

"LEARNING HOW TO LEARN HOW TO UNDERSTAND"

Understanding UNDERSTANDING

An Introduction To A Personal View Of The Educational Needs Of Children

Geoffrey Waldon, 1980 (revised, 1985)

The philosophy, the theories of learning and development, and the practical approach, briefly outlined here, have evolved over many years and much has derived directly from my day-to-day work with children with learning difficulties; however, the ideas apply to all education, of children and grown-ups alike.

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1. General and Particular Understanding

A tiny baby awakes in his pram, briefly follows the movement of a swaying branch with his eyes before fixing his gaze on a bright reflecting surface. He wriggles his body and spreads his arms and hands, grasping at the blanket when it touches his hand. A moment later finds his hand the object of his visual interest as he slowly rotates it and exercises the fingers before and above his face. With each day he moves more, more vigorously, and with greater variety.

A six months child sits in the middle of the floor, his curved back supporting a generally downward peering face, whilst his mother, unheeded, busies herself with the washing up. A nearby bright object comes within his sphere of interest and he reaches towards it with gathering -in movements of his arms and hands. Once secured it is held close to the body and is soon joined by the other hand. It is passed from hand to hand and once again lifted into his field of vision. Now he finds another object to examine and as he scrutinises this the first object drops from the loosening fingers of the other hand. Steadily as the days pass the range of actions increases in amount and complexity. Soon one object continues to be held onto whilst the other hand reaches for something new. One object is struck against the other.

Quite alone in the room and surrounded by objects and receptacles the eleven months child strikes at various targets with held objects and appears to notice the effects of these actions. Looking around she finds a cotton reel in a cup and takes it out; then, after transferring her attention from object to cup and back to object, she replaces the bobbin in the cup and soon after takes it out again. Equipped with something to put in and something to put it into she can play endlessly; however, she is suddenly distracted by a sound and the cotton-reel, missing the cup, falls to the floor and rolls away. Her reaching efforts to regain the bobbin causes her to pull inadvertently on a wooden hammer and this movement brings with it the required cotton reel. A few months later, again engaged in solitary play, several objects are moved successively from one place to another and back again, and fugitive bobbins are occasionally reached for quite deliberately with an object-extended arm.

Aged twenty months a child is laboriously carrying stones from the garden and collecting them together in a bucket on the path. Different shapes, sizes and weights of stones are handled according to their requirements and the lawn-borders and flower beds are negotiated as necessary. Sometimes, the labour proving a little tiring, he pauses for a while to examine a specimen and occasionally two are brought together as if being compared, but soon he is back at work transferring his collection from one place to another.

A thirty months child is concentratedly separating wooden cubes into columns each of a different colour later to be re-grouped into shorter piles which separate the larger from the smaller cubes. Dismantling and re-building she continues in this activity for half-an-hour.

A six year old, fluted tongue protruding between his lips and blissfully unaware of the others in the room, is intent on keeping within the lines as he carefully colours-in the parts of a picture. Slowly and deliberately he chooses each colour to suit the requirements of his model and gives particular attention to getting his crayon into all the corners.

These children, ignored by and ignoring others, are engaged not only in learning but in learning how to learn for a substantial proportion of their time, for their energy and other resources must be devoted to preparing for even more effective experience-gathering in the future. (1)

As yet very little specialised skill is required or expected of them by society - just a little cooperation with mother in bathing and dressing and feeding, or with the teacher in the recognition of a few written word patterns and the drawing of letters - hence they are, for the most part, free to choose to do what they like and to do it in the way they like, just for the fun of doing it. In this way they are encouraged entirely by the satisfactions which accompany these activities. (2)

What they are learning is common to all children of similar ages; it is shared by all growing human beings. Of course some learn faster and more effectively than others and some have great difficulty in learning to understand at all; however, fundamental general understanding and the ways in which it is learned and the ways in which it grows and is exploited, is basically the same for all humans.

It will be noticed that this kind of experience-gathering requires no other persons. The child does everything for him - or her - self. He chooses the behaviour from his store of experience; he initiates the action in his own time; its performance is reinforced, or rewarded, by the pleasure he takes in it, and in future it is likely to be chosen again because of the pleasure he has previously taken in it.

Whatever he does and how-so-ever he does it is good. Even if what happens is not quite what or how intended, it is still good.

Everything new he learns, grows out of what he has learned before and contains the essence of what has gone before. Therefore, the more soundly anything is understood, the richer and more varied the state of understanding, the more probable it is to prove the source and foundation of wide-ranging and mature abilities in the future. (3)

It must be noted that each of these children is playing all by himself. For this kind of play the actual presence of other people is not necessary. If they are there, their role need be no more than that of domestic animals or inanimate objects for this kind of experience-gaining, and so the child can behave as if completely alone. (4)

When the child does interact more sociably with other people the whole mood or atmosphere changes. The forms of this learning and the kinds of understanding which result are then quite different. In the first instance the influence of the surroundings on the child's gain of experience resulted directly from his acting upon it according to his current state of understanding; however within the social context other people can play a major part in shaping the child's behaviours by heavily reinforcing those responses which are both apparent and seem desirable. This deliberate selection for encouragement of only some of the child's behaviours is only partly a conscious act on the part of older members of society and is guided by what seems best for the child. (5)

These social conditions provide opportunities for a child to learn the kinds of skills and accumulate the sorts of information that his particular society considers to be good for him. Such skills and knowledge may be very different from those to be learned by a child of a different culture or from a different era or living under different geographical and climatic conditions. This culturally biased experience and skill can only be satisfactorily learned if there exist the behavioural raw-materials and the appropriate states of preparedness for learning which only the *unspecialised* or *general* understanding, which stems from solitary play activity, can provide. Such general understanding can not be acquired under fully social conditions. (6)

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2. Specialisation and Survival

Man's superiority over the other animals as a survivor stems from the relatively unspecialised form of his body and the relatively unspecialised or 'general' nature of his basic understanding. The young human child tends to discover general principles from which all sorts of specifically useful skills can be derived, and by making the most of this general advantage, is better able to learn to fit into his own particular society or culture and is better adapted to deal effectively with the unexpected than the more specialised creatures. (7)

The child, actively playing by himself, is constantly enlarging his fundamental experience and organising it into an increasingly effective general understanding which will direct and guide his future actions in their role as experience gaining processes and as the means of coping with everyday problems.

This general understanding is essentially similar to that of all other children, but when the child learns in association with other people he tends to form the sorts of skills which he shares with those of the same or related cultures.

These two very different kinds of understanding develop under differing sets of circumstances; one in which the child is effectively alone, the other where the conditions are relatively social.

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3. Non-social and social learning compared

During non-social learning the child alone, or at least ignoring the presence of others, selects and designs his every action from his past experience. He monitors the event and the effects of his action, for it is the difference between the design and the event and the differences between the expected and the actual outcome which represent potentially additional experience. Hence new learning always takes place at the edge of the current understanding. The more extensive the front is, the more finely divided its variations, and the more often it is active, the greater the amount and the more sound the quality of the new experience.

The reinforcement or reward for this learning is related in kind to the action itself and is proportional to the amount of effort expended.

The seeking after pleasures which accompany and reward this learning constitutes *motivation*, which implies the child's power or 'head of steam' and the expectancy with which he continually seeks outlets for this potential activity. *Motivation* thus has to do with the child's tendency to initiate activity and to be continually seeking outlets for this imminent action. It should not be confused with 'incentive' which implies an interest in the outcome. (8)

In this way new general understanding always grows out of the earlier whilst the later always contains the essence of the earlier. Hence there is a necessary order of priority in this form of general learning. The child can only select from past experience and can therefore never seek consciously to do truly new things. In fact he can consciously want to do only what is already well-established within his understanding. At the same time his recognition of a task or problem implies an understanding potentially capable of at least setting about finding a route or solution. In this way a child's development, of what subsequently may come to be regarded as 'useful' skills, is always in tune with his state of understanding and readiness. Such is *personal particular* understanding. (1) (9)

General understanding therefore is not concerned with achievement, attainment, completion or success, or with being right. Since reinforcement is directly proportional to the expenditure of effort, short-cuts and labour -saving devices are naturally rejected. Varied routes lead to increased experience, for everything that happens and all perceptions are proper and valuable - everything is right, for there is no such thing as wrongness in this sort of general understanding. (10)

The development of cultural or *cultural particular* understanding, on the other hand, depends upon the learning of particular skills and the acquiring of specific kinds of information which are selected, consciously or unconsciously, by the older members of that particular society. Under these conditions only approved-of responses are reinforced so that the child's behaviour is shaped towards culturally acceptable forms.

The reinforcement - social approval is perhaps the most universal reward of

this kind - is usually not closely related to the kind of activity being encouraged and the amount or intensity of the reinforcement given is usually not related to the amount of effort the child puts into his learning; in fact it is often the case that the brief, well -defined but subtle behaviour is the most potent awakener of social reward. For example, a little smile, a soft murmur or a special word, when executed accurately and at the appropriate moment, can bring a child prolonged and loving attention.

'Incentive' for this kind of experience gaining depends on the child's need, not for the experience, but for what has been promised as a reward for successful learning. Hence (unlike the learning for general understanding) the more rapidly and accurately a skill is acquired the better. (11) Rewards are for achievement, for attainment, for completion of a task, for success. Exactness and effort-saving are seen as virtues, almost as the hall-marks of the satisfactory learning of cultural-particular understanding.

The two kinds of learning, leading to general understanding and cultural particular understanding, vie with each other for the child's resources of time and attention and eventually the demands of the particular culture become completely dominant; from which time the appearance of truly new understanding is a rare phenomenon.

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4. [Diagram - Learning for Understanding \(G.W. 1976\)](#)

See below.....

Diagram - Learning for Understanding (G.W. 1976)

	Fundamental Learning for : GENERAL UNDERSTANDING	Associative Learning for : - CULTURALLY DIRECTED (SOCIAL) PARTICULAR UNDERSTANDING
	Functionally alone	With another
SOCIAL STATUS		
SELECTION OF TASK OR ACTIVITY	Self selected	By another
STATE OF PREPAREDNESS	Inevitably appropriate	Dependent on interpretation of 'teacher'
SOURCE OF TASK etc.	Previous experience of learner	Previous experience of 'teacher'
DESIGN & CONTROL OF TASK	Self	Other
REINFORCEMENT	Simultaneous: and all activity reinforced. Related in kind (qualitatively related) to the activity Amount directly proportional (quantitatively related) to effort expenditure	After: only selected acts reinforced. Not related in kind to the activity Not related in quantity to the effort expended (often nearer to inverse proportion)
MOTIVATION	Tendency to produce effortful activity seeking outlet - motive power	Incentive - reward from another for achievement, 'success', co-operation etc.
FORM	Exponential growth towards generality All new understanding grows out of earlier and contains the essence of the earlier Invariant genetic sequence	'Shaping' down or building up brick by brick Segments of learning not necessarily related to each other
SPECIFICITY OF 'GOAL' ACTIVITY SKILL, MOTION, ETC.	General - at most definite a 'bundle of possibles'	Specific, Precise
TOLERANCE	High	Low
<u>MANNER OF LEARNING</u>	-	-
ROUTE TO GOAL	Tortuous and varied	Direct and simple
VARIATIONS ON BEHAVIOUR	Encouraged	Selectively discouraged
MEANS TO END	Means constitute the 'end'	End is independent of the means
TIME TAKEN IN LEARNING TASK ETC.	Deliberately prolonged	Reduced to a minimum
EFFORT INVOLVED	Deliberately excessive	Minimal
VALUE OF 'GOAL' (ACTIVITY, SKILL, NOTION, DATA)	Interest - source of further understanding	Usefulness or 'appearance'
EDUCATIONAL PURPOSE	'Scientific' Enlarging understanding (appropriate application assumed) Enlarging reason, scepticism, radicalism	'Technological' Applying understanding Controlling behaviour Facilitating accepting and 'fitting-in' behaviours Acceptance - conservation - reaction Conformity

Note: Gain of particular understanding ideally derives directly from the use of the general understanding. It remains a non-social activity being selected and initiated by the learning organism and shaped and reinforced in direct response to the perceived effects of such activity upon the environment; however our contrast here is between gain of general understanding and gain of particular understanding as imposed by other members of the society. GW 1976

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5. [Early Development](#)

The baby's early struggles [\(13\)](#) result in an increasing amount of effortful activity involving the whole of his body. This early activity is the source of *motivation*, meaning, as the word suggests, a tendency to produce movement stored, as a kind of fly-wheel, to provide the motive-power for future action. Those same movements, during the first few months, explore the surrounding space, and exercise the limb and head movements in working together, so that in due course the child can concentrate or 'focus' his attention on those things that come to interest him. [\(14\)](#)

By halfway through his first year the depth and angle of focus allows the rapidly developing child to attend in depth to a greater region of his surroundings, and by the end of the first year his organised bodily movements make it possible for him to scan virtually the whole of the available space, with great ease. [\(15\)](#)

Soon a capacity for choosing between alternative interests [\(16\)](#) coupled with the ability to retain the image of an object (when it is no longer felt or seen, or heard [\(17\)](#)) gives rise to the behaviour characteristic of the second year of life - that of moving objects successively their positions and changes of position in space from place to place. This 'continuant' behaviour, as I call it, is the source of an enormous amount of experience gained about the appearances, properties and associations of things, and of their positions and changes of position in space.

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Such experience is the raw material from which those basic experience-gathering and processing mental operations - the learning-how-to-learn tools - are constructed during the next few years.

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6. [Retardation and Handicap](#)

Sometimes an impediment (such as a movement disorder or hearing impairment) interferes so as to slow and distort development. However, it is the behaviours which the child produces in order to cope with the primary impediment which present the greatest obstacle to normal development, since these progressively accumulate. These *secondary impediments* fall functionally into two groups, although quite often a particular behaviour performs both functions.

One set - *the retardation behaviours* - seems to be designed to reap the maximum pleasure whilst expending a minimum of effort. As little work is done as is possible, variations are avoided, applications are postponed. If a job can be done with one part of the body only - that's how it will be done. The child keeps as close to the well-tried and to the familiar as possible.

The other set is that of *the handicap behaviours*. A child is handicapped when

his emotions tell him that he is, in some way, at a disadvantage. When he interprets a situation as being excessively demanding of his abilities he will feel insecure, anxious, even fearful, and this state of handicap he attempts to avoid, escape from or assuage. The handicap behaviours perform just such a purpose.

Retardation behaviours, which have the child clinging closely to the familiar, and Handicap behaviours, which prevent involvement with the less familiar, both interfere with a free and contented participation in the activities which give rise to novel experience and, therefore, hinder the proper development of understanding.

Educational measures designed to facilitate learning in the vulnerable child must set out to minimise the need for handicap behaviours, so releasing the child from the continual necessity of defending himself against, what seem to him to be excessive demands. Within such a handicap-free haven we must then cause the child to engage in the activities which are most appropriate to his stage of development. (19)

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7. The Asocial Lesson (20)

The *asocial lesson* is one way of promoting this objective. The asocial lesson is intended to *simulate the ordinary conditions of learning* for the normal child, whilst allowing the teacher to apply the necessary teaching constraints and to intervene *without changing the nature of the learning*, without, that is to say, transforming circumstances ideal for gathering general experience into those tending to encourage the learning of particular skills.

Whilst the *content* of a lesson determines the nature of *what* is being learned the *conduct* (that is to say the attitudes of the child and teacher) decides *how* it is learned and whether it is predominantly general or particular experience which is being gained.

In *asocial* teaching the *conduct* is geared to reproduce roughly the kinds of conditions which influenced those children earlier, when the adults were not actively engaging their attention.

As one would expect from observations on normal children playing under these conditions (but contrary to the usual adult expectation) children, including children with learning difficulties, engage in prolonged and constructive activity and concentrate their interest far more *when they are not continually praised and corrected*. Under these conditions not only is there no need to break down or divide skills into small steps, such an unnatural imposition is seen to be obstructive to the flow of general fundamental learning.

Within the asocial lesson the teacher behaves, so far as possible, *like an inanimate* object, neither inviting social responses nor responding to them, and *never* consciously demanding of the child more than he himself knows he can manage. (21)

The *content* of the lesson always follows the pattern of the development of normal fundamental general understanding (see diagram II). The first priority is the appearance of effort; the second is active involvement of the whole body and of space; the third is the integration and the concentrating or focusing of interest; and then the culmination of these in continuant behaviour, the moving of things successively from place to place. Thus, by exercising such a simple basic behaviour, we can promote *motivation* in the child, encourage his bodily integration and facilitate the accumulation of his experience of things and their behaviours, prior to the forging of the basic learning-how-to-learn tools.

Far from being a boring task, picking up objects to place them somewhere else becomes more and more interesting to the child as he comes to truly master the skill. (22) Of course, it is the physical base on which such high level activities as seriation, sorting and matching, brickbuilding and drawing, are founded and, even when no such activity is apparent, the competent child will impose his own patterns on this truly basic skill.

In raising the amount of effort involved - by increasing the amount of material to be moved, enlarging the distances involved, interposing obstacles to be overcome or extending the duration of the task - the child is motivated or 'empowered' to engage effortfully in derivative behaviours.

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8. The Learning-How-to-Learn Tools (23)

During the first year the child is preparing himself for the business of coming to understand the world.

In the second year he gathers experience very effectively but in a rather haphazard manner and soon he must begin to develop his general understanding more efficiently and more selectively. He must start to impose his own order on everything he meets with so as to make it comprehensible.

This duty is performed by the mental processes which I refer to as the learning-how-to-learn tools, which are forged during the third, fourth and fifth years, from the experience gathered in the second year, with the bodily apparatus organised during the first year.

The learning-how-to-learn tools may be, for convenience, studied under six headings: 'seriation', 'sorting' and 'matching', 'brick-building' and 'drawing', and 'coding'.

'Seriation understanding', or the capacity for extended behaviour patterns, extrapolating from fragments of activity or material, is the basis of inferential thinking, the origin of deductive reasoning.

'Sorting' involves the active allocation of a thing, pattern or notion etc., to already established 'sets' according to perceived similarities. Besides focusing

the child's attention in this way on some feature he might not have noted before, the organisation of the accumulated experience that such an activity necessitates gives rise to the process of classification.

'Matching', a very close relative of sorting, directs the child's attention to the differences between patterns in perception. His active attempts to find - from the available candidates - that one which is the *least unlike a chosen model*, draws the child's attention to discrepancy and in due course, when the process is systemised, to the conscious application of the process of 'one-to-one correspondence'.

'Brickbuilding'. Unlike 'sorting' and 'matching' which may eventually be abstracted from spatial considerations, an *understanding of the use of space* - best exemplified by 'brick-building' - involves the discovery of direction and distance, of relative position and functional relationship. It leads to the ability to recognise, follow and interpret the changes of position - translocation, reorientation and deformation - which are the basic components of *behaviour*.

'Drawing' is in some respects the two-dimensional equivalent of 'brick-building'; however as ordinarily practised it involves the use of a tool - the pencil, brush or crayon - which under normal conditions is the analogue of other tools such as the rake, the spoon, the lever, the pusher, the cup, the brush, and of such compound tools as tweezers, tongs, forceps, scissors, pliers, pincers, etc.

'Coding'. The capacity to associate signs or actions in an arbitrary way so that one can be used to represent the other underlies the process of 'coding' and the conventional use of symbols. [\(24\)](#)

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[9. Diagram - The Pattern of Development in General Understanding](#) G.W. 1982

[\(click here for diagram\)](#)

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[10. The Importance of Language](#)

It has been quite deliberate that no mention has so far been made of language. Understanding, such as we have been discussing, is an abstraction or distillation of experience, and the thousands of various conventional languages such as Hungarian, English or Navajo, are outward approximations to this understanding. Hence it has been possible to discuss understanding, if only briefly, without reference to the development of conventional language.

The statement made earlier that general fundamental understanding is - in form, structure and function - common to all humans, implies that Man naturally develops an internal syntax for organising and using ideas which forms the basis for the outward system of ordering-rules and the words by means of which he communicates with others. This outward conventional language, clothed in vocabulary of arbitrary symbols, must be learned by the same processes already discussed. (25)

However, despite our recognising the importance of conventional language, despite our awareness that language, whether as a means of transmitting what might be seen to be our human heritage, or as an everyday communications system, and despite there being little doubt but that conventional language is something especially human, it must be recognised that it has no power in educational practice to convey truly *novel* understanding and is therefore *restricted* as a teaching instrument; and, what is more, conventional language, *because* of its power to label and its potency as a facilitator in the learning of simple particular skills, is actually *restrictive* as a medium for acquiring novel understanding. (26)

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11. SUMMARY AND EPILOGUE

This introduction began with observations on the acquisition of general fundamental understanding by the normal child, by the child with no primary impediment to the business of sampling the environment, with no special hindrance to his acquiring experience and skills or to his enlarging his understanding. General fundamental understanding was then compared with a very different kind of understanding which is based on environmentally selected and environmentally reinforced particular skills, and reference was made to the continual competition, for the child's time and attention, between the demands of general and cultural particular experience-gaining.

It was intimated, if not stated explicitly, that the increasing demands of particular-skill learning, as the need for being able to cope with everyday contingencies increases, steadily encroach upon the resources which in the young child are devoted very largely to the acquisition of generalised understanding. Eventually, almost all resources, of time, energy, space, may be consumed by the need to learn 'useful' skills, at which time further advance in basic understanding falls to a minimum or ceases altogether. (27)

Exponents of current educational practices deliberately encourage and hasten this process of one-sided competition, in the belief that a child profits from an early association with the skills and information which are generally felt to be desirable for an effective and cultured existence.

A degree of specialisation is, of course, essential and, in our modern technological world, we must have at least some familiarity with the various appliances at our disposal and upon which we are rapidly becoming more and more dependent.

However, in a world where we seek to 'spot' the 'gifted' child, the mathematical prodigy, the musical genius, the promising gymnast, early in order to transport him as quickly as possible to an educational hot house for the necessary 'forcing' of the tender plant to a splendid bloom, we should take care lest, in our impatience to prepare our children for the modern technological miracle, we impede their access to the stuff that true understanding is made on. [\(28\)](#)

Science should not be confused with technology for, despite superficial resemblances, these two activities are virtually diametrically opposed. Science consists in a seeking after general understanding well beyond that which is essential for ordinary survival, whilst technology is concerned with those specialised practices which characterise particular understanding. Science has to do with new ideas, with new kinds of thinking, with extending the range of human thinking; technology concerns itself with the refinement of the old or the already accepted.

We seem to worship speed and accuracy and 'efficiency', which characterise those animals governed almost entirely by their specific genetic endowment and distinguish them from the healthily effort-wasteful, time-disregarding, botch-it-up inclinations of normal children.

However, the more Man's existence is governed by specialised (that is to say, pre-packed) behaviours the more clearly he resembles the highly specialised 'social' creatures, the bees, the ants, and the termites. [\(29\)](#)

Speed and accuracy and 'efficiency' are dear to the heart of progressive modern Man who must continually cope with the pressures and demands of a competitive society as effectively as he can; exercising a well-tryed capacity for dealing quickly with the usual, whilst retaining, if possible, sufficient resources to meet with the occasional appearance of the rare and the unexpected.

In a society where the division of labour is so extreme that we can call upon the expert services of a specialist in virtually any emergency, we are prone to forget that this comfortable state of excessive dependence on others has not always been and may not always be with us, so that to deny a child the chance to explore the roots of the less likely may be to deprive him of the ability to interpret and deal with the improbable when it does arise.

By recognising and cultivating the naturally effort- wasteful behaviours of the young child and by encouraging his pursuit of pleasure in sheer doing, and by controlling our impatience for his becoming an energy-conserving, time-conscious, anxious, accuracy-orientated grown-up, we can foster the enlargement of his basic capacity and give him time to experiment.

The children described at the start of this essay are still unspoiled by gross and unthinking adult intervention, and are capable of learning to understand almost anything, of becoming whatever they wish to become. Our attitudes will determine whether the system promotes or actively curbs their growth as whole human beings. [\(see Contents\)](#)

12. Diagram - Learning Conditions (Atmosphere) G.W. 1981

<u>LEARNING CONDITIONS</u> <u>('ATMOSPHERE')</u>	<u>PREDOMINANT KIND OF</u> <u>UNDERSTANDING LEARNED</u>
<p>(a) <u>No demand 'soothing' condition.</u></p> <p>Environment designed to complement the child's current behaviours and desires.</p> <p>Very heavily structured with routines.</p> <p>Therapeutic rather than 'educational'</p>	None
<p>(b) <u>Concentrated asocial lesson</u></p> <p>Environment designed to make very heavy demands on a child's <u>effort in activity</u> and to exercise the whole range of general understanding (and verbal comprehension) in a systematic manner without high expectation for understanding.</p> <p>New things and materials, variation in lay-out and technique, deliberately 'frustrating' situations can and will be introduced, and 'undesirable' behaviours (eg. tantrums) may be deliberately invited.</p>	General understanding and motivation
<p>(c) <u>Non-social exploitation time</u></p> <p>Conditions designed to make some deliberate demands on the child's effort but none on his understanding above an optimal level in exploiting the range of abilities introduced and exercised under (b).</p>	General understanding and particular understanding
<p>(d) <u>Social exploitation time</u></p> <p>Environment structured but otherwise approximating to ordinary conditions for the deliberate practice of 'social' and socio-verbal abilities.</p>	Social and culturally particular understanding
<p>(e) <u>Ordinary everyday environmental conditions</u></p> <p>Whatever happens to be available. The kind of learning atmosphere will vary from moment to moment.</p> <p>The normal child is expected to cope adequately with any prevailing set of conditions and often to be able to learn from it.</p>	Any or none

13. NOTES

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1. Looking at children, that is to say interpreting their behaviours, is a singularly difficult task for adults, for several reasons:

(a) All animal organisms are driven by the desire for pleasure and the exclusion of irksomeness and un-pleasure; hence 'parents' want for their children what will best make most pleasure and least unpleasure for them - for the grown ups. Clearly there might well be a significant difference between what an adult wants for a child and what that child needs.

(b) Adults look backwards towards the child and so envisage, however crudely, the goals or 'objectives' towards which children are apparently progressing. Since the child can not contemplate anything which is not already within his experience he is also looking backwards to the experience he has already acquired. The adult however, in his zeal to forward the child's abilities, organises the circumstances so that the child is rewarded when he makes a movement towards the unknown goal! Not surprisingly the child often becomes anxious under these conditions.

(c) As will be stressed later, there is a continual competition for time opportunities, as well as for effort, between the learning for general understanding and the learning for cultural-particular understanding. Adolescence is characterised by a tendency towards responsibility and the coping with prevailing conditions and therefore by a need to use the available resources to particular ends.

(d) Adults tend to see children as miniature or rather poorly efficient grow-ups. Hence they judge children in adult terms and under adult values. This means that unchildlike behaviours, such as conserving energy, acquiring skills 'efficiently' being 'successful', etc., are prized and often rewarded. The change from the 'resources profligate' child to the 'resources parsimonious' adult is seen as 'progress'. (to main text)

2. By "understanding" is implied the intrinsic tendency to do what is necessary. This may be the promotion of immediate survival for self and dependents or the improvement of a capacity for gaining the experience which will subsequently become essential for individual and species survival. "Understanding" supplies everything from motivation to the solution of problems.

(to main text)

3. Understanding grows in such a way that the new always arises from the earlier; nothing is 'tacked on' so to speak, and nothing appears spontaneously for which there is no firm foundation. (to main text)

4. In the gaining of experience for general understanding the child observes, or acts on, the environment; the potentially 'social' environment is simply a special case of the environment in general. People, even special people such

as parents, in this respect merely modify the content of the experience-gain, *not* the manner (or conduct) of its acquisition. (to main text)

5. The cultural influence on learning is one which whittles down the already accumulated experience towards some particular end, in contrast to the general tendency which engenders an exponential, explosive or rapidly widening gain of experience. It is the needs of the adult or parent which determine what behaviour is to be chosen for encouragement in preference to the other available possibilities.

(to main text)

6. Under the influence of selective reinforcement learning can only be 'shaped' down or blindly built up brick by brick, whereas general understanding enlarges by rapid increase, extension and division or variation of what has already been established. (to main text)

7. Man is a very unspecialised animal. In virtually every basic activity other animals excel. Man does lots of things moderately well, nothing superlatively well; always some other animal jumps higher, runs faster, acrobats more cleverly etc; and all this without special training. The only thing to be said for Man is that he can do '*almost anything, fairly well*'. His hands are so simple and so unspecialised - devoid of hoofs, claws, pads, feathers, webbing, etc., - that they are fit only for the simplest tasks and for *exploring and experimenting with the environment*. It is the capacity for doing anything 'clumsily' but nothing in a highly specialised manner which confers - or prefers - that adaptive ability, unique among animals, which characterises Man. ('Clumsy' here means tolerance or freedom for variation.) The extended use of tools, and of conventional language in particular, is the inevitable outcome of this extreme degree of unspecialisation. (to main text)

8. 'Motivation' is what powers the understanding. A child is normally over-powered in the same sense that he tends to generate far more activity within his body than is necessary for the growth of his understanding; however his freely available power must increase at a rate more than sufficient to compensate for the changes in bodily dimensions. As a child grows he not only increases in weight but also extends the length of his limbs etc., so that the available power must enlarge exponentially. A child with learning difficulties is an under-powered organism rather like a pantechicon with a mini - engine - it can start with a push and just about go downhill! (to main text)

9. In the development of general understanding a child is always moving towards the currently unknown. It is his doing what he has done before which leads, by accident so as to speak, to his increasing experience. Any action he takes rehearses previously discovered behaviours which themselves have grown out of earlier activities. Hence all normally acquired general understanding encompasses what has gone before and every action relives everything that has lead up to it. (to main text)

10. General understanding is *route dependent*. That is to say, an 'end-point' or stable notion is the product of all the experience which has accrued during

its growth and realisation. It follows therefore that the shortest route to the acquisition of a skill or notion must be a relatively poor one. Since each experience is unknowingly orientated towards the subsequent growth of innumerable different skills and ideas, relatively slow, relatively tortuous, relatively varied routes are preferable precursors to the establishment of any concept. Compare this with our common-sense attitudes to teaching skills which assumes speed of acquisition and 'accuracy' to be desirable.
(to main text)

11. The inclination to re-live the pleasures which *accompany* an activity constitutes motivation and is therefore necessarily tied up with the expenditure of effort. 'Incentive' is the desire to re-live the pleasures which are expected to *follow* the successful completion of an activity. All that is required is that a recognisable end-product should be exhibited. The means of acquisition are irrelevant and clearly the quicker and more easily this is achieved the more time and opportunity there is for new end-products and their associated rewards. This means that incentives discourage the gain of experience.
(to main text)

12. Although a child's understanding capacity should increase in an exponential fashion, the total time and other available resources in the day remain limited. This means that, as the demands on the individual for social responsibility increase as he moves through adolescence towards adulthood, the amount of time available for expansion of the general understanding, diminishes proportionately.

Once this reaches its limit virtually no further increases in general understanding (or 'intelligence') occurs. Most standard psychometric tests suggests that this occurs, on average within the middle 'teens'. It will be seen however that if the presented argument is valid it ought to be possible:

- (a) to extend the capacity and duration of general understanding-development for all children, able and less-able alike; and
- (b) to re-activate the process following premature cessation in children with difficulties irrespective of their ages. This notion contradicts the view that children with learning difficulties reach a 'plateau' or maximum early in their lives, beyond which it is not possible to go. (to main text)

13. That there is an increase in the amount of spontaneous movement in a young baby over a period of time is apparent to the most casual observer; however when it is recognised that the periods of activity are extending in duration and the child is rapidly gaining in both weight and limb length the actual increase in activity is found to be prodigious. Considerable effort is required in the production of these movements whose pleasurable accompaniments must reinforce the learning and tempt further repetitions.
(to main text)

14/15. The range of movements for any limb; the amplitudes of each movement and the intensity of action as well as its complexity, grow as the

utilised region of 'bodily near -space' extends. Inevitably these regions of structured space overlap to form spatial territories common to more than one limb, and eventually all parts of space are 'known' with all parts of the body; however even at six months this process has reached such a stage that the child appears to be a relatively integrated organism, capable of directing and 'focusing' its realm of interest. Further development in this 'bodily image' formation and 'space structuring' process results in a capacity to pitch the focus at an infinite range of depths, to accommodate a wider angle of 'interest' and to actively scan the surroundings in an organised way. (to main text 14)
(to main text 15)

16. Increasing ability to sustain interest in the position of an object in space gives rise, somewhat paradoxically, to the power to vary the intensity of interest at will and, in due course, to be able to make choices between 'competing' images. (to main text)

17. It is my view that 'interest' in the environment is primarily an interest in space - the more explored the space, the greater the interest. Interest in the 'contents' of space is subsequently induced from the interest associated with the location of the object. It is not difficult to understand why there is an assumption that it is things that engineer interest, for children of six months or less already focus quite obviously on target objects. However if it is recognised that it is the acting on the space (or on the object within the space) that confers reality on it, it can be seen why action - having duration and being the product of a sequence of changes - should be the basis of memory. Extension of the duration of a 'planned' action gives rise to an anticipation of future events. (Compare Piaget's ideas on 'concept of the permanence of an object'.)
(to main text)

18. 'Continuant' behaviour - for me one of the most fascinating tendencies in development - arises early in the second year and together with one of its precursors - 'striking and scraping' - provides the main source of the experience, as well as the behavioural carrier-phase, which founds the learning-how-to-learn tools during the third year. (to main text)

19. The idea that the greatest obstacles to progress and adjustment in children are adverse behaviours which have been learned in response to environmental influences, and not something the child has been 'born with', should give rise to a much more optimistic attitude to 'learning difficulties', etc., than that which prevails at present. What has been learned can, at least in theory, be un-learned and, better still, 'undesirable behaviours' can be prevented from being learned. (to main text)

20. The a-social or non-social lesson is not intended to take the place of the standard processes of education; in fact it normally occupies a small fraction of a child's waking-time; an hour or so each day. It is intended to increase the likelihood of the child's learning spontaneously during the remainder of the day and, from a school's point of view, might be seen to complement the more usual work of parent and teacher. Particular skills learned within an a-social lesson are a kind of bonus, for the object is to encourage optimal conditions for the gain and organisation of experience, not to train in specific skills. (to main

text)

21. Feelings of un-pleasure are the root and source of 'handicap' behaviours, and these *normally* arise in association with a too-rapid encounter with less-than-familiar situations. For example, the early locomotor child of, say, fifteen months, often has accesses of anxiety when he suddenly notices mother's absence. Subsequently, of course, the un-pleasure *can* become 'simply-associated' with circumstances or things; that is to say, 'phobias' may be set up. Regular avoidance of the less familiar is pathological and diminishes the child's opportunities for experience-gaining. Conditions of socially orientated over-demand on a child's abilities are the most effective forces producing a state of handicap and are responsible for the appearance of the consequent compensatory responses I have termed 'handicap behaviours'.

Teaching by breaking down a task into little steps may seem like 'commonsense' but is quite unphysiological (i.e. it is not seen during normal learning), and in practice it only becomes necessary in association with inappropriate training procedures *which deliberately evoke anxiety in the child.* (to main text)

22. Interest in situation, skills and objects comes with experience and understanding. The better something is understood the more interesting it becomes. Repetition, but with continual variation of approach and action, engenders interest.

'Boredom' is a sign of *lack of understanding*, despite the usual adult centred ideas on the subject. Other things being equal, inability to find interest in a topic stems from an inadequate grasp of the ideas. (to main text)

23. Learning-how-to-learn tools. This topic is far too big to comment on extensively here. Suffice it to say that the experience gained during the second year leads to the learning of the learning-how-to-learn tools during the third and fourth years, from which time the tools are regularly used for very much more effective gain of experience. From the sixth year particularly, the 'tools' become progressively more mutually interdependent, to form compound notions, with 'seriation' pervading all and everything. (to main text)

24. 'Coding'. It is to be implied that the mental abstraction of fundamental general understanding forms a sort of internal language. The capacity to temporarily 'fix' an idea by associating it with some easily dealt with sign constitutes symbolisation and allows the communication of notions between organisms, and between the organism and itself. (to main text)

25. General understanding consists essentially of enduring traces of the organism's acting upon its environment. Doing whatever to what; its doing this particular action in this particular way to that particular kind of thing. For example 'push the red button hard' - 'the button not the knob', 'the red not the green', 'push not pull', 'hard not gently', etc. It is suggested that it is this abstraction of experience and the organisation of abstracted experience which

composes the substance and the form of language. Conventional languages then represent the arbitrary equivalence of these principles in whatever mediating fabrics are available, different languages, different channels, different signs etc.

(to main text)

26. Few would doubt the influence of verbal labelling on the learning of simple particular skills such as the mastering of many devices and games; it is novel ideas which cannot be transmitted linguistically. Conventional language is restricted as a teaching medium in that novel ideas must exist before their arbitrary equivalents. More difficult to understand perhaps, is the view that the nomination of a thing or set, or idea or action, somehow 'fixes' that notion so making it more difficult to spontaneously incur variants or to move on to a derivative idea. Language is therefore also potentially restrictive.

(to main text)

27. The seeking after general and particular understanding, because the selection, reinforcement and encouragement necessarily pursued are so very different, must necessarily be in competition for the developing child's range of abilities, for the components of his attention, and for his time. The pleasures associated with learning for general understanding must always be earned through active effort, and inclination may be opposed by 'irksomeness' (mechanical obstruction) and by fatigue. On the other hand the pleasures are special to whatever activity is engaged in and, as 'rewards', are highly predictable.

The pleasures associated with learning for cultural particular understanding are more neutral in quality and only rarely related in kind to the activity. Their appearance is much less predictable as is their quantity; however, highly practised social skills (comparable with the 'narrowly extended' skills of non-social particular learning) can come to elicit great quantities of pleasure for a minimal expenditure of effort. It is not difficult to see how under conditions of fatigue, obstruction, anxiety, etc., in addition to the everyday demands for increasing information and culturally necessary skills, the competition between these kinds of learning may become grossly biased in favour of the particular.

Under *unfavourable* circumstances, learning for General Understanding slows excessively, distorts pathologically and finally ceases prematurely. Such a sequence of processes constitutes 'mental retardation'; however, it is only a speeding up of the processes commonly accepted as 'growing-up'. Looked at from this point of view adulthood may be interpreted as a retarded stage of childhood! (to main text)

28. Educative measures, arising as they do from parental attitudes, tend to be concerned with our preparing our children for what we foresee as being 'good' for them. Does Mary have the necessary 'O' levels for a career in chemical engineering? If Johns gets accepted into the Civil Service will he always have a 'good' job? etc. It seems as if the sooner a child starts training for what it is expected he will do, the better!

More dispassionate consideration would suggest that 'hasten slowly' should be our maxim, for the better laid the foundations of general understanding the more readily a child acquires particular skills. I see nothing rational about introducing computers into the primary school, for those features which recommend the computer to industry are precisely the opposites of the childhood virtues. By all means learn from whatever is available but do not become intellectually dependent on technology, however marvellous. It is all too apparent that wizards with electronics do not necessarily make either great scientists or disinterested politicians or sensible arbiters of taste and morals.

It seems to me that our enthusiasm for particular understanding obscures the need for capacity to be able to think. What we usually ask of children is that they cleverly manipulate second-hand ideas, and we actively discourage original thinking by freely rewarding the ability to memorise and regurgitate the ideas that we have already accepted. Originality is something we have difficulty coping with. 'Potentiate the child's capacity and prolong childhood' should be our motto. (to main text)

29. As I have attempted to persuade the reader, Man's survival potential is related primarily, not to such contingent factors as an advanced central nervous system, a capacity for learning to make and use hand and power tools, and his invention of abstract tools, such as conventional languages and mathematics, but to his basically unspecialised condition.

Our emotionally engendered 'need' to specialise is, it seems to me, the direct result of our policy of founding our security in things and in people other than ourselves. Since most of us are infected with the resulting socio- emotional over-dependence, we accept that our need continually to be reassured of our worth by others is somehow 'natural'.

Children are encouraged to recognise their overwhelming need of other people or of things, 'teddy- bear' objects, to remind them of the safety and comfort vested in the presence, or simply the existence, of other people.

As a result, when things or conditions change, we are liable to cling to or acquire more comforting possessions, or to their equivalent in artificially fabricated skills which high technology offers us. By failing to exercise the pluripotentiality - or 'anything is possible' condition - with which our unspecialised state has endowed us, we are led back to re-inventing the safe and comforting fetters and imprisonment of a highly specialised existence.

It is not so much that I fear our becoming the slaves of technology, for we already are in that position, but that we shall come to a passive acceptance of that condition because we have no power to imagine any other existence. Is the circular path of the descent of Man almost complete?

(see Contents)

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