



"l'oeuf gauche"

An Adventure in Theory in Special Education

Whether those in any helping profession harden their hearts against their clients or empathize with them, they are apt not to think about them as much as they should. For both are emotional habits, tending, if not controlled, to inhibit rational insight and treatment. Benoit and Gauthier plead with eloquence, and a large compassion, for a greater degree of professionalism and intellectual enterprise among those conducting the special education of the retarded; and they offer a review of former theories and Benoit's own adaptation of a modern one (of Hebb's), together with a new definition of mental retardation, with the object of stimulating a greater creativity in the practice of that absorbing branch of the profession.

Our current theoretical posture in special education is unquestionably one of piecemeal thinking. Take the most often cited authors. Without a doubt they render us a valuable service; they read a lot of research and analytic pieces, and provide useful syntheses, so that we can read contemporary thought without buying a thousand books and periodicals. They have also, here and there, been helpful in interpreting the meaning of much research, have defined its practical worth, and have opened up vistas for further study.

Actually, however, they fail to tell us that mental deficiency has never been thought about more than inadequately. Scientists have latched on to one viewpoint or another and exploited its potential. The angles selected are always partial. What we are headed for is a mosaic of mental deficiency, with the tiles becoming smaller and more numerous all the time. By 1990, a compendium may well list 2000 names, each associated with a microscopic aspect of the problem.

There is a place for summaries in our field. But there is a need for theory, for broad formulations that can give us a new cause to wonder about mental deficiency, that can make us take a new look at the facts and possibly envision them in a new light. However, there is little respect for theory in our field today.

We're all enthusiastic about statistics and computers. If a point of view doesn't lead to statisticized and computerized data, it has to be insignificant. Yet every professor of both statistics and computer science is forceful in stating that neither of these skills can be maximally useful unless they handle data that have been collected with a point of view in mind, with hypotheses, with a theoretical frame of reference. Real science originates in a sense of wonder.

The situation in our field is now such that we have to attempt new, serious speculations about mental deficiency. Our leading textbooks represent efforts to make a royal mantle out of a sow's ears. The pieces hang together awkwardly, and the mantle does not fit the problem. There are holes and gaps; and many important issues are not covered.

Theories that have prompted action

A point that many of us overlook is that just about every major contributor to our field started from a theory. Itard (d. 1838) thought he had a peephole into the reality of the retarded mind when he applied a concrete formulation of the sensationalistic philosophy of John Locke (d. 1780). His subject Victor's mind was a tabula rasa, and all Itard had to do was to inscribe a wide variety of experience on it, with the hope that thought would eventually awaken, and Victor's mental deficiency would be cured. Itard failed sadly, but through his theory he did show us that the mentally retarded can be improved.

His pupil Séguin (d.1880) also had a theory. A simple one it was, but it did make him think and work. He assumed that the milder defective was impaired only in his peripheral nervous system. Thus he had hope for one group, and none for the other. He recommended care for the severely handicapped, but devised ingenious methods to facilitate the growth of sensory perception in the less severely retarded. He had no way of separating the groups with precision. He was illusioned, frankly, but he did give a powerful thrust to the development of teaching methodology in special education.

In the 20's and 30's, the psychoanalyst Clark advanced the view that the mentally retarded owed their condition to a weak ego structure, to the fact that initial care and nurturance failed to function in the many processes associated with intelligence.

He raised doubts about whether it is right to refer mental deficiency exclusively to organic conditions, and he even wondered whether these deficits might not be overcome through attention, love, sympathetic sharing. The theory aroused the interest of Menninger and others, but has since fallen out of sight. Nevertheless, it did stimulate people to do something more than bird-watching; it led to serious efforts to alleviate mental deficiency with therapeutic concepts.

Lewin (d. 1947) devised the concept of rigidity to explain mental deficiency. He did not live long enough to go much beyond diagnostic studies which show how mental defectives differ from others in mental functioning. He might eventually have demonstrated how the basic condition of rigidity required direct counteraction in order to liberate thought potential.

Doll (d. 1972) came out with the concept of neurophrenia in 1951, a theory which is related to the assumptions that partly supported Séguin's work. He saw hopefulness in visualizing some mental defectives as capable of appreciable evolution and possibly fitting eventually into society.

A few other less well-known researchers proposed approaches that were not followed up for various reasons. Strauss (d. 1957) for example, projected a concept of brain injury which became popular for over a decade, and led to specific teaching methods such as placing children in cubicles to foster concentration. He assumed that, in organic cases of mental deficiency, only the neocortex was attacked, the neurological organizing principle of the brain. In this state, the individual becomes distractible and hyperactive. He recommended slowing the individual down, diminishing the likelihood of mass activation of the cerebrum. In time, when a suitable degree of perceptual organization is established, the individual can prudently be returned to a normal environment. Again, theory prompted a huge amount of methodological creativity, in the form of principles and entire curricula.

Adapting Hebb

Applying Hebb's principles of the organization of human behaviour to the mentally defective, Benoit advanced a new thought in 1957. It seems appropriate to restate the viewpoint today. After all, we do not have many alternatives to turn to. Most of the contemporary productions represent heaps of biopsies of the vast problem of mental deficiency.

This theory states that sensation and thought entail the activation of neural elements. The theory assumes that every sensation, perception, volition, action, and emotion is presided over by neurological structures or cell assemblies or chains of

cells. These neurological events are accompanied by correlated perceptual structures, either superordinate, as **animal**, or subordinate, as **cat**. Related structures or even sequences of activated structures interact to facilitate learning, which, be it well remembered, never ceases to grow in complexity (in both breadth and depth). Repetition in various camouflaged ways is desirable, as the motoric and sensory cortex cooperates in increasing contact between pertinent cell assemblies, creating an intensification of excitation among the cell groups so as to induce the strengthening of learning, or the formation of new perceptual structures or new learning.

In cerebral concussion and related conditions, all thought stops. If the neuroanatomy and physiology of the nervous system, however, are as they should be, mentality develops well and rapidly. But more is needed than good health. Stimulation must occur adaptively and progressively. In the early phase, the organism gets to know such reality as touches it, but a trend is soon established toward knowledge that is not necessarily associated with direct stimulation. As simple perceptions accumulate, they give rise to elaborations which one can call superordinate structures, a point that no one has explained anywhere as well as Hebb.

The individual sees a cat and a dog, and in turn derives the higher notion of **pet** or **animal**, a general term for which there is no specific concrete stimulus. The notion of pet is a superordinate perception, whereas the notions of cat and dog represent subordinate perceptions. The superior perceptions become possible through the repeated activation of cat and dog in temporal contiguity. Eventually, the mere sight of a cat activates the notion of pet, which in turn can bring to mind not only dog but also a host of other pets which one may not be perceiving at that time. This emergence of superordinate perceptual structures through the overlapping awareness of subordinates constitutes the basic process of emergent mentation.

The vital point is that percepts must be accumulated as soon and as fast as possible. At the outset all accessions occur through direct experience, with the involvement of motion, and with concomitant pleasurable experiences, not the least of which are love, rapport, shared enthusiasm. There is much research which states that early environmental deprivation slows mental development. Hebb's theory suggests that, unless one introduces many cognitive building blocks early in a child's conscientiousness, he or she cannot expect to build a high tower, any more than one can construct a Zagnificent mausoleum with 10 bricks. To ward off this possible maldevelopment, society, (parents, teachers, and caring agencies) must multiply opportunities for sensing a wide variety of objects in numerous different associations. To this end, the

environment must adapt itself to the child's needs, provide materials, sensory contacts, and personal assistance as needed to build up the most of sensorial awareness. This content, by being constantly brought to mind in different settings, tends to increase the volume of perceived relationships.

Actually, the young normal child collaborates rather spontaneously in this scheme through well-recognized, irrepressible exploratory behaviour. In his observation of young children and infants, Piaget became so much aware of this childhood trait that he saw it as a near-universal characteristic. The child is forever on the look-out to resolve his or her wonderments about reality, and pursues every lead all day long to the harassment of the mother; so much so that someone came up with the stunting invention of playpens (which, says White of Harvard, are contra-indicated in a wholesome educational scheme for toddlers). Piaget at one point suggests that the essential difference between a normal child and a retarded one lies in the curiosity drive, which is largely absent in the retarded. He does not say whether remediation is possible.

In numerous home visits to assess the situations of retarded children, we observed that there was a drastic difference in the parental approach. These children were spoken more about than to; they were part of the family scene, were fed, clothed, and even given comforts and pleasures. But the very expansive call to action which meets the normal child was not appreciably visible. Assuredly, the difference is one of degree, but when one receives 50% or even 10% less at every moment, every day, every year, the end result in total human development is in sharp contrast with what it could have been had an image of normalcy been able to evoke normal parental reactions.

Begin experience as soon as possible

One must work from the outset at providing a rich multitude of experiences, direct and sensory, lived, shared, with touching and handling, with contagious enthusiasm. New experiences must constantly be introduced so as to cause new elements to figure in subsequent experiential configurations. One can visualize this mental process as analogous to digestion: the mouth bites and chews constantly, and as each chunk goes down the hatch, new bites must be taken. How easily the special teacher can become routinized in the classroom with mobiles, charts, drawings, lists, facsimiles, and with these induce veritable intellectual constipation; the curiosity process stops. These aids must be constantly changed and adapted. But they are by themselves insufficient. The children must go out to meet reality in its natural habitats. The notion of elephant or

horse has indeed to be very lean if the children can never come closer to an elephant or horse than in a picture or oral description.

If one does not enable the child to experience many situations his behaviour becomes constrained within the limits of primitive habits, a condition which necessarily entails the reinforcement of a scanty set of perceptual structures. Psychological manacles of this sort are presumably behind such characteristics as rigidity and stimulus-bound behaviour.

The theory prompts active concern that intellectual training begin as soon as possible. This point can hardly be overstressed. The tendency is to wait until the child is ready, whereas of course as long as there is life there can always be learning. However, one should not assume excessive simplicity on this point. The wise man of the Bible was theoretically right when he said there was a time for everything... If one does not learn to wield a spoon, one learns to do without it, so that appropriate sets for wielding a spoon become more difficult to establish. One needs only to watch such a person for a long time to realize that learning sets can weaken, that learning content can shrink, that behaviour becomes primitive. Hospitals harbour retardates of 20 and 30 years of age who lie on their backs and contemplate their toes by the hour. They look like living fossils. Their useless hands and feet are wrapped in rosy, unused tissue.

Life could have been different for them. To obstinate inquiries about what could have been done, the answer is frequently given that funds were lacking. Thought, theoretical thought, was lacking, too; so was a feeling for humanity, a sentiment of worthwhileness in the cultivation of the human image in every retarded child.

There is abundant evidence on animals and human beings to indicate that suitable environmental stimulation favourably affects development right into adulthood. This kind of information should not be left on the school step as one approaches the classroom of the severely retarded child, or as one copes with him or her in the home setting. So often severely handicapped children are kept in their homes like passive possessions. Said one woman, "The child never asked to be born; I'll take care of him to my dying day." But what care? A debilitating care that destroys functionality, day by day?

Careful, adaptive progression

The structure of the theory imposes a careful progression from the simple to the complex. Failure to so organize the

learning situation may lead to the necessity of prolonged repetitions. Subordinate structures must attain some degree of strength before the facilitative action of integrators can begin to operate. Here it is important to resort to task breakdown to permit successful mastery. This way, the child can bite off what he or she can chew, and the teacher can plan for precise antecedents. The elements of each new learning ought to be clear-cut; its commonalities ought to be stressed, and any heterogeneities ought to be minimized. In fact, this point has appeared in assembly line work: there has been creative activity of this sort in sheltered workshops in recent years, where this kind of adaptation has been regarded as desirable because it accentuates productivity. Actually, the same kind of methodology should trickle down to the earliest learning of the child, even in the home. Assuredly, at that juncture, the families need technical assistance to carry through.

The idea of adaptive progression applies to the motoric sphere no less than to the sensory; otherwise one faces slow progress in association with frustration and diminished motivation. One must note that there are limits to attainment, however. The retarded are likely to fail in precision activities or in complex sequences, precisely because they are not likely to be able to master all the prerequisites. They do better on tasks involving large objects and molar muscle systems in short, lower-level integrations. As adults, they should be oriented to simple work, to personal service, to tasks in which the degree of refinement in perception and muscular functioning is relatively low.

This principle of progressiveness might not be understood, and then teachers waddle along getting nowhere. They may blame "immaturity", but the real culprit lies in their failure to implant the learning required for a specific task. When a child's readiness has been established, especially at the lower end of the continuum of task complexity, content can be learned as readily by the retarded child as by the normal.

Mobilize the cortex

Reading, a skill involving both sensory and motoric elements, is something to initiate with caution. There must be clear object perception and memory, and a well-established oral vocabulary for past experiences, before one can proceed to extend the child's knowledge to another level of symbolization, namely the written word. Reading must begin only when the child begins to feel that written symbols are a pleasant way of extending acquisitions and prolonging or reviving experiences. Objects and oral words must, therefore, be experienced frequently before one moves onto a plane which provides more limited reinforcement. For example, a tridimensional object has

a more dramatic and frequent impact on the senses than a word, which is a passing phenomenon. The sound of a word cannot be heard as often as an object can be seen. Hence, a mere verbal symbol is a poor reinforcement compared to something that can be manipulated, twisted, smelled, and so on.

There must be sensitivity in the organization of learning for the retarded. Much learning in everyday life takes place in spite of inadequacy in teaching methods; but where there is neurological impairment, precision in teaching is imperative. We must respect the central nervous system so as to increase its efficiency. We must shy away from the idea that learning takes place if the central nervous system is healthy, and that it does not occur if it is defective. If there is life, there can be learning, if the conditions are respected.

We have discovered that we can keep the body warm, not by piling on clothes but by clothing it in light-weight insulation. By analogy, the formation of appropriate neurological correlates to learning will call for more extension and intensity on the receptor surfaces of the body - assuming that the cell population of the brain is low in a retarded child. In order to maximize the mobilization of the cortex, one may enlarge the stimulus field in various ways. One exaggerates slowness and distinctiveness (as in the teacher's speech). One utilizes sharply contrasting words, and avoids homonyms. Why speak of a "foul fowl"? (a "stinking chicken" would serve better). And so on. Multisensory stimulation guarantees more cortical surface mobilization, with the outcome that there is more chance of inter-structure communication. Touch has been effectively used along with vision. Audio-visual aids are recommended for the same reason.

Children need their whole brain

If we fail to adapt a learning task to the learner's capacity we may have to contend with a longer training phase. Having lost so much time on ineffectual learning attempts, small wonder it is that so many of the retarded learn so little. We are apt to be pathologically preoccupied with our own goals here and now, rather than with the needs of the children. One cannot emphasize enough the likelihood that the child's failure to learn is not due exclusively to brain lesions, but rather also to a lack of opportunity to develop cognitive structures at the proper time at successive integration levels. Construction materials have simply been too scanty. Our eagerness to teach leads us to proceed by leaps and bounds, and to omit much cognition that could provide numerous associated bridges or steps to more complex learning.

The theory provides a framework, an atmosphere, an

orientation. It does not clearly prescribe solutions to every pedagogical problem; hence there is always need to "special" a retarded child because of unpredictabilities. However, an appreciable degree of randomness can be removed from a field in which the method of trial and especially error seem to reign supreme.

Hebb's formulation points up the difference between child and adult learning. In adulthood, after learning has advanced considerably, there is need of less cortical substance for the maintenance of the thought level, and even for the development of new organizational structures. In fact, adults have been known to retain even high intellect after a hemispherectomy. By contrast, children need their whole brain to learn. This need is especially great in the retarded, whose population of healthy neural cells is presumably substantially lower. There must be more precision in utilizing the available cells to build up cognitive structures. In their case, such crucial factors as organization and repetition must be manipulated all the more adaptively.

Order, concreteness, and motivation

Hebb's theory recommends broad principles regarding teaching content. One must bear in mind both learning rate and developmental ceiling, and be particularly open-minded about possibilities. Teaching ought to be thing-and-reaction oriented, so as to permit fuller cortical participation. Yet there can be a false need to build a base that might ultimately be out of proportion with realistic expectations of attainment.

There is a need of order. First, adaptation to the child's capability; then the presentation of stimuli in groups so as to induce the formation of superordinate perceptions or integrators. Stimuli here can be things - variously related - and actions. The field of possibilities is broad. However, it is important to protect the child from situations that may trigger mass activation and diffuse thinking. Strauss opted for the artificial simplification of the stimulus situation, banning even earrings. It is more pertinent to organize the situation and to adapt it to the child's level and motivation.

Strauss never really proved the pertinence of his famous cubicles; it is more fruitful to think of order, concreteness, and motivation, instead of portable dungeons. A critical key to learning is reinforcement, which here stands for repetition that is meaningful to the child. Indeed the more primitive the reference of, say, a word, the more effectively it will be learned; in other words, a small child will do more readily what he or she did before. He will more readily grasp **cat** (because he may have one) than **animal** (an abstract term); he

understands what he experiences. The larger the meaning of a stimulus, namely the more points of contact it has with living, the more likely it is that it will activate many existing structures and be learned.

A book given by a favourite person is more likely to be read (emotion pushes here); if it is read by someone the child loves, he or she will imitate all the more willingly. Indeed, one might say that the constructive involvement of the autonomic nervous system boosts the facilitation of learning. Thus love, pleasure, pride, and so on are all positive forces that favour the persistence of goal images and their attainment. Both intrinsic and extrinsic motivation belong in this frame of reference: more organizational structures are brought to bear on learning. A child who is delighted - to realize that she is able to ride her 2-wheeler for the first time - will proceed spontaneously and intensely to continue (intrinsic motivation). But then if a child becomes fixated on monetary acquisition (extrinsic motivation), and wins the reputation of a "Mr. Money Bags", he will move on a task with gusto if there is a coin at the end of it. Adaptive rewards can exert a definite impact on a child quite early. A well-worded compliment can perhaps do as much, if it appeals to the individual's inborn or acquired needs.

Counteracting discontinuities

Years ago Decroly, Descoeurdes, and Ingram gained fame by advocating the use of themes and projects in the classroom. Hebb's theory recommends the facilitation of associations, which are crucial in the establishment of an ample apperceptive mass. The teacher may support togetherness of stimuli either on a taxonomic or a functional basis, or in terms of related things or actions.

More than techniques and aids, children need continuous discourse with a benevolent environment to foster coherence in their growth in learning. If we could only see reality through the disconnected bits of conversation that the retarded actually experience. On a plane of action a comparable discontinuity must also be counteracted by a practice of seeing adaptive motor learning through, rather than providing odd pieces which merely tease rather than teach. The tendency of the environment to disregard the retardates' need for progressive movement in thought or action explains why they seldom follow through or anticipate, or present a free-flow of associations in language behaviour. People fail to move the child along at his rate, and then accuse him or her of being inherently incapable of concentration and coherence.

We are on more solid ground when we rely on the child's active participation rather than on his or her passive witnessing

of an experience. Activity entails the activation of more cortex. One may well wonder to what extent handicap might be being accentuated by the curtailment of opportunities for self-help in cases of overservice on the part of protective adults.

A definition - simply of a behavioral deficiency

A new definition of mental deficiency is in order.

"The mentally retarded are that category of individuals of all ages who, owing to various intrinsic and/or extrinsic factors, are impeded in the growth of their general capacity for perceptual and conceptual integration, with a resulting differentness of behaviour which induces among others a significant resistance to their social integration."

The definition aims at human beings of all ages, who can enter the category of deficiency at any time owing to a wide variety of causes. They can be defective because of incomplete growth, or because of a marked regression in their behaviour and their governing mental functioning. What is profoundly characteristic of the retarded is their difficulty in acquiring new cognitive content. They are not necessarily utterly incapable, but are variously impeded in the face of new learning situations. At the lower extreme, there may be difficulty in learning a new face or a new food. At the upper extreme, there may be relative inability to absorb new information of an appreciable degree of generality, and to utilize it in their own context.

By explicitly tagging the deficit as one of general perceptual and conceptual integration, one assumes that the problem has reference to complex rather than simple learning. The retarded are inhibited in efforts to build up, to put pieces together to make wholes, to grow in this trend; and here numerous dimensions can be singled out, the cognitive, emotional, social, aesthetic, and so on. If intelligence can be defined in terms of problem-solving ability, then the retarded person is one who is unable to work out complex solutions in various areas of functioning.

There is no special point in singling out the social sphere. On the other hand, it is important to state that the retarded person as such, by the very fact of his or her differentness, just about invariably faces a secondary handicap, in an environmental resistance to his or her wholesome incorporation into the group. This aspect compounds the basic problem. The retarded person is not only deprived of appropriate socialization concern, but is also further pushed out, in symbolic ways, from the place he or she should occupy in society.

Definitions, from Itard and Séguin to Doll in relatively modern times, have consistently regarded society as unrelated except passively to the retarded individual's problems. It was always said that the retarded have difficulties. Actually, they do have inherent difficulties, by the time we face them, by the very fact of their limited ability to grow in cognitive integration; but they also have to encounter an unwilling entourage. It is unfair to the retarded to remain silent, in the definition of their status, about the distance that society actively maintains between them and their fellow human beings.

The proposed definition is broad enough to apply to all genuine cases of markedly simple to simplified mentality. It has no developmental fixation, as if a mental defective must be one from birth. Yet it is precise enough not to include maladjustment, criminality, or psychosis. It does not recklessly label those who have school learning difficulties if they can otherwise function in society. Neither does it refer to some mysterious arrest in cerebral development, a condition which cannot easily be determined without cleaving the skull open, and which furthermore has been far from identifiable upon technical autopsy. The medical, anatomical reference is irrelevant. We are striving to define a behavioral deficiency.

Simple early learning does not accumulate at a normal rate into complex integrations. The accession of percepts is limited, as is also the formation of concepts. There is no stoppage in this process; rather there is impediment. To impede is to hinder, obstruct, slow down, bar the progress of something. In this connection, learning is hampered, cramped; not blocked out altogether. The intake is diminished.

Lack of ingenuity and a loss of heart

Currently the view is held widely that the retarded have limited openness to learning. Because the number of the retarded who have eventually succeeded in society has increased very substantially and is increasing steadily, it seems wiser to say that it is because of a relative decrease in opportunity that the retarded don't learn. Many of them also have inherent obstacles, but the number of those who have no visible inner handicaps to learning is so great that we would be well advised to stop blaming them for their substandard progress. We don't want them to learn. We even tend to conspire against any new concept that might increase their likelihood of success.

What happens in the inmost being of the retarded is not clearly, and certainly not universally, an insurmountable obstruction to learning from within, but rather a state of being in which the quality and quantity of stimulation never suffices to push the integrational level up to a point sufficient for

normal mentation and social interaction. The real snag is a loss of heart in conjunction with a lack of ingenuity. And so the retardate's mind grapples with a succession of stimuli and even thoughts, but never shows an increment in the degree of complexity in integration. There is new learning, of new objects, perhaps even of new words, but the mass always remains small. As new accessions occur, old ones drop out. Not only is the baggage light, but it is also spotty, full of gaps, and markedly unsystematic, so that only a limited number of taxonomic and functional categories are developed, regardless of age.

There has been little speculation about the termination of growth in integration in the mentally retarded. The main explanation has been that the developmental phase has an end, and since the rate of growth is slow, there has to be a low ceiling in the end. We do not seem to visualize a long period of maturation. In much the same way we do not say that, botanically, an apple that does not ripen in late September will ripen in April.

But a brain is not a fruit. It is a dynamic entity, always open to stimulation and action. The tendency of the social environment is to settle for the level that the retarded manifest, and promptly to accept the "fact" that they cannot go any further in learning. The educational experiments of the past have been too crude to warrant any other kind of conclusion. In no study, however, does one find positive evidence to support the view that the retardate cannot grow in capacity for integration; period. On the contrary, there are numerous striking instances of social and occupational growth, of improved poise over the years, sometimes of improved speech patterns. But the growth is always proportional to the directedness and steadiness of teaching efforts. There is no sign that early and adaptive efforts would have been fruitless. It is therefore time that we examine our professional consciences about our posture on the educability of the mentally retarded.



Paul Benoit has been actively concerned with the improvement of teaching for mental deficiency and of its theoretical understanding since the mid-50's. Currently a professor at Laurentian University, he writes a weekly column in a French newspaper and is starting a semi-monthly TV program on the French Channel 7.

Yvon Gauthier specializes in learning disabilities and teaches special education at the Laurentian University in Sudbury, Ontario, where he collaborated with Paul Benoit on their paper on that subject's theoretical bases.

