constantly building grammar from discourse and discourse from grammar; (6) the learner often regresses and reconstructs (spiralling); and (7) metaphoric categories of meaning require the learner to adopt, simultaneously, two complementary perspectives on experience. Contains nine references. (MSE)

A LANGUAGE DEVELOPMENT APPROACH TO EDUCATION

M.A.K. HALLIDAY

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M.A.K. Halliday

It is a great pleasure for me to be here in Hong Kong on this occasion, and to be taking part in the International Language in Education Conference "ILEC 93". The theme for this year's conference is "Language and Learning", and I have tried to locate my own contribution squarely within that topic. For me the conference comes towards the end of a few weeks' stay in Hong Kong, during which I have been working with colleagues in the language education area; and one of the issues that we have been exploring is that of the relation between commonsense learning and educational learning - between the kind of learning that children are involved in, more or less from birth, in the family and among their own peer group, and the kind of learning they engage in when they come to school, where learning is institutionalized (that is, after all, what a school is: an institution designed for learning in). These two aspects of children's learning experience, commonsense learning and educational learning, are not of course insulated one from the other: there is continuity between the two; but there is not perhaps as much continuity as there could be, and some people might feel that the two are kept rather too far apart. In Hong Kong this is probably thought of as a consequence of the language situation, given the distance that typically separates the language of home from the language of school. This obviously plays some part. But lack of continuity between commonsense and educational learning is not just a feature of societies that are linguistically complex. Even where home and school share essentially the same language of interaction, there is typically a considerable discontinuity in children's experience of learning, as they move between these two learning environments.

Now this is not the principal focus of my talk today; but I need to look a little further into the phenomenon of learning discontinuity, in order then to look behind it and beyond it. What is the nature of this discontinuity between home and school, and how does it arise? One factor is presumably the linguistic medium: commonsense learning, in the pre-school years at least, is thoroughly grounded in the spoken language; whereas after children become literate, at the very beginning of their stay in school, it is typically assumed that what they learn in class will be learnt essentially through reading and writing. But this is clearly not the whole of the picture. After all, even in school the teacher talks to them, and they discuss what they are learning both with the teacher and with each other; and on the other hand, before children ever go into school their parents are often reading to them out of books, and some children learn to read quite a lot all by themselves. So there is no exact equation such that commonsense learning equals learning through speech and educational learning equals learning through writing. Nevertheless the difference between speech and writing is a significant factor - although we should concentrate, rather, not on the medium itself but on the difference between spoken language and written language. It is not the different media that are relevant so much as the different kinds of meaning that are typically associated with them.

What we are observing, in this context, is a discontinuity between educational and commonsense forms of knowledge: between two different ways of construing human experience. It is obviously impossible to characterize this difference adequately in a few short sentences; it is something complex and many-sided. But I can try and capture one or two salient points. (1) Commonsense knowledge is fluid and indeterminate, without clear boundaries or precise definitions: it does not matter too much exactly where a particular process begins and ends, or what is one phenomenon and what is another. Educational knowledge is determinate and systematic: the categories of experience are organized into conceptual structures with defined properties and explicit interrelations. (2) Commonsense learning foregrounds processes - actions and events, including mental and verbal events; of course it is also concerned with things, but their main significance is in the way they enter in to all the various processes. Educational knowledge foregrounds the things: persons and concrete objects, then later on increasingly abstract and virtual objects that are needed to explain how the things behave. (3) Commonsense knowledge is typically construed as dialogue, and built up interactively, or "intersubjectively", by the human group. Educational knowledge is typically construed monologically, and built up by each individual - the "others", in our present educational system at least, tend to be competitors rather than collaborators. (4) And commonsense knowledge is typically unconscious: we do not know what we know; whereas educational knowledge is conscious knowledge - and so it can be rehearsed, and therefore monitored and assessed. There are no examinations for knowledge of the commonsense kind.

James Britton, in his influential book *Language and Learning* written about a generation ago, distinguished in students' writing between the private, "expressive" kind and the more public kinds demanded by the school, "transactional" on the one hand and "poetic" on the other. Britton saw the expressive as the learner's point of departure, the natural mode of meaning that children brought with them from the experience of their early years. The priority that Britton gave to the expressive category derived from his own rather individualistic ideology of education; but his work had considerable influence on educational practice in England and elsewhere - for example in the way primary school writing came to be dominated by stories, on the assumption that the bridge from commonsense to educational learning was to be built out of personal narrative. (See Britton, 1970.) Narrative is, in turn, the term that Jerome Bruner uses to name one of his two modes of "cognitive functioning", the narrative and the paradigmatic. The paradigmatic mode "attempts to fulfil the ideal of a formal, mathematical system of description and explanation. It employs categorization or conceptualization and the operations by which categories are established, instantiated, idealized, and related one to the other to form a system." By contrast, "the imaginative application of the narrative mode leads instead to good stories, gripping drama, believable (though not necessarily "true") historical accounts. It deals in human or human-like intention and action and the vicissitudes and consequences that mark their course." These two modes of cognitive functioning each provide, according to Bruner, "distinctive ways of ordering experience, of constructing reality." (See Bruner 1990:11-13.)

We see this dichotomy transformed and built into educational knowledge if we compare the language of natural science and the language of the humanities, as Martin and his colleagues have done in their detailed studies of these discourses in the secondary school (see Halliday & Martin 1993: esp. chapter 11). The grammar of science constructs elaborate technical taxonomies, using nominalizing metaphors and complex nominal group structures to create virtual objects and build them into sequences of logical argument. The grammar of the humanities, on the other hand, constructs schemata made up of individual semi-technical abstractions, simpler in structure (often single nouns) because not taxonomized, but each one charged with value and coming together as a whole to make up an ideological stance. Compare the following two passages, the first taken from a geography textbook and the second from a textbook of history:

> *As air is moved upward* away from the land-water surface or downward towards it, very important *changes occur in the air temperature. Air moving upward* away from the surface comes under lower pressures because there is less weight of atmosphere upon it, so *it stretches or expands.* Air moving downward towards the surface from higher elevations encounters higher pressures and *shrinks in volume.* Even when *there is no addition or withdrawal of heat* from surrounding sources, the temperature of *the upward or downward-moving air* changes because of *its expansion or contraction. This type of temperature change* which results from *internal processes* alone is called *adiabatic change.*
>
> [G.T. Trewartha, *An Introduction to Climate*, 1968:1361]

I have used italics to mark examples of how the grammar constructs technical entities and organizes them into logical sequences; e.g. *[air] stretches or expands ... because of its expansion or contraction; changes occur in the air temperature ... this type of temperature change ... is called adiabatic change.*

> Wars are costly *exercises.* They cause *death* and *destruction* and *put resources to non-productive uses* but they also *promote industrial and technological change.* This *benefit* does not mean that war is a good thing, but that sometimes it *brings useful developments.*
>
> The Second World War further *encouraged the restructuring of the Australian economy* towards *a manufacturing basis.* Between 1937 and 1945 the value of *industrial production* almost doubled. *This increase* was faster than otherwise *would have occurred. The momentum was maintained* in the post-war years and by 1954-5 *the value of manufacturing output was three times* that of 1944-5. *The enlargement* of Australia's *steel-making capacity,* and of chemicals, rubber, metal goods and motor vehicles all *owed* something to the *demands* of war. The war had acted as a hot-house for *technological progress* and *economic change.*
>
> [H. Simmelhaig and G.F.R. Spencely, *For Australia's Sake*, 1984:121]

Here the italics show instances of abstract expressions of a semi-technical kind (e.g. *exercises, put ... to non-productive uses, brings ... useful developments*) and terms with a clear evaluative loading (e.g. *destruction, non-productive, promote, benefit, useful, increase, momentum*). The ideological motif of 'growth is good' is foregrounded throughout (cf. Halliday 1993a:25 ff.).

I will refer again to these examples later on. Here the point I am drawing attention to is this: the kind of variation that we find here at secondary level, between the discourses of science and the humanities, is an elaboration of the same dichotomy; this dual motif runs throughout the educational process, and there seems no reason to assign priority to one variant or the other. Yet in much of contemporary learning theory and educational practice in the West it is assumed that the narrative mode (in Bruner's sense) is somehow cognitively prior, and that commonsense learning is overwhelmingly in terms of "good stories". Bruner himself acknowledges (p. 127) that his own early model of the child was "very much in the tradition of the solo child mastering the world by representing it to himself in his own terms"; and this model readily lends itself to (and in practice typically co-occurs with) a "story-telling" interpretation of childhood. I think that we, as educators, should challenge and be prepared to reject this kind of "childist" model. If we accept any such dichotomy as that proposed by Bruner (and it may be helpful as a tool for thinking with, although we might adapt it to become less dichotomized and more explicitly grounded in language), we probably need to recognize that both these modes of meaning, the paradigmatic as well as the narrative, contribute equally to children's commonsense ordering of experience.

If we are seeking a model from educational theory which we can relate to the distinction between commonsense and educational knowledge as this is manifested in children's early language development - where the commonsense reality is construed in language before the educational one - we might do well to reexamine Bernstein's theory of code, deriving from a sociological rather than a psychological perspective on learning. Commonsense and educational learning construe reality in terms of different codes. While these do not correspond exactly to Bernstein's "restricted" and "elaborated" varieties (there can be various features of elaborated code in the linguistic construction of commonsense knowledge), they are related at a general level; and more specifically, in that educational knowledge as at present constituted cannot be construed without the semantic resources that Bernstein identified as "elaborated". This applies equally both to the discourse of science and to that of the humanities.

What we have been lacking, however, it seems to me, is a perspective on learning that starts from language itself, instead of first being formulated from outside language and then mapped on to observations of language as an afterthought. Of course we have moved some way from the views of Piaget, who saw language as essentially a means for the expression of thought processes. Both Bernstein and Bruner, arguing for a constructivist view (and citing Vygotsky as a pivotal figure), foreground language as a central factor in the process by which reality is constructed. But if reality is constructed in language - or, as I would

prefer to put it, if human experience is construed in the form of language - then the way in which language itself comes into being must give us an insight into the fundamental nature of learning. After all, children are at the same time both learning language and using language to learn with (as Gordon Wells has documented very richly in the course of his work). It is we who distinguish these two processes, as we have to do for purposes of analysis; as far as the children themselves are concerned, learning language and learning through language are just one integrated process - namely, learning. Might we not take more account of what has been found out about children's language development, when we try to increase our understanding of the nature of learning in general?

It seems to me that there are certain aspects of what we know about language development in children, if we start from the earliest phase before they move into the mother tongue, that are relevant and suggestive in such a context. I am not going to try to enumerate them all - I have written about this elsewhere (Halliday, 1993b); but I should like to discuss one or two of these features of children's learning which I think are particularly relevant to the present situation here in Hong Kong. Let me refer first of all to the very general principle of linguistic function, and ask: what are the functional contexts in which language first appears?

1. Very early in life, children find that they can use language - not yet the mother tongue, but a "child tongue", a little protolanguage they construct for themselves, in interacting with parents and others - in a number of different ways: to get things done for them, or given to them; to get others to join in some activity, or else just to attend to them and "be together"; and to express their own feelings and curiosity about the outside world. When they start to learn the mother tongue, however, and thus get ready to construe their experience in the distinctively human mode, children typically adopt a simple but very powerful strategy: they reconstrue these functions by setting up a very general opposition - that between language to act with and language to think with. In this period, round about the second half of the second year of life, it has often been observed that children's utterances are of one or other of these two kinds: either pragmatic - they want something done for them; or what I called "mathetic", meaning by this the learning function - they are learning to name things and to describe what is going on around them. This strategy then turns out to be a transitional one leading to something much more pervasive and lasting: before very long each utterance comes to include a combination of both functions, having both an active and a reflective dimension of meaning. Now, from the language point of view, what we are seeing here is the birth of grammar, as (i) the opposition between pragmatic and mathetic evolves into the mood system (indicative /imperative and so on), while (ii) the experiential content (of both types) evolves into the system of transitivity: transitivity and mood are the two fundamental components of the meaning of the meaning-making resources of every natural language. But we also see here something that is significant from the point of view of learning in general: namely, that construing experience is inherently an interactive process - there can be no content without also a speech function. The mood system is the resource for constructing dialogue; and it is only when the experiential content is mapped into a dialogic form that the child's world begins to

take semiotic shape. Commonsense knowledge is not a purely experiential construction; on the contrary, it is built out of the impact between the experiential and, the interpersonal modes of meaning. Learning involves both thinking and doing.

2. In the course of this impact, something else takes place. At the beginning of the transition from protolanguage to mother tongue, the child's mathetic utterances are, as it were, annotations, or footnotes to experience - a commentary on what is going on at the time, or an account of happenings from the past. They are not yet statements: that is, the child does not address these utterances to anyone who is not, or was not, a party to the happenings in question. Children may simply say these things to themselves. But if they are directed to another person, that person must be someone who is sharing or has shared the experience with them. Adults are frequently surprised to discover this; mother says, after an outing with her little boy, "Tell Granny what we saw" - but the child cannot do so. He may turn back to mummy, and tell her the whole story; but if he turns to look at granny, he is tongue-tied: - How can I tell Granny? She wasn't there. At this stage, language is a construction of shared experience - it is not a surrogate for it; and it is only when the two dimensions of meaning come together, when transitivity and mood combine to form a clause, that children can construe experience as news, using language not just to say but to tell. And once they can tell, of course, they can also ask. Again, when we trace the origin of telling and asking, we are looking at the child's development from a language point of view. What is the relevance to a general learning theory? It is that "information", something that we usually take for granted (it is after all built in to the concept of teaching), is not an inborn capability. Telling is a capability that has to be constructed - constructed in the course of learning language. It is only when you have learnt to tell that you can share experiences symbolically, as information, with those who have not been present with you to share in the events themselves.

The last two paragraphs have concerned developments that take place long before children go to school; they lie at the foundations of our unconscious, commonsense knowledge. There are other aspects of language learning which stretch out over much more extended periods of time. Let me turn next to two examples of these. The first I shall call the "interpersonal gateway".

3. I have suggested that language, in its distinctively human, adult sense, is an interplay of action and reflection: of the interpersonal and the experiential "metafunctions", in the terms of systemic functional theory. In every human language, whenever we speak (or write) we are typically at once both construing some aspect of experience and enacting some interpersonal force - the second of these includes both expressing our own angle on the matter and engaging in some relationship with another person, or other people. Both these components of meaning are present in all discourse. They are installed there by the grammar; hence, the grammar also makes it possible to foreground one or other of the two. It seems to be the case that when children are taking a major step forward in language learning they typically do so in contexts which are strongly loaded

interpersonally. One example could be drawn from my last heading, learning to tell: this step is likely to be taken under pressure from the expressive domain, when a child needs to convey that something unpleasant has happened - he has hurt himself, perhaps, and is needing sympathy. Another example, from a little later on, is that of learning to construe conditions: logical-semantic relations such as those expressed in English by *if, unless, although*. These are learnt in the first place, as Clare Painter (1989) and Joy Phillips (1986) have observed, in the context of threats and warnings: the adult says things like "if you touch the iron you'll hurt yourself", or "unless you stop banging that pan I shall take it away from you" - and the children then address such remarks to themselves, or to a younger brother or sister if one is available. In these and numerous other such examples, the meanings they are learning to make are primarily experiential in nature, semantic configurations which are going to play a central part in constructing knowledge, both commonsense and educational knowledge (like conditions); but the child's way in to these meanings is through the interpersonal gateway. And this again has implications for a general model of learning: the greater the conceptual distance that has to be traversed, in some particular learning task, the more critical it may be to set the task in an interpersonal environment - some context with which the learner is likely to be positively and interactively engaged.

4. The next feature is one which extends throughout the entire process of language development: the movement towards abstraction - children's progress through the semantic territory of the general, the abstract and the metaphorical. This too is a development in the potential of the lexicogrammar, and we can observe it as we track how children construct their grammatical resources. When they first move into the mother tongue, children learn to generalize: that is, they make the leap from "proper" to "common" terms - from naming individuals to naming classes, classes of things (persons and objects), of processes (actions and events) and of properties. These phenomena are construed in the open-ended word classes of every language, prototypically the nouns and the verbs. Children have no problem in construing as general terms the concrete domains of their "outer" experience: they readily master cups and dogs and buses, big and red, falling and hitting and breaking; and soon afterwards they also learn to construe their own "inner" experience of hurting and liking and remembering and seeing and so on. What they cannot yet cope with at this stage are words with purely abstract referents: words like *real* and *habit* and *choice* and *manage* and *delay*. Since one needs abstract meanings when learning to read and write (the teacher will often refer to *words* and *sentences* and *complete sense* and *information* and the like), it is at the age when children typically come to master this kind of language - round about five - that we put them into school. But it is not the actual skills of reading and writing so much as the entry into educational forms of knowledge that will make this demand on their language abilities. The primary phase of education depends on the learner being able to understand the meaning of abstract discourse.

But there is still another semiotic hurdle remaining to be crossed: the move from the abstract to the metaphorical. And this typically requires another four or five years of development. It is usually not until the age of eight or nine that children

begin to accommodate metaphor in their grammar; and it takes them two of three years to sort it out and domesticate it. Now, while the educational knowledge of the primary school depends on abstractness, the discipline-based knowledge of the secondary school depends on metaphor: the sort of discourse that I illustrated earlier in the extracts from geography and history. Both the humanities and the sciences rely extensively on metaphor in the grammar, though in rather different ways. The history text talks about *war* and *peace* and *benefits* and *influences* and *supporting* and *promoting* and *progress towards a manufacturing basis*: these are metaphoric manipulations of abstract or institutionalized entities, which the learner has to relate to each other and assign appropriate connotations of value. The geography text talks about *withdrawal of heat, expansion, contraction, condensation, humidity, drainage, frontal uplift* and the like: these are processes and properties (get cooler, expand, shrink, condense, humid, drain, push up from the front) but they have been nominalized - that is, transformed metaphorically into virtual objects, the component parts of a systematic technical taxonomy. It is only by the time of adolescence that children are fully at home with this metaphorical mode of construing experience: when they move over from the primary stage of education into the secondary.

Thus it is the development of grammar that reveals most clearly the maturational principles that lie behind the structure of education - not only of educational knowledge but of the institution of education itself, the division of schooling into primary and secondary, with (in some systems) a middle or junior high school dedicated to helping children make the transition. Of course, the linguistic factors that I have picked out here as being critical in this developmental process are not suddenly appearing in isolation from everything else; they are part of the grammar's overall construction of experiential meaning. The grammar opens up a multidimensional semantic space through clusters, or syndromes, of related systemic features. To give just one example, at the same time as children are mastering these metaphorical nominalizations they are also, in English, developing the use of non-finite clauses, which are another element within the same area of semantic potential. But we can often identify certain specific components within the grammar which turn out to be critical for a particular "moment" in children's construction of knowledge.

I would like now to refer to three further linguistic features which illustrate my general thesis; but I will deal with them very much more briefly. They are, as those already discussed, aspects of children's language development which seem to me to offer pointers to the nature of learning in general. The three headings - somewhat opaque in themselves, but to be clarified, I hope, in what follows - are: the movement between system and instance; semiotic regression and reconstruction; and the synoptic / dynamic complementarity.

5. In learning language, children are all the time moving between the system and the instance. That is to say, they are construing the system - the potential of language, its semantic, lexicogrammatical and phonological resources - out of instances that they listen to and read; and, on the other hand, they are using these resources in speaking and in writing: from the system they are producing instances

of their own. It is the dialectic between these two that constitutes learning. We can often observe this movement when a child says something new, describing an event, perhaps, with a grammatical pattern that is extending the frontiers of his system; the child may then repeat the same account, many times, over the next few weeks and months, using precisely the same sounds and the same wording - by which time the system has moved ahead, and the instance now sounds like a fossilized relic of an earlier stage (which is exactly what it is).

6. In this particular case, there is no actual regression: the child's progress only appears to be stilted because we are hearing, at one and the same time, instances that were first worded at rather different times. But in one type of context there is a pattern of regression and reconstruction; this happens in the transition from commonsense to educational learning - it is an aspect of the discontinuity that I referred to right at the beginning. When children move into school, they face a considerable task of semiotic reconstruction: they have to reorganize their ways of meaning along new and unfamiliar lines. They have to re-form their language into a new medium, that of writing; and at the same time, or shortly afterwards, they have to restructure the discourse semantics so as to construe their knowledge systematically in a conscious form. In this process they often regress to earlier modes of meaning, on the one hand in their writing, so that a six-year-old, fluent and sophisticated in speech, will often write using the language of a child of two or three; and on the other hand in their understanding, so that they are learning over again things they already know perfectly well, but learning them now within an organized structure of knowledge. Children sometimes do not realize that something that is being presented to them in the written mode, and with all the majestic authority of the textbook, is actually something that has been part of their unconscious knowledge for some considerable time. I often cite the example from an upper primary science textbook, "Some animals protect themselves with bites and stings": in Australia, at least, children have known this since the age of two - it is important for their survival! They would not, of course, construe it in this way grammatically; they would say *they bite and they sting*, using verbs to express the actions, whereas the textbook is introducing them to scientific discourse and transforms these processes metaphorically into nouns: *bites and stings*. The experience is being reconstrued for them, by the grammar, as part of a different universe of knowledge.

7. And this leads me to the final heading, which I expressed technically (using grammatical metaphor) as "synoptic / dynamic complementarity". Here in fact this very fundamental notion of grammatical metaphor becomes central to the interpretation of learning. When children first construct the grammar of their mother tongue, they are able to do so very quickly because it provides them with a theory for explaining their own experience. So the structure of a clause, in English, or in Chinese, is a theory about actions and events; it provides (i) a class of words for the process that is taking place, the doing or happening - this we call a "verb"; and (ii) another, distinct class for the participants in the process, the persons and concrete objects that do things, or have things done to them - these are the "nouns". So the child construes a model of experience in which the basic unit is an action

or event, comprising a process and one or two participants, with the process represented as a verb and the participants as nouns. Thus the prototypical meaning associated with a noun is that of a person, animal or concrete object; that associated with a verb is doing or happening. Other aspects of the total phenomenon also have their typical forms of wording: adjectives construe properties, conjunctions construe logical-semantic relations and so on. Since the grammatical mode is clausal, which foregrounds doing and happening, the resulting picture of reality is a fairly dynamic one.

But later on, as we have seen, the grammar undergoes a change; it is reconstructed in different forms, with nouns, or rather nominal groups, taking over from clauses as the basis for organizing experience. Now if children's grammar had started out in this way there would be nothing metaphorical about it; the noun would have been the everyday, typical resource for talking about phenomena of every kind. But it did not. In their commonsense learning, nouns were names of things. The grammar is not now neutral any more; it is already semantically charged, and the nouns carry this semantic prosody with them wherever they go. So when experience is reconstrued, with educational discourse, into a nominalized form, this sets up a semantic tension, a complementarity of perspective. If students read about *evaporation*, and *seepage*, and *rainfall runoff*, in their hydrology text, these have the semantic features both of happenings, processes (water evaporates and seeps through, rain falls and then runs off) and of things, this being the prototypical meaning of a noun. We might want to say that no phenomenon can be both process and thing at the same time: the two are mutually contradictory. But that is precisely what *evaporation* and *seepage* and *rainfall runoff* are. Just one or two random instances by themselves would have no noticeable effect; but when the entire edifice of knowledge takes on this bivalent form it makes a profound difference to the learner's picture of the world.

The two conflicting forces, however, do not meet on entirely equal terms. Commonsense knowledge is deeply installed in our brains and in our bodies; but it is unrecognized - whereas the more lately developed perspective carries not only the full authority of educational discourse ("what the textbook says") but also the immense power of a knowledge that is organized and systematic: either in systems of values, typical of the humanities, or as in the sciences, where the grammatically constructed logical argument is further reinforced by the taxonomic resources of the lexicon. (Such taxonomies depend entirely on construing every phenomenon as a "thing".) The effect of this is to provide a less dynamic, more synoptic vision of the world, in which reality is as it were held still, rendered fixed, bounded and determinate, so that it can be observed, measured and, if possible, explained.

This suggests that we, as educators, need to be aware of the technical language of the scientific disciplines and to see it not as a "jargon", a set of unnecessary and often complex and cumbersome terms, but as a powerful grammatical resource with which experimental science reinterprets human experience. We might note here that technical taxonomies are rather less forbidding in Chinese than in English - whereas in its technical grammar, on the other hand, Chinese is the more problematic of the

two (see Halliday & Martin 1993: chapter 7). But the implications for learning theory go rather further than this. It is not simply that we should be aware of how reality is construed in language, first in the language of the home and then later reconstrued in the languages of education. More especially, to a significant extent the process of learning consists in adopting complementary perspectives on experience: on seeing reality in ways which are at one level mutually exclusive, and even contradictory, and yet which taken together provide a deeper insight than either perspective adopted by itself. In one sense, the entire division into commonsense knowledge and educational knowledge, of which we tend to emphasize only the negative effects (and these there certainly are), may also have its positive function, if it is from the clash between these two very different modes of meaning that wisdom is ultimately attained.

I have made use of seven headings, as follows:

1. the functional multiplicity of grammar: "action & reflection"
   - enacting interpersonal relationships ["interpersonal"] and construing human experience ["experiential"]

2. "information" as dialogic exchange: "telling & asking"
   - combining mood (interpersonal) and transitivity (experiential) as the foundation of commonsense knowledge

3. the interpersonal "gateway" to learning
   - engaging with what is being learnt, through involvement of the "self" in interaction with others

4. the move towards the abstract
   - from generalization to abstractness to metaphor: creating new dimensions of semantic space

5. the dialectic of system and instance
   - construing grammar out of discourse, and construing discourse out of grammar

6. semiotic regression and reconstruction
   - accommodating the written medium, and reorganizing knowledge in systematic and conscious form

7. complementary perspectives on experience: "dynamic & synoptic"
   - maintaining the tension between reality as process (clausal) and reality as thing (nominal)

What these seem to suggest, if we put them together, is that learning, when seen from the vantage-point of language, is a highly complex endeavour - but one that is achieved through the interplay of a number of different meaning-making

processes each of which by itself is rather simple. It is perhaps better to try and summarize them in a different order. (4) Children are progressively reconstruing experience, away from the immediate and concrete, using likeness (or analogy) to construe general categories, then abstract categories, then metaphorical categories. Adopting a topological framework we can say that each step creates, or rather allows the learner to create, new **dimensions** of semantic space. (7) The metaphoric categories require the learner to adopt simultaneously two complementary **perspectives** on experience. Three further factors also play a part in enabling children to learn: (2) knowledge first becomes dialogic, such that it is expanded by telling and by asking - the learner is **exchanging** meaning; (6) the learner often regresses and reconstructs, returning to the same experience at a "higher" semiotic level - the familiar phenomenon of **spiralling;** (3) major steps involve renewing connection with the self, and the axis of "you and me" - let us say that the learner is **engaging** with what is being learnt. (5) Throughout these processes the learner is always involved in the dialectic between the **system** and the **instance;** in language, this means building a grammar out of the discourse and building a discourse out of the grammar. (1) Finally, the concept of "language development" suggests that children are recapitulating, or re-enacting, the history of human knowledge - I do not mean modelling it in detail, but developing a semiotic, namely language, which is at one and the same time a mode of reflection and a mode of action. In other words, the learner is developing the **metafunctional** foundation on the basis of which knowledge itself is construed.

You may feel that considerations such as these are merely the abstract musings of a grammarian who (like the grammarian of folklore) is a dealer in symbols, far removed from the daily activities of the classroom. Some might think that nothing in the theory of grammar would be relevant to educational practice. But we are now educating the citizens of the twenty-first century; and the demands that are going to be made on their intellectual resources - their understanding of the world, and of their own situation within it - are truly formidable. The points I have raised here are my own perception of how aspects of the learning of language may relate to learning, and to teaching, in general. They may not be the main issues; they may even be wide of the mark. But if we want to understand how children learn, and how we, as teachers, can effectively contribute to this process, I think it can be helpful to explore a language development approach to education.

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