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**McGILL JOURNAL
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EDITORIAL

The current academic year has seen many changes, not the least of which is the transformation of the McGill Institute of Education into the Faculty of Education. This metamorphosis is partly reflected in the creation of the Faculty's *McGill Journal of Education*, replacing the Institute's *Bulletin*. The Faculty hopes that the *Journal*, building upon the work of its predecessor, will provide a useful service to the educational fraternity as a whole and especially to our colleagues in the Province of Quebec. We hope it will serve as a stimulus for educational discussion, a forum for ideas, an outlet for research, and a meeting ground for theoreticians and those engaged — at all levels — in the practical business of teaching.

We expect to publish in the Spring and Fall each year and plan that each number will emphasize a particular theme. This, the first issue, focuses on Activism, an essential doctrine of the Parent Royal Commission of Inquiry on Education which, as all Quebec knows, is sparking a revolution in education in this Province. It is accelerating the pace of educational change but, as a number of our contributors suggest, not Activism, nor change, nor even educational revolution is really new. Yet they write with a fresh enthusiasm of Activism and the changes it must bring.

Dean Wayne Hall in his paper, "The Teacher in the Activist School," points out that long before any Activist creed was explicitly enunciated, some teachers used Activist principles. He isolates a number of these principles — for example, "Activism is dedicated to the unfolding of the potential of the pupil" — and interprets them within the context of modern Quebec and the recommendations of the Parent Report. Prof. Richard Whitwell extols the excitement of the discovery approach to mathematics; Prof. Roland Wensley suggests how, through the organization of ideas, history may be released from the *rigor mortis* of the textbook; Dr. Chris Hawkins calls for action in language learning in a spritely essay, unequivocally entitled "Jump in the Lake."

However, a canny note of caution is sounded as Dr. Gerald McKay points out the fallacy of having "simplistic faith that good results naturally accrue from activity methods." Dr. Norman France also warns that activity teaching techniques

require different methods of examining and that the old assumptions of schooling need to be reassessed. Dr. Gault Finley, in outlining some of its antecedents, may shatter an illusion that Activism is a modern North American invention. Prof. Munroe considers that the difficult and demanding task of the contemporary teacher is "to redefine the humanities, to revitalise language, to redirect mathematics, to redesign the applications of natural science, most of all to deepen our knowledge of man himself and teach him to live with his fellows."

Our contributors would all agree that the modern teacher's responsibilities are neither static nor light. We live, after all, in the jet age, an age when change is so accelerated that even biological adaptation cannot keep pace, when the phenomenon of jet-lag causes the most abstemious air traveller to suffer physiological hangover as he arrives in Istanbul, or Rome, or Djakarta, his body rhythms still tied to Montreal time. The world of pedagogy is particularly susceptible to lag — cultural lag or intellectual lag. Dr. Marshall McLuhan shows a new perspective on this old problem by pin-pointing the absurdity of a new generation's "being instructed and guided by people for whom the receding mechanical and fragmented world is the prime reality. It is as though astronauts could only be launched by veterans of the Boer War." McLuhan, whose *Understanding Media* is reviewed in these pages by Dr. Monika Kehoe, notes man's propensity to revere the past and claims that "human power to deal with any present reality is minimal. To have discovered this is a huge step towards by-passing this human limitation."

We hope that these views and findings will help clarify the concept of Activism, give some appreciation of its great potential, and expose some of its far-flung ramifications. We hope, too, that they will make this issue of the *McGill Journal of Education* satisfying and stimulating.

M. G.

Next Issue: LANGUAGE LEARNING.

THE TEACHER IN THE ACTIVIST SCHOOL

WAYNE HALL

It has long been realized that an educational system cannot be better than its teachers. Changes in curricula and regulations mean very little unless they are accompanied by understanding and a desire to change on the part of those who interpret courses in the classroom. Many educators are convinced that the way in which a child is taught is at least as important as what he is taught. This does not necessarily discredit the content of courses in the elementary or the high school. It merely recognizes first that the habits and attitudes which a child acquires may be more permanent than the information which the teacher relays and second, that leading a child to think, to organize, to relate, and to discriminate is much more significant than insisting on recall. Activist education accepts both of these principles.

Activist education, as described in the Report of the Parent Royal Commission, is education "which always tries to begin with the child, with his interests, with his play, with his imagination in order to develop in him curiosity and personal initiative. The object is to eliminate the formalism of the teacher, the restraint of fixed programmes, the passivity of the child."¹ This implies that the elimination of the present restraints on the teacher should lead to a more active or involved participation in education by the child.

Ever since the publication of the Report, teachers have been inquiring about activist methods, textbooks, and courses. However, there is no single prescription which will transform their classrooms. Activism embraces a wide variety of methods and can be developed in the work of all courses. It does not rely solely on changes in methods although in some instances it might find more encouragement in new textbooks. Instead, its secret and its strength lie in the spirit of the teaching, the tone of the classroom, the rapport among the pupils and between the pupils and their teacher, and the clarity in aim of the educational programme. The Report refers to the objectives and the changes in such sentences as: "The activist school must be regarded as the best realization of the genuinely child-centred education;" "The school today must at a very early stage develop in the child independence

of thought, habits of personal initiative, a sense of responsibility . . . ;” and “Teachers well versed in child psychology and aware of the needs of our day can very largely infuse into their teaching the spirit of the activist school which depends on the curiosity of the child and accustoms him to work on his own.”²

There are many teachers in our schools today who have always been activist in spirit. These the Report frees to do their best work without the fear of criticism. There are many others who have been interested in the possibilities of activist education. Such teachers are now encouraged to experiment widely with the new approach to teaching. A few think of education in more traditional or restricted terms. These teachers are invited to examine more closely the objectives towards which their teaching is directed. The transition to activist teaching can be achieved in any school where the teachers have the courage to accept change and the patience to work towards a new understanding of the educational process.

Activism establishes priorities in the classroom. For instance, it is more important that a child should want to seek out additional material about Brazil than that he should be able to repeat back every detail which the textbook supplies about that country. It is more essential that he should think through the implications of what he reads than that he should memorize the fact that the country has a smart new capital city. It may also be more worthwhile for him to spend an extra period preparing a report on his outside reading than to abandon his project in favor of the next scheduled lesson. It is more rewarding to have him ask questions than answer them, to have him challenge a statement than give the textbook reply.

The child should be encouraged to read, to talk, and to write instead of just to listen. He needs to think clearly about such things as school rules, inter-pupil relations and class standards rather than to submit to them uncritically. He must be led to reach out in many directions regardless of the restrictions of his present course of study, for the course of study is a rough guide of possible work for the average child and is not intended to stand between the pupil and his learning. Finally, the child must have practice in using his mind, relying on his own resources and accepting responsibility, rather than in memorizing lessons.

The activist school is dedicated to the unfolding of the potential of the pupil. This implies faith in the creativity of each child. However, his creativity is not restricted to originality in art, competence in drama, or inventiveness in science. Rather it consists of maximum use of his mental abilities and it is a freeing of his powers through his own active involvement and participation. Each child's need for discovery is part of creativity. Alice Miel³ defines creativity as a way of responding that is available to all human beings enabling them to cope with increasingly complex problems, conditions, and opportunities. Paul Torrance states: "No individual is fully questioning intellectually if the abilities involved in creative thinking remain undeveloped, unused, or paralyzed."⁴ Creativity implies intellectual curiosity, imagination, scientific awareness, and initiative. These are the qualities which activist education is designed to develop. As long as these are accepted as goals in education, the problem of individual differences can be met in many ways which would be impossible if the aim of the school were to assure the possession of an identical body of knowledge by each child.

The activist school calls for a shift in emphasis. In the traditional pattern, the teacher presents material in the various subjects in the hope that the child will learn it. A by-product of the work may be a greater drive to learn, more initiative and independence, the development of powers of organization and clear thinking. With activist education, the teacher presents material with the main objective of arousing curiosity, motivating self-development, and sharpening powers of observation, generalization, and self-expression. The by-product should be a knowledge of the material and a retention of the facts.

The activist school requires freedom for action. Many impressive studies have been made to show that pupils in less authoritarian classrooms not only learn as much in the usually accepted sense as those in traditional settings but, in addition, they acquire greater insight, develop more outside interests, improve in ability to meet problems and in flexibility of approach to difficulties, and have superior powers of organization. One of the first major studies was begun by the Progressive Education Association in 1933. The findings of the P.E.A.'s famous "Eight Year Study" have been repeated in various patterns by such investigators as Ackerman⁵ who

studied intermediate-grade pupils in 1956, Thompson and Tom ⁶ who indicated that similar results applied in the teaching of Agriculture (1957), and Cogan ⁷ who demonstrated the relationship between the pupils' concept of the teacher and their results in class work (1958). Gagné concludes: "There are many aspects of the personal interaction between a teacher and his students that do not pertain, in a strict sense, to the acquisition of skills and knowledge that typically form the content of a curriculum. These varieties of interaction include those of motivating, persuading, and the establishment of attitudes and values. The development of such human dispositions as these is of tremendous importance to education as a system in modern society."⁸

Activist education makes heavy demands on teachers. The teacher himself must have broad interests and sound academic preparation in order to face the requirements of the new classroom and be able to guide young people in their wide range of inquiry. He cannot be an expert in all the scholarly disciplines but he should be willing to urge pupils to investigate areas little known to him. He must be personally well-adjusted so that he may have confidence in himself and not just in his textbooks. He must also be sufficiently acquainted with the theory and practice of education to be able to assume responsibility for the development of his pupils rather than to rely on instructions in a manual. Finally, he must be able to see the growth of the child as a whole and not as something divided into ten subjects. For instance, he must recognize that one of the best reading lessons may involve using resource materials in history; that one of the best science lessons may arise from discussion in current events; and that essential work in oral English may be done without giving a single oral English lesson as such. If the spirit of the classroom is vital, the powers of the child are increased through a wide variety of experiences and exposures rather than by the marshalling of his opportunities to learn under the domination of a stern timetable which offers reading at 9.40 and speech at 1.30.

This does not mean that there will not be timetables, textbooks, and discipline. **The activist school should not be characterized by confusion but by a sense of purpose.** It is not a place in which children do as they please; rather a place in which they learn to work because work has taken on meaning and has become satisfying.

A teacher cannot teach what he does not know. It is obvious that a teacher who has no knowledge of chemistry should not be asked to direct a science programme. In the same way, it should be apparent that a teacher without initiative will not be able to spark much initiative in pupils and that a person without curiosity is unlikely to kindle inquiry in others. Every teacher should be a clear thinker. He should know how to organize material, how to generalize, how to detect the irrelevant and the specious argument. If he is to encourage originality he must have some creativity within himself. If he is to foster responsibility and self discipline, he must demonstrate these qualities; and if he is to impart a love of learning and a drive towards accomplishment he must set the example. He is himself a subject in the curriculum and it is likely that pupils learn more of permanent value to their intellectual development from contact with the right teacher than from completing their courses with passing marks.

It is well known that certain types of teachers are more successful than others in working with pupils. Biddle⁹ concludes that the "good" teacher is not only characterized by high academic achievement and broad interests but by a liking for people and confidence in the potential of pupils. He also shows that emotional stability is highly desirable and is most frequently achieved by those who consider themselves to be usually cheerful and self-confident, who like active contact with others and express favourable attitudes towards people, and who find satisfaction in hobbies as well as in work.

One of the most exhaustive studies on the characteristics of good teachers was made by David G. Ryans¹⁰. He found three patterns by which the good teacher might be identified. Pattern X shows the desirability of friendly, understanding, and sympathetic teacher behaviour as opposed to the aloof, the egocentric, and the more inhibited type; Pattern Y indicates the superiority of the responsible, systematic, business-like teacher over the one whose work is unplanned and slipshod; and Pattern Z shows that the stimulating and imaginative teacher is more successful than the dull and routine type. These findings may seem to be too obvious to be startling but when we consider the changes which are necessary to promote activist education, we realize how very important it becomes to have the right teachers. Among Ryans' best teachers there

was an age range from 22 to 56; their academic records showed only three-fifths to have been above average in school. However, on Guilford-Zimmerman tests they were found to be more friendly, more cooperative, more restrained and objective than the average and, according to the California Psychological Inventory tests, more tolerant. Such people, Ryan believes, are able to produce both better results in traditional learning and better development in the qualities which are implied in a broader concept of education. The search for teachers of the best calibre is not intended to convert the school into a pleasant social centre staffed with expert "sitters." However, it is essential that the atmosphere which the teacher tries to create should be challenging but pleasant because the right tone leads both to better learning and to more learning.

Good teachers have always attempted to make some provision for individual differences. Grouping, streaming, teaching to level, individualized assignments, extra-curricular programmes, remedial classes, and subject promotion are all evidence of the recognized need. **The activist approach makes greater demands for a recognition of individual differences and provides greater opportunities.** As the activity which is proposed is primarily intellectual, it follows that the teacher must be fully aware of the differing needs, abilities, and levels of development of each child. Above all, he must recognize the worth of each child, respect him as an individual, and have a genuine concern for his growth. Individual instruction is important but, clearly, a teacher cannot present thirty different lessons in any given class period. The teacher should realize that in many areas there can be inestimable value in a common presentation to the entire class and that frequently pupils can and should do things together as a part of the learning process.

Without minimizing the significance of completely individualized instruction, the activist approach tends to place more emphasis on individual learning opportunities arising from common presentations. Strict insistence on a common level of achievement, based on a single assignment which must be carried out in an identical manner and responded to in a restricted fashion, cripples class instruction or, in the words of the Parent Report, "it may well be the rigidity of courses which contributed to the passivity of the child." However, the

teacher's concern with the child's development rather than a traditional emphasis on the course substance may easily create a class situation in which many different learning opportunities are present within the framework of common assignments.

The activist approach above all else requires originality and courageous experimentation by the teacher. If it is intended to free pupils, it must also free the teacher to be creative in his work with the members of the class. At the same time, it adds to the teacher's responsibility to produce results. The Minister of Education in Quebec has stated that he is "... placing the responsibility for pedagogical decision in the hands of those who will actually carry them out in the classroom with their pupils." When teachers grow in this responsibility, they should also be in a better position to promote a similar sense of responsibility on the part of each child in the classroom. It is in this way that the activist school is thought of as being a challenge, an opportunity, a revitalization rather than a method, a set of rules, or a single type of approach. It is designed to make the school child-centred without being child-dominated and to subordinate concern with textbooks and course requirements to the development of pupils as people. This means that it must transform traditional instructors into professional teachers.

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THE CONTEMPORARY REVOLUTION IN EDUCATION

Extract from an Address delivered at the Winnipeg Teachers' Convention, February, 1966.

DAVID MUNROE

The present revolution in education . . . is . . . complicated, . . . penetrating, . . . widespread, . . . profound. Its urgency and its depth may be judged from the fact that until this century, no society could afford to educate more than a handful of persons, whereas now no nation can survive unless almost all its citizens are educated to the limit of their potential. We have been forced to move suddenly from dependence on an educated elite to dependence on an educated citizenry and this demands profound changes in our philosophy, our structures, our methods, our priorities. Concrete evidence of these changes can be found in the reform movements in Europe during the past twenty years, where a Royal Commission has been continuously at work in Sweden; in France, beginning with the Langevin-Wallon Commission; and, in the United Kingdom, where the Butler Act of 1944 has been followed by studies conducted by the Crowther, Newsom and Robbins Committees and profound changes in structure and policy. Anyone who has had the privilege of visiting these countries periodically during these years is well aware that these are no superficial or transitory movements, they are proofs of the awareness of new conditions which were well summarized in the Report of the Bellagio Conference on Economic Development in Europe, held in 1961:

Europe will have to give its people what would until recently have been thought of as a luxury educational system . . . This implies that education for many people will become longer . . . and it should give everybody a general basis for culture, essential alike for economic growth and human dignity . . . For unless we do so, Europe will fall behind, and in falling behind it will become culturally, socially and economically underdeveloped.

This is, of course, only one aspect of the revolution. No less important or profound are the changes in our attitudes toward learning. Research in social psychology and more specialized fields has produced new theories of the processes of thinking and learning, new appreciation of human abilities and new understanding of their measurement, new methods for developing certain skills, and a firmer basis for developing interest and motivation.

ACTIVIST EDUCATION: SOME PRACTICAL AND PSYCHOLOGICAL CONSIDERATIONS

GERALD H. MCKAY

The concept of activist education has been given prominence in contemporary Quebec through the reports of the current Royal Commission on Education.¹ In these reports the term "activist" is used to describe, on one hand, a set of educational aims: in addition to teaching the traditional skills and content, the schools are to produce individuals who can think for themselves, who are curious about the world around them, and who show initiative and self-reliance in the conduct of their affairs. On the other hand, the term is used rather broadly to indicate the kind of pedagogy that is recommended for the accomplishment of these aims. Teachers, and particularly those in the elementary grades, are urged not to rely on the traditional desk-bound and textbook-oriented methods of instruction. Instead they are encouraged to look for ways to increase pupil activity and involvement in learning by using such techniques as experimentation, research projects, discussion, and debate. They are also encouraged to be "child-centered" in their planning and to adapt materials and instruction to the characteristic ways that children perceive, think, and work at different stages in their development.

Readers of the Royal Commission reports will recognize that the above is an interpretation and possibly an extension of what the commissioners intended. In any case, it is obvious to students of education that the activist concept is not new but has had a long history in Western thought, from Rousseau and Pestalozzi to Dewey, Piaget, and Bruner. For those who are immediately involved in the development of education in Quebec, there are many interesting side issues to the social implications of activist education — and also many practical problems such as assessing and providing the material resources, desirable student-teacher ratios, and professional guidance that may be needed to implement the concept.

Professional guidance may be especially important. Where new, the principles of activist education will need to be presented in a way that is sensitive to the human problems involved in a change from traditional methods. If a supportive psychological climate is not created, feelings of distrust and cynicism on the part of some teachers may well result. It is

possible, as research by Jackson and Guba² would suggest, that veteran teachers, in particular, tend to develop a need structure that is consonant with the nature of their work, and that such teachers may show, for example, relatively high needs for deference, order, and endurance (at a task). This idea is in line with the general belief of social scientists that the demands of occupational roles tend to colour and mould the personalities of those who occupy them. Teachers who receive a strong emotional satisfaction from their work in its traditional form may experience some stress and anxiety as the approved way of fulfilling the teaching role changes. The problem is compounded by the fact that it is easy to discourse on the theory of activist education (as in the opening paragraph of this article) but rather more difficult to provide convincing and helpful examples that show it in practice over a period of time. Some teachers may have little need for such examples since they have always used activist principles to some degree. Other teachers may wish to try these principles but feel that social and material conditions in their school and community make it impossible. For a few, the threat involved in using a less controlled and stereotyped approach to teaching may be intolerable, and although they may be effective teachers in terms of certain educational aims and within the limits imposed by their personalities, they can never be expected to function comfortably except in highly structured situations where they have complete control and direction of all pupil activity.

The greatest difficulty for those who must guide the introduction of this new approach may, however, come from the over-enthusiastic *avant-garde* who, without sufficient planning and experience, immediately attempt more through activity methods than they or their students can handle. It has happened before in education that attempts to revitalise teaching or introduce new approaches have been discredited because they were introduced too indiscriminately and too quickly or because more was claimed for a method than might legitimately be expected of it. With these considerations in mind, there may be value at this point in examining some of the cautions that might be raised about activity methods.

It will, however, be instructive if we first examine the term "teacher presentation" which will be used in juxtaposition with "activity methods" during the remainder of this

discussion. By teacher presentation is meant that method whereby the teacher may use in one lesson some questioning, some lecturing, some audio-visual aids and, usually, some means of having the pupils practice what they have learned. Pupil activity does occur but the lesson is not planned to make it the major event. Both information and motivation come to the learner through the teacher rather than from the learner's first-hand contact with primary sources or concrete materials. It must be admitted, however, that in the case of certain skilled teachers the line between teacher presentation and activity methods does become blurred as they manage what appears to be a combination of the two. Perhaps teacher presentation can best be described by noting that it is a modern variant of the Herbartian method and is the typical lesson that student teachers give during practice teaching.

If the educator turns to psychology for justification of activity methods, he will find a general consensus in research and theory that activity on the part of the learner does, in many instances, tend to enhance learning. When the learner has, for example, worked out for himself a more effective way to perform a skill, or evolved a concept that permits him to classify information, or hypothesized a principle that enables him to solve a problem, it is likely that understanding and retention will be superior than if his experiences were confined to reading a text or following a teacher presentation. We would, however, stress the word "likely" in the previous statement — not only because of the tentative nature, at this moment, of any of our conclusions about learning, but also because the statement begs the question of possible interactions between method of learning and such variables as personality traits (for example, anxiety and compulsivity) and differences in intellectual potential. A more important observation about the statement, for practical and educational purposes, is that it may lead to the crude and unwarranted conclusion that because we cannot detect any overt activity on the part of the learner, learning is not taking place.

In the past, there has been some tendency to deny that talking about something could constitute an activity, and it might not have been rare, at one time, to hear statements such as the following: "All that happened during that lesson was a lot of verbalization by the teacher and children; no activities were undertaken and I doubt that any real learning occurred."

Yet, provided that the teacher had his attention, even the most "passive" listener or non-verbalizer in such a class may have been led to think in a way that reorganized quite profoundly his intellectual and attitudinal orientation towards the topic of the lesson. If the teacher's presentation led the listener to reorganize his previous knowledge mentally into a concept or principle of a higher order than he previously had, then a significant change in what some psychologists are currently calling "cognitive structure" may have occurred.³

The results of such a change may not become apparent until the new concept or principle becomes a mediating element in directing the learner's behaviour at some future time, and so novel may the new behaviour then appear, as in the sudden solution of a problem, that observers may be tempted to attribute it to some supposedly contemporary process such as insight. Although its effectiveness may depend in part on the nature of what is to be learned, teacher presentation, if skilful, may be very economical of both time and energy. In spite of this advantage, it remains, however, a technique by which the teacher manipulates the learner's intellectual processes. By its very nature it must ultimately concede some place to self-directive and activity methods, particularly if the learner is ever to learn how to be his own teacher or is to understand how new concepts and principles are generated within a field. Thus we return to activity methods and a consideration of how they may be made more effective by using the kind of verbal learning that is at the heart of teacher presentation.

Perhaps the import of our thinking will emerge more clearly if we take as an example of an activity method the kind of social studies project that a teacher in the upper elementary grades might plan with his class. (We do this at the risk of venturing into a curriculum area in which we are not expert and also of giving credence to the idea that activity methods are confined to social studies projects in the elementary grades.) Let us suppose that the project is around a topic that is popular with some teachers — the life of the Eskimo people. In addition to learning how to locate information, work independently or cooperatively, and make a presentation or report of the results of their own work, the pupils will usually acquire a quantity of detailed information about Eskimos. A further and more fundamental value will emerge, however, when the teacher leads the pupils to elaborate in verbal form

the higher-order generalizations or principles that may follow from their research: What is the relationship between environment and culture? What determines the social organization of a people? Given their present way of life, what are the problems that a people such as the Eskimos must face in the course of further social evolution? In this form, and without building up to them, these questions would in most cases be unsuitable for the grades we have in mind, but they are suggested here to indicate the direction that the pupils' thinking might take as they assess (with the encouragement of their teacher) the results of their research.⁴

In at least some cases in the past, those who used the project method were too hesitant to carry the learner on from his experiences at the concrete level, too timid about raising challenging questions that might have to be left without immediate answers, and too negligent in stimulating the learner to sort out and state the key concepts and principles involved. It is the latter, we believe, that accumulate as cognitive structure and remain as powerful mediating influences on thought and action long after the specific details are forgotten. The degree to which this exploitation of a project or similar activity is possible will depend on the potentialities of the original topic. The best topic is one, which, to use a phrase from Bruner, is "highly nutritious for its weight,"⁵ that is, it yields not only a wealth of specific knowledge but also lends itself to the higher order mental operations we have been describing. Whether or not Eskimos are a potentially nutritious topic may be open to question. In any case, it would be well to get as much out of them as possible before considering whether to take up another project.

Prominent among concepts currently associated with activity methods is that of discovery learning. To provide for discovery learning the teacher creates a situation in which the learner is able to relive and thus appreciate the processes by which some fundamental knowledge in a discipline was generated. For example, in science or mathematics a class, or individuals in it, might discover and state for themselves a key proposition that otherwise would be presented to them by demonstration and verbal exposition on the part of the teacher or textbook. Similarly, something akin to discovery learning may occur in a history class when the instructor provides students with copies of original documents and has them

write history for themselves. In the words of Ausubel, "autonomous discovery probably enhances intuitive meaningfulness by intensifying and personalizing both the concreteness of experience and the actual operations of abstracting and generalizing from empirical data."⁶ On the other hand, there are obvious limitations: there is just not sufficient time for schools to use this as the principal method of instruction and there is no guarantee that the very nature of the process ensures that pupils will arrive at a correct solution. Extensive promptings and hints from the teacher are often required and so we have "guided discovery" and "adventurous participation" suggested as compromise solutions. As is the case with many innovations in pedagogy, the ultimate status of what is undoubtedly a potent teaching technique will depend on the skill of teachers in using it where and when it is most appropriate.

As a final point among these considerations, we would note that where learning has proceeded through activity methods, careful consideration should be given to the way achievement is measured and assessed. If activity methods aim at developing in the learner the ability to plan for himself, locate information independently, and think critically about the significance of his findings, then appropriate tests of these outcomes should be used. Because of a simplistic faith that these results naturally accrue from activity methods, there might be a tendency to neglect their objective assessment. This would be unfortunate: not only would it not allow for an evaluation of teaching effectiveness, it would also fail to provide the evidence that would justify in the eyes of the public the value of a new, and probably more expensive, approach to education. It might be wise, too, to consider the possibility that pupils taught by activity methods may not do quite as well on traditional tests of formal skills and content as pupils taught by traditional methods because of the reciprocal relationship that usually exists between methods of teaching and methods of testing. Most of our existing tests were devised to measure the results of traditional teaching methods. The problem here may be one of knowing to what extent one can expect traditional objectives to be served by new methods which were, after all, adopted to serve an enlargement of the original aims.⁷

The cautions and observations we have noted in no way

exhaust the topic of activist education. Obviously there are many different ways that this particular educational concept can be applied, and it will need considerable study before its full implications for the revitalization of Quebec schools can be understood.

References and Notes

1. *Report of the Royal Commission of Inquiry on Education in the Province of Quebec*, Government of the Province of Quebec, Vol. 1-3, 1963-65.
2. P. W. Jackson and E. G. Guba, "The Need Structure of In-service Teachers," *School Review*, 65 (1957), 176-192.
3. By higher order concept or principle we here mean one that organizes and structures the content more extensively and systematically for the learner. It is then a more powerful concept or principle because it subsumes more and enables the learner to deal with a wider range of particular instances.
4. These questions are suggested to indicate the *kind* of relationships that a teacher who knows and appreciates the potentialities of his subject may see at or near the top of the spiral curriculum in social studies. In the lower grades he is more concerned that pupils approach these problems in a form suitable for their present level of functioning than that they leap immediately to the terminology and abstractions of the university scholar.
5. J. S. Bruner, "Learning and Thinking," *Harvard Educational Review*, 29 (1959), 184-192.
6. D. P. Ausubel, "Implications of Pre-adolescent and Early Adolescent Cognitive Development for Secondary School Teaching," *The High School Journal*, 45 (1962), 268-275.
7. The reader who is interested in this problem of measurement may wish to examine the results of research comparing activity and traditional methods as reported by Sells *et. al.*, "Evaluative Studies of the Activity Program in the New York Public Schools: A Preliminary Report," *Journal of Experimental Education*, 9 (1941), 310-322 and summarized by Lee J. Cronbach, *Educational Psychology*, (2nd ed.) New York: Harcourt, Brace, and World, 1963, pp. 15-16.

Surely our problem is to adapt education to contemporary living: to redefine the humanities, to revitalize language, to redirect mathematics, to redesign the applications of natural science, most of all to deepen our knowledge of man himself and teach him to live with his fellows. This is a task for the teacher and it can only be performed by a teacher who understands modern problems and who is ready to adapt his own classroom techniques to contemporary needs.

DAVID MUNROE

THE ACTIVITY SCHOOL: RATIONALE AND HISTORICAL ANTECEDENTS

E. GAULT FINLEY

Introduction

The Parent Commission on Education in the Province of Quebec has already recommended to the Government that the *école active* should constitute the basic pedagogical principle for the Provincial educational system. To the Commissioners, the "activist school" entails an institution where pedagogical efforts reflect a twin principle of child psychology — namely, the child is "essentially an active being and it is through use that his capacities develop and his personality expands."¹ In recommending "genuinely child-centered education" in which the pupil's natural curiosity is to be utilized to develop intellectual and moral autonomy, the Parent Commission criticizes the traditional school for generally limiting itself "to more immediate goals" and not striving "to cultivate the spirit of initiative and any feeling of responsibility."²

The present article is based on Gustav G. Schoenchen's *The Activity School: A Basic Philosophy for Teachers*³ (an adaptation of his 1939 doctoral dissertation at New York University) and aims to review a major section of this significant and relevant treatise. Schoenchen's book consists of three major parts: 1- Historical and Philosophical; 2- Methodology; 3- Application. The following analysis is primarily drawn from Part 1 which sets forth the basic historical antecedents of the activity school. Emphasis is upon those individuals in Europe whose writings and practices contributed to the underlying principles of what has come to be called activity pedagogy.

Rationale

Offering the analogy of a mathematician as he approaches a limit — "always progressing but never arriving" — Schoenchen contends that in order to include all valid subordinate aims (both now and in the future), the supreme aim of the activity school must be human perfection. Although the goal can never be reached, it is "in its aspiration toward the ideal (that) our human nature manifests itself as its best." (p. 96) The ideal for physical life becomes "the most preferable" health and the ideal for mental life combines "beauty as ideal of ideation, truth as ideal of judgement and reason, and virtue

as ideal of will or emotion." Taking geography, creative writing and art as examples, Schoenchen subsequently describes the methodology which activity pedagogy employs in progressing towards these various ideals.

Averring that activity pedagogy is fundamentally an expression of Pestalozzianism, Schoenchen defines "the activity school as that type of education which, through activity pedagogy, makes the widest possible use of the principle of pupil self-activity in the teaching process." (p. 283) Activity pedagogy recognizes two inter-related aspects of the basic self-activity principle. The first comprises the "things to do" or subject matter, an example being manual training as an activity itself (or coordinated with other subjects) or non-manual training activities in any subject. Schoenchen refers to this first aspect as "pedagogical activity" and describes it as "every purposeful application of human power, mental or physical, through which cultural values are created." (p. 107)

The second aspect of self-activity constitutes a principle of teaching or a formal methodology. Schoenchen calls such methodology "heuristics" which, he states, "must be stimulative of the seeking-and-finding powers of the child . . . , aiding or guiding in discovery, inciting to observation or invention." (p. 113) As already mentioned, there are three ideals to be sought after in relation to man's mental life. Schoenchen outlines a specific heuristic for each.

- a. Ideation is to employ "empirical heuristics," whereby concepts are built upon a pupil's experienced percepts. Here the author takes geography as a subject and describes seven characteristic forms, from simple material collection to map study and even "direct telling by the teacher," which can be efficacious in stimulating "the pupil in the mental process . . . called ideation." (p. 118)
- b. Development of the child's ability for independent judgement requires "logical heuristics." The objective here is to stimulate "the pupil in the field of assimilation," for which the teacher acts as a Socratic mid-wife. Logical heuristics are "the very core of activity pedagogy on the formal side." (p. 140)
- c. Will or emotion necessitates "technical heuristics," which utilize pupil interest and become manifest as self-expression. Such expression is basically in response to man's innate drive to create or re-create (re-present?). As in the

two other heuristics, the correlation between subject matter and teaching method — that is, between the two aspects of the principle of self-activity — must be recognized and honoured.

Historical Antecedents

It is a truism to say that all life involves activity of some sort and in some degree. In primitive societies one senses that an implicit injunction might very well have been: “survival of the active-est.” Nor is there any question that the activity concept engaged Graeco-Roman minds, in both educational and non-educational domains. In many respects, however, the matter of activity education most noticeably challenged Western man during and immediately following the Renaissance and Reformation eras — that is, after several centuries of comparative in-activity or passivity. This general line of thinking leads Schoenchen to credit John Amos Comenius (1592-1670) with having provided the first principle of activity pedagogy. As the outstanding representative of educational sense-realism, Comenius’ contribution rests on his insistence that the pupil do things for and by himself. For Comenius training through eye, tongue and hand in object lessons enabled the pupil to acquire all knowledge or *pansophism*. Thus, the first of twenty-two activist principles which Schoenchen identifies is derived from Comenius:

1. An activity school makes use of pupil activity as a principle of instruction. (p. 6)

Jean Jacques Rousseau (1712-1778), “the father of modern pedagogy” and one of the first modern educators to assert the inherent goodness of man, recommended a “negative” or natural education during the first dozen years of a child’s life. He advocated pupil activity as a major means of learning and condemned over-emphasis on education as a preparation for life. To him we credit the following:

2. The activity school advocates many forms of manual training for their cultural values.
3. The activity school arranges the subject matter of instruction in accordance with the natural interests of the child.
4. The activity school advocates direct experience as preferable to vicarious experience.
5. The activity school is opposed to merely verbal teaching.

6. The activity school emphasizes the need for training the senses so that learning through the senses may be furthered.
7. The activity school would modify the learning process so as to take account of individual differences among the pupils.
8. The activity school recognizes that education is life, and must therefore be lived in a communal environment. (p. 7)

Meanwhile, there was the ever-present and increasing opposition by the scientific realists (from Bacon through to Newton) to all forms of verbalism and their even stronger advocacy for inductive reasoning, observation and experimentation. However, not until the latter half of the eighteenth century do we find any new general principles. While Christian Salzmann was acting as literary propagandist for the activity movement as a whole, Ferdinand Kindermann (1740-1801) "first applied the principles of activity education to vocational training, thereby creating the vocational school." (p. 9) In addition, he valued industrial training for its potential in fostering human happiness through economic productivity. To this end he also instituted a policy of alternating academic and industrial subjects. Kindermann contributed two principles:

9. The activity school believes that one of the proper aims of education is vocational efficiency.
10. The activity school advocates a natural form of discipline based on the child's interest in his work, and operative through social control; it is opposed to order imposed upon the pupil from without by the teacher. (p. 9)

Schoenchen mentions the work and ideas of certain minor "rationalists" during this germinal period. Johann Basedow drew attention to the necessity of alternating subjects so as to avoid the consequences of fatigue. Johann Campe somewhat echoed Rousseau by proposing manual work entirely until the age of thirteen. Bernard Blasche, who noted a natural-cultural dichotomy in activities, and Gottlieb Heusinger, who found in them a fertile field for aesthetic appreciation, combined in 1798 to produce *Die Familie Wertheim*, a treatise which "might be called the first book on activity pedagogy."

Johann Gottlieb Fichte (1762-1814), whose position in German education is generally acknowledged, added several significant principles to activity pedagogy. As an ethical idealist, he advocated that all training should be directed towards human living with manual and academic subjects blending to make man part of a work-community. While Fichte conceived matter as a function of absolute Spirit, he deemed the latter to be active or operative. Doing, accordingly, is eternal: being is merely a function of doing. From this Fichte affirms that activity is not only instinctive (as earlier recognized) but also an insistent urge or universal drive and should be utilized as the chief means of instruction. Fichte is credited with the following principles:

11. The activity school regards pupil activity as the *chief* means of education.
12. The activity school uses the principle of activity not only as a subject (manual training) but also as a method of teaching.
13. The activity school advocates many forms of manual training for their moral value.
14. The activity school advocates self-activity as a means of achieving independence.
15. The activity school recognizes the need for training the individual for membership in society. (p. 10)

Two of Fichte's contemporaries re-inforced most of his views. Johann Gottfried Herder especially stressed sense-training and knowledge in the field of applied science. Johann Wolfgang von Goethe, meanwhile, recommended an integrated manual training course from the time the pupil first entered school, with specialization being postponed until personal aptitudes could be determined. In this respect he saw the difference between artist and artisan as only one of degree. Goethe's concept of the reciprocal relation between thinking and doing was later incorporated as part of the psychological basis of activity pedagogy. Schoenchen claims that Goethe's precept "regarding happiness and altruism is destined to become incorporated as an ethical motive or aim in the activity school."

With the advent of Johann Heinrich Pestalozzi (1746-1827) and August Friedrich Wilhelm Froebel (1782-1852), the activity school entered a period of rapid growth. Schoenchen points out that because Pestalozzi put Comenius' and Rous-

seau's ideas into practice, the activity school owes more to him than to any other educator. (p. 12)

Fundamental is Pestalozzi's conception of "self-activity" as comprising spontaneity rather than mere activity. Henceforth the principle of pupil self-activity entails "activity initiated and motivated by the pupil himself." (p. 13) Significant also is the view of human nature held by Pestalozzi — he combines Rousseau's and Fichte's respective individual and social concepts by recognizing an inter-action between the individual's inner and outer world. A century later inter-action became one of the two principles in John Dewey's theory of experience. Further, we note that perception *per se* is merely passive, according to Pestalozzi, who insisted that the process be carried through conceptualization and expression back to the original object. In this manner and through pupil effort, concept formation would become active or meaningful. Schoenchen claims that Pestalozzi herein "adumbrates the later work of activity psychologists, who trace activity through the three departments of the mind — the ideational, the judgement, and the interest-volitional." (p. 14) Pestalozzi's contributions to the activity school are:

16. The activity school is organized on the basis of pupil self-activity.
17. The psychological basis of the activity school is the truth that pupil self-activity affects the three categories of consciousness — the ideational, the judgement, and the interest — volitional.
18. The activity school values experimentation as a means of education because experimentation applies a pragmatic test to ideas. (p. 15)

Froebel, in effect, combines Fichte's principle of doing with Pestalozzi's sense training (or object lesson) when he advocates that knowledge should be obtained through *anschaunung*⁵ or "sensing an object in every possible way." (p. 315) Play for Froebel was both its own justification and yet it could also develop into social cooperation or work. Regarding the "culture epochs" or "recapitulation" matter, Schoenchen at first states that "the theory rests on some questionable evidence . . . (and) it is not essential to the activity school." (p. 16) He then contends that because Froebel only supported it in so far as each man's recapitulation is different, "the theory need not be at variance with the observed facts of

human individualization." Recapitulation's practical value resides in its insistence on the sequential arrangement both of the curriculum as a whole and also within each specific subject. In this respect psychological order assumes priority over logical order. To Froebel are attributed:

19. The activity school maintains that sense training and self-activity must go hand in hand, pedagogically.
20. The activity school recognizes the pedagogical importance of play.
21. The activity school tentatively accepts the recapitulation theory.
22. The activity school recognizes that the development of the child at any level is conditioned by the development of the child at lower levels. (p. 18)

During the second half of the nineteenth century variations of activity school principles spread to various European countries. Uno Cygnaeus, a Froebelian, introduced the philosophy into Finland's public elementary schools and teacher seminaries. The Swedish *sloyd*⁶ movement was inaugurated by August Abrahamson and developed by his nephew, Otto Salomon. By the end of the century Norway made *sloyd* compulsory in the public schools. Denmark, under the guidance of Adolph von Clauson-Kaas, adopted the utilitarian emphasis of Kindermann, although general teaching methods reflected the broader activity school principles. The "écoles maternelles" in France accepted the theory of Froebel's kindergarten, but in practice they invariably emphasized its abstract elements. In England, Herbert Spencer's philosophy most closely represented the activity position. Some "hand and eye" techniques appeared in primary schools, with specialized manual training being offered after Grade 4. Generally speaking, English activity education featured "complete informality, and considerable individualization of instruction." (p. 22) In describing the activity school in the United States, Schoenchen disassociates the influence of John Dewey.⁷ In a short summary, it is claimed that activity education in America mirrors the general features attributed to its development in England.

Schoenchen claims that the influence of Johann Friedrich Herbart (1776-1841) caused a "temporary eclipse" of activity education. He attributes this eclipse to the fact that, although pedagogy was "the most important outcome of his philosophy,"

(p. 23) Herbart insisted that thought preceded action. Consequently, concept building assumed a sterile intellectual guise and Herbart's only sympathy to activity pedagogy was in his acceptance of manual training in secondary school level workshops. This acceptance was on condition that the vocational side was subordinated to the cultural.

. . . from 1857 to 1902 a series of nation-wide teachers' conferences in Germany reflected the Herbartian distrust of the activity school, with the result that advances in activity pedagogy during this time were made in countries other than Germany. (p. 24)

Tuiskon Ziller is noted as representative of the anti-activity group because he advocated manual training for classes of secondary importance (*neben klassen*), to begin only after the pupil had reached twelve years of age. Although he termed all-round manual skill "polytechnic" and claimed skill to be more cultural than vocational, Otto William similarly subordinated manual classes to formal academics.

Schoenchen then describes European modifications of activity pedagogy which occurred in the late nineteenth and early twentieth centuries. The expansion of the concept of manual training from "little more than woodwork" to its function as general method and even as a subject with its own specific method in the general curriculum was due considerably to the combined efforts of Georg Woldemar Goetze and his successor Alwin Pabst at the Leipzig teacher-training courses. True, their loyalties were to their teacher Ziller and to Herbartianism, but as a result of the "Leipzig Method" individual educators adapted activity pedagogy to such subjects as geometry, drawing, natural science and to the study of form itself.

Heinrich Sherer stands out at this time as one of the chief exponents of the psychological basis for activity pedagogy. He pointed out both the injurious effect of stifling the child's innate drive for self-expression and also the sociological relevance of creating objects. Meanwhile, the Leipzig Teachers' Association was accentuating individualization through an undifferentiated and broadly conceived "Home-and-Civilization" theme in all elementary grades. Accepting Froebel's principle of child development and endorsing the child-centered school, the Leipzig group thereby accepted the physical-mental view of pupil activity. William A. Lay, principal of the Karlsruhe teacher-training institute, is singled out for his experimental

work which particularly concerned itself with the "R" end of the "S-R bond." With reference to this problem-solving step in the learning process, Schoenchen states:

The great pedagogical problem of the activity school is the difficult act of so influencing the mental set of the child through pedagogic techniques, that the child does not realize that he is being influenced by the teacher, or being subjected to a pedagogic technique, but believes that the assumption of the problem is an act of his own free will without suggestion from outside sources. (pp. 39-40)

Only pupil self-activity, he continues, will enable one to approach "salvation" which is defined as "the achieved acceptance of man's place in the world, with conscience as the bearer of ethical claims upon him." (p. 40) Salvation permits one to harmonize outer and inner worlds and become "an active worker in the world for the good of all."

Combining Spencer's naturalism and Dewey's pragmatism, George Kerschensteiner (1854-1932) represents the chief exponent of education through socialization with citizenship as its aim. As superintendent of Munich schools, he increased the ratio of activity over language subjects and made the historical and social aspects of human institutions the form and substance of the curriculum. At about the same time the social philosophy of the Swiss Robert Seidel was instrumental in bringing activity education into the schools of Zurich, Basel and Berne.

While various individuals and institutions in Europe were promoting such features as individualization and natural science — the latter as both subject and method — perhaps the most significant modification was that made by the administrators. W. Wetekamp, principal of a *real-gymnasium* in Berlin, gradually introduced activity methods into all twelve grades and made specific activities sub-serve separate subjects. In fusing the traditionally antagonistic learning and doing type of school, Dr. Max Loeweneck proposed the following guide-lines: 1. programming of suitable activity-subjects for each grade; 2. using only simple, inexpensive tools for all projects; 3. subordinating of vocational to cultural consideration; 4. neither teacher nor pupil expected to demonstrate great technical skill; and 5. activity time to be borrowed from correlated subject.

In Austria the Minister for Education, Otto Gloeckel, introduced the principles of activity pedagogy in the 1920 reforms. The major instrument in implementing the principles was the Vienna Pedagogical Institute, directed by Eduard Burger. In Germany, meanwhile, the 1919 Weimar Constitution made activity training compulsory in all State schools. Confusion as to the meaning of the principle, however, occasioned a National School Conference in Berlin the following year, and Schoenchen avers that the report of a special committee which examined ". . . the effect of activity pedagogy upon thought content . . . remains the most important document in the history of the activity school in Europe." (p. 54) Essentially this document supported the twin principle of activity pedagogy which continued to guide German education until the take-over by Hitler in the early 1930's.

Schoenchen's treatment of John Dewey alone remains to be reported; but, as already implied, this topic will be only briefly sketched. On the theoretical side, it may be pointed out that whereas Dewey approaches education philosophically and defines it as "a social life necessity taking the form of intelligently directed activity to insure proper individual growth for social continuity," (p. 209) the activity school simply takes education for granted and endeavours to derive "the best means for achieving education." Dewey "describes education as a continuous process divorced from its end; we think of education . . . as a *process* of becoming, and as an *end product* of that process." (p. 210) Referring to Dewey's assertion that education only functions within a social context, Schoenchen contends that "through the principle of self-activity self-education is possible even in isolation." (p. 210) Dewey deems philosophy to be a method for determining appropriate actions to reconstruct society, while to the activity school it "is a body of truth to which we refer and upon which we base our system of education." (p. 223) Knowledge for both Dewey and the activists has instrumental value "in enabling man to gain newer and wider experiences," but only the latter affirm "knowledge as having validity or truth whether man has the ingenuity to use it or not." (p. 224) Similarly, both agree that morality is realized in and through social living, but the activity school also holds that "moral conduct, or character, transcends the social situation." (p. 225) In brief, Schoenchen claims Dewey would employ education

for "the creation of the ideal society," the activity school "for the creation of the ideal man." (p. 239) Dewey would characterize method by results and the activity school would stress processes. While discipline and interest are blended by Dewey and, in effect, become indistinguishable, discipline is intimately related to the broader domain of moral training by activity pedagogues. Finally, the two protagonists proffer a different meaning of individual freedom: Dewey sees freedom as a means to social improvement, Schoenchen as it permits and encourages the individual to approach perfection.

Such then concludes this synopsis of the major historical antecedents of the activity school as viewed by Dr. Gustav G. Schoenchen, writing during the first year of World War II. To what extent the twenty-two principles are applicable to the Parent Commission's idea of *l'école active* or to the manner and means by which the Government and educators of the Province of Quebec will implement the Royal Commission's recommendations, it is still too early to give any categorical answer. It is just possible, however, that the preceding account may act as a catalyst in future deliberations on the whole question of the activist approach in contemporary education.

References

1. *Report of the Royal Commission of Inquiry on Education in the Province of Quebec*, Government of the Province of Quebec, Vol. 2, 1964, p. 90.
2. *Ibid.*, pp. 90-91.
3. Gustav G. Schoenchen, *The Activity School: A Basic Philosophy for Teachers*, New York: Longmans, Green, 1940, pp. x, 359. Schoenchen's doctoral dissertation is entitled, "Eduard Burger and John Dewey — A Comparative Study of Burger's *Arbeitschule* and Contemporary American Activity Schools as Representative of Dewey's Educational Philosophy." Subsequent page references in this paper are to Schoenchen's book.
4. Schoenchen appears inconsistent here because he has already claimed that Rousseau originated the idea of pupil activity as being the *chief* means of instruction. However, he does not include it among the seven principles attributed to Rousseau.
5. Schoenchen omits the implications of immediacy of awareness in defining *anschauung*.
6. *Sloyd* is defined as "deftness of hand — manual dexterity. Its object is cultural rather than vocational; self-reliance, assiduity, conscientiousness, respect for the dignity of work are its intended end products." (p. 316)
7. However, Chapters X and XI are entirely devoted to an appraisal of Dewey's contribution to the activity school.

THE CRACK IN THE REAR-VIEW MIRROR

MARSHALL McLuhan

In *The Secular City*, by Harvey Cox, the principal theme concerns the power of the Judaic and Christian revelation to enable men to avoid participation in the world environment. Without this revelation, men have tended to adjust themselves by what Levy-Bruhl called "participation mystique." Involvement in depth in the patterns of one's culture we have come to consider a natural response to one's environment, a sort of conditioning by adjustment. These matters are rehearsed in *Saving the Appearances* by Owen Barfield. He is especially interested in the non-participation attitude of literate societies. What he calls the "Alpha-thinkers," the detached, analytic observers of events, are in striking contrast to the "Beta-thinkers." The latter are simply people who make a corporate, or collective, response to environments by which means they acquire a sort of "sensory profile" of which they are quite unaware. The Beta-thinkers Barfield associates especially with native societies whose unified and corporate outlook goes along with a great deal of depth involvement in the natural and cosmic realities that surround them.

Mircea Eliade, in *The Sacred and Profane*, tackles the contrast between the Alpha and Beta thinkers in quite different spirit. He is nostalgic about the people who are able to experience the participation mystique. They live in a sacred space and time where nothing is neutral and where no detachment is conceivable. By contrast, Western literate man, since the rise of the Greek phonetic alphabet, has known little participation and much alienation and detachment. The above authors share a common lack of awareness about the power of the phonetic alphabet, especially when printed, to impress habits of perception that are very detached and objective and alienating.

The sensory environment created by this alphabet with all it entailed of high visual orientation and pervasive habits of fragmentation and specialism and classification receives real attention from Eric Havelock in his *Preface to Plato*. This book was not available when I did *The Gutenberg Galaxy* and *Understanding Media*. It is the work of a classical scholar who looks in detail at the kinds of culture and education that characterized the world of the tribal encyclopedia that preceded Plato.

Quite apart from the admirable introduction to the world of Homer and Plato that Havelock affords, he also provides invaluable insight into the new worlds of culture and education created by electronic technology. Havelock does not refer to electronic technology, he simply presents the oral and tribal culture of Greece with a detail that makes it quite easy for the reader to provide his own interrelationships between the tribal world and our electronic society. As Miss Susan Sontag shows in her chapter on "Camp" in *Against Interpretation*, the entire environment of our time has become valuable as a work of art. "Camp" is seeing our entire society in quotes, as it were. When we have stretched instant electronic webs around the globe, all the cultures of the world, past and present, become simultaneously accessible. The world becomes a museum without walls. What the young "beat" poets now call and provide as "Happenings" is a preliminary view of our world as we begin to encounter it once more in a participation mystique. To regard the entire world of natural and artistic events alike is a unified cosmic Happening, to see supermarkets and used car lots as the treasures of an ideal museum is to respond to electronic technology in the truly tribal and involved way of the "Beta-thinker."

Depth involvement comes with the decline of visual orientation. It comes with the end of the monopoly of the visual power that long held sway under the ages of the phonetic alphabet. Today, xerography is about to increase the number of written words and printed books in the world by manyfold, but xerography is the antithesis of letters and typography. It deals with the page and the book as a single gestalt. With xerography the reader can become once more like the ancient scribe, both author and publisher of anything that interests him. Xerography ends the central position of the publisher and ends the role of author as one seeking self-expression. The book is about to cease being a vehicle of self-expression, and is about to become a corporate probe of society.

All the facts and effects of xerography so far as they concern the future of the book, were patent to Rimbaud and the poets that followed, including Pound, Eliot and Joyce. The poet has invaluable power to translate the sensory meaning of the new technical environments into new art forms that foreshadow specific changes. The urgent effort of the poets to gain a hearing for their intuitions is always lost on the

public. Today the public is more likely to pay heed to announcements that R.C.A. and Random House are merging their activities, or that I.B.M. is likely to become a major text-book publisher.

Paul Goodman's book title *Growing Up Absurd* means that young students today have already adjusted to the new world of electric circuitry. The absurdity in their lives consists in being instructed and guided by people for whom the receding mechanical and fragmented world is the prime reality. It is as though astronauts could only be launched into space by veterans of the Boer War. Now, none of these matters has anything to do with ideals or goals, so far as I can see. When I say "the medium is the message" I am merely expressing the obvious fact that the means employed in any human endeavour will directly affect the ends to be achieved. Perhaps the reason that the ends and means discussion never got off the ground was that the earnest moralists who carried on that discussion never paid any attention to technology. That blindness still persists among educators who imagine that they can pursue the old ends by the new means. Personally, I am not the least attracted to any of the new technologies except in so far as I can see quite clearly that they threaten our entire way of life. The only conceivable defence against the distorting effects of the new environments created by new technologies is a patient and total understanding of their powers and influences.

To express moral caution and alarm concerning such matters is as efficacious as the screech of a chicken whose neck has been laid on the chopping block. If, for example, our engineers were to add 200 lines to our present TV image, a real step would have been taken towards maintaining some of our visual and cultural values. Colour TV, on the other hand, greatly lowers the visual orientation of the TV viewer; that is, it decreases his detachment and increases his involvement. It appears to be a fateful sensory trait of mankind that he be quite unaware of the environmental, while always having a vivid image of the preceding environment. The revival of Bat Man is a case in point. Much of the present TV audience and executive world read Bat Man in early adolescence. With the advent of colour TV, Bat Man returns as a nostalgic image of the pastoral world of youth. There are other reasons for this revival that are also associated with colour TV. Now that

TV is an environmental force, we are free to be nostalgic about the glorious artistic achievements of the movie.

When the Middle Ages had departed, the Elizabethan world picture became a medieval one. When the mechanical industry, and railways, had created a new environment around the old arts and crafts and the agrarian world, nostalgic image of the departing society became the basis of the Romantic Movement. The more mechanized and urbanized America became, the more flamboyant became its Bonanzas, and its Westerns. But human power to deal with any present reality is minimal. To have discovered this is a huge step toward by-passing this human limitation. In the jet age there are some indications that the rear-view mirror as a notification device is losing its monopoly.

BOOK REVIEW

Marshall McLuhan, *Understanding Media: The Extensions of Man*. New York: McGraw-Hill, 1964, 359 pp.

The Tyranny of Literacy

For more than a year, the critics have had their innings with this most recent of McLuhan's books. From the rather spiteful summary by Dwight Macdonald in *Book Week* (June 7, 1964), through the appreciation, "Born Under Telstar," which appeared in the *Time's Literary Supplement* (Aug. 6, 1964), to the more recent accolade in the November, 1965, *Harper's*, the reviewers have not ignored *Understanding Media* or its author. Neither can the educators.

Although some professors of English may consider their former colleague a renegade from literature and the academic disciplines in general, they cannot afford to dismiss him as irrelevant. Marshall McLuhan, now Director of the Center for Culture and Technology at the University of Toronto, has some provocative things to say about literacy as well as about education — pronouncements that the literate and the literary may neglect only to their own disadvantage. Consider:

The American stake in literacy as a technology or uniformity applied to every level of education, government, industry, and social life is totally threatened by the electric technology. *Understanding Media* (p. 17)

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The American stake in literacy as a technology or uniformity applied to every level of education, government, industry, and social life is totally threatened by the electric technology. *Understanding Media* (p. 17)

Or

Just as we now try to control atom-bomb fallout, so we will one day try to control media fallout. Education will become recognized as civil defense against media fallout. The only medium for which our education now offers some civil defense is the print medium. The educational establishment, founded on print, does not yet admit any other responsibilities. (p. 305)

Such statements, even taken out of context as they are, should arouse the curiosity of the reader — especially the reader who is a teacher. They should also create a desire for a fuller acquaintance with *Understanding Media: The Extensions of Man*.

This remarkably persuasive and exciting book, written by a Canadian, allays once and for all the popular criticism that Canadians are imitators, always copying ideas from their neighbors to the South. *Understanding Media* has a fresh insight on every page. Its area of reference is Communication Theory, the concern of every teacher who stands before a class. Reading it is itself an educational experience, a trauma of sudden awareness, a turbulence of the imagination which matches the frequently apocalyptic style of its pentecostal message. And “the medium is the message,” according to McLuhan. In short, — and in this era of instant information, it behooves us to be brief, if we are to be heard at all — the way of presenting the message is at least as important as the message itself, “because it is the medium that shapes and controls the scale and form of human association and action.”

The social and psychological implications of the author’s formulations are hinted at in some of the chapter headings:

Telegraph: The Social Hormone
 The Typewriter: Into the Age of the Iron Whim
 The Telephone: Sounding Brass or Tinkling Symbol?
 Movies: The Reel World
 Radio: The Tribal Drum
 Television: The Timid Giant

For all their seeming glibness, these are merely tags for what turn out to be thought-provoking and often profoundly disturbing explorations of our uncritical acceptance of the “blessings” of technology. With the mass media and the overall

cybernetic revolution impinging more and more on the role of the teacher, as the radio, movie and T.V. become the "classroom without walls," educators will want to be — will have to be — more concerned with the kind of questions that McLuhan raises. As a teacher himself, the author is alert to the involvement of teachers.

The electronic age is literally one of illumination. Just as light is at once energy and information, so electric automation unites production, consumption, and learning in an inextricable process. For this reason, teachers are already the largest employee group in the U.S. economy, and may well become the only group. (p. 350)

If one interprets correctly such an authority as C.P. Snow, (speaking on a recent television interview, taped in the U.S.) that by the end of the century only ten percent of the population in the technologically advanced countries will need to work and these will be the best educated segment of the population, one can safely predict that the greatest proportion of this ten percent will have a teaching function.

But Marshall McLuhan needs no support from such impressive figures as Lord Snow. His own arguments are self-sufficient.

The very same process of automation that causes a withdrawal of the present work force from industry causes learning to become the principal kind of production and consumption. Hence the folly of alarm about unemployment. Paid learning is already becoming both the dominant employment and the source of new wealth in our society. (pp. 350-1)

Such a view will surely please those who advocate abolition of university fees and claim allowances should be provided for students. Indeed, in spite of the reviewers' reiteration of McLuhan's "infuriating" ideas, many readers of various sorts will find gratification as well as stimulation between the covers of *Understanding Media*. For example, the linguists will find much to agree with.

The content of writing or print is speech, but the reader is almost entirely unaware either of print or of speech. (p. 18)

Or

In our time, study has finally turned to the medium of language itself as shaping the arrangements of daily life, so that society begins to look like a linguistic echo or repeat of language norms, a fact that has disturbed the Russian Communist party very deeply. (p. 49)

Again in the chapter entitled "Clocks: The Scent of Time":

Modern linguistics studies are structural rather than literary, and owe much to the new possibilities of computers for translation. (p. 147)

Speaking of the limitations of the literate man:

Similarly, literate man can learn to speak other languages only with great difficulty, for learning a language requires the participation of *all* the senses at once. (p. 267)

It is precisely this complete activism — this participation of the whole man in the cosmic consciousness — that McLuhan is examining. He says in his Introduction:

We actually live mythically and integrally, as it were, but we continue to think in the old, fragmented space and time patterns of the pre-electric age. Western man acquired from the technology of literacy the power to act without reacting. . . . It is no longer possible to adopt the aloof and dissociated role of the literate Westerner. (p. 4)

Understanding Media — published in the same year as the first volumes of the Parent Report — adds to the ferment of the Canadian intellectual scene, it shatters conventional modes of thought, and it surely should provoke educators to reassess the subtleties and powers of their business of communication.

MONIKA KEHOE

ACTIVIST TEACHING AND THE ORGANIZATION OF HISTORICAL IDEAS

R. J. WENSLEY

What should "activist teaching" mean to the history teacher? At first thought the answer seems simple enough. He must involve his students in the work of the history course in such a way that they become interested, active participants, real "self-starters" eager to extend their knowledge, rather than passive spectators in the game of learning. The art of involving students, however, is not an easy one, and the methods by which the ultimate goal may be reached are many. For some teachers a solution lies in the provision of more and better historical materials, and in the wider use of audio-visual aids. This is all to the good. But in an age where television and moving pictures have become commonplace, in a society rich in published historical sources, (often obtainable in relatively inexpensive paperback editions), the availability of materials creates almost as many problems as it solves. The average student, given a little time, will be just as readily bored by an indiscriminate use of filmstrips, if they promote random thinking, as by a series of more formal lectures. The study of documents, if the study seems to lead nowhere, can confuse as well as enlighten, even though the novelty of the work may lend appeal. In such cases the involvement of the pupil is much more apparent than real. Clearly, "activist teaching" must not be confused with the mere manipulation of materials.

The major premise of this article may now be stated: a student is truly involved in the study of history to the degree that he perceives those patterns of related historical ideas which give to the discipline form and meaning.¹ The minor premise follows in direct consequence of the major: the most important activity of the history teacher, the very focus of his "activist teaching," is the process by which he organizes and communicates coherent patterns of historical ideas. In passing, it is not intended that these propositions be understood either as a recommendation for a return to the lecture method of teaching history in the schools, or as an argument against the extended use of materials and audio-visual aids. What is often overlooked, however, is that the history teacher's approach to a course in terms of organization of ideas can, in

itself, result in a re-vitalization of history. Once the idea-pattern has been well worked out, the materials and techniques essential to student comprehension almost suggest themselves. Yet the materials remain the servant of the ideas, and are never introduced merely because they happen to be readily available.

The general argument advanced above is re-inforced by a consideration of what happens when a topical approach² to the teaching of Canadian history is attempted by a well-prepared teacher. By "topical approach" we mean the organization of historical ideas into categories or themes (for example, "Geographical Influences on Canadian History," "Native Peoples," "Immigration, Settlement, and Economic Growth," "The Development of Canadian Government") which are then worked through from beginning to end in such a way that they cut across the normal line of chronology. In the process the student is brought many times into contact with the present which this form of organization helps make meaningful to him. The "native peoples" no longer vanish mysteriously somewhere about page 80 in the textbook, but are discussed as a continuing aspect of Canadian life. The concept of a changing Canadian constitution, with the nature and extent of the change related to the historical factors which helped shape it, is given a deeper meaning. At the same time, teaching method responds to the stimulus of the new organization of ideas. Intensive work in immigration and settlement, suggests, if not requires, a field trip to Upper or Lower Canada Village in order to confirm on the ground what has been apprehended only partially in reading and discussion. Furthermore, it is now easier to plan such outings in advance to coincide exactly with the appropriate part of the syllabus. A wise teacher collects in separate files the documents, graphs, statistics, anecdotes, maps, pictures, and other materials which illustrate the development of the topical idea. Most important, the attachment to the single textbook, which has so often marred the teaching of Canadian history in the past, is completely broken. Reference to a wide variety of primary and secondary sources is ordained by the nature of the work and necessitated by the lack to date of any suitable school texts arranged topically. Thus the teacher grows professionally as a consequence of an imaginative organization (or re-organization) of the Canadian history course.

In practice, however, many teachers hesitate to commit themselves irrevocably to a topical form of organization. When they are not really specialized in history, they may feel insecure in the face of the heavier demands made upon a limited fund of time and knowledge. Or they may simply wish to become familiar with the more conventional chronological arrangement of work before coming to grips with the unknown. Under these circumstances, the textbook is accepted as the focus of organization in the course, and the teacher's main function is discharged in "covering" a daily allotment of pages. But herein lies a danger. Not only does method suffer, for the temptation now is to avoid thought and rely more and more on rote, but the student, striving to see some orderly pattern in a welter of detail, becomes at first vaguely dissatisfied, later restless, and finally learns to hate his subject with all the intensity he should bring to the mastering of it.

At this point we contend that it is not only possible, but extremely desirable, for a teacher to think in terms of patterns of organized historical ideas rather than in terms of pages to be "covered," even when the textbook is being used as the major focus of organization.³ A simple example will suffice to make our meaning clear. Faced with a section of the text expounding the course of the French and Indian Wars 1689-1755, it is possible for a teacher to proceed in one or other of the following ways:

Part A — *BY CHRONOLOGICAL HEADINGS*

I King William's War (The War of the Grand Alliance)
1689-1755

—Causes —Events —Results

II Queen Anne's War (The War of the Spanish Succession) 1701-1714

—Causes —Events —Results

III King George's War (The War of the Austrian Succession) 1740-1748

—Causes —Events —Results
and so on.

Part B — *BY ORGANIZED IDEAS*

The basic cause of the struggle for supremacy in North America lay in the tensions deriving from the relative geographical and political position of England and France in North America.

- (a) By 1700 the French penetration of the Mississippi meant the virtual encirclement of the Thirteen Colonies.
- (b) Two fortified areas of extreme political "tenderness" were the Ohio Valley and Acadia.
- (c) The use of Indian allies by both sides meant "dirty" warfare and lasting bitterness.
- (d) The shape of the British and French empires was being "blocked out" in such intermediary settlements as the Treaty of Utrecht, 1713.
- (e) One peculiar thing about the struggle was that it was inclined to take its own form, apart from events in Europe, as in the important year 1755.
- (f) All the time the struggle was going on, the Thirteen Colonies were learning how to co-operate with each other in political and military matters.

In the first case (Part A), the arrangement of material discourages the adoption of that investigative attitude which generates intellectual excitement. Where the "headings" and the pages in the textbook correspond closely, as they often do, the student feels that he has been plodding resolutely across a bleak and featureless historical landscape unrelieved by any peaks of meaning. Good teaching may improve the situation, of course, but by and large, such an arrangement militates against good teaching. Organization by "headings" usually fails to produce excellence in teaching because it infers that the main function of the teacher is to dispense bundles of appropriately labelled facts, which may be safely passed back by the student at examination time. ⁴

The organization of a section of work into a pattern of inter-related ideas (Part B) makes possible quite a different result. The relatedness of the ideas to one another, and to a single central concept, helps the student to comprehend in terms of larger rather than smaller entities. Clearly perceived ideas also constitute the intellectual hooks and eyes which make it easy to fasten one section of work to another. In addition, each idea suggests an appropriate method. The ideas

lettered (a) and (b) in Part B above, cry out for the use of maps, number (c) for the narration and interpretation, through discussion of the stark tragedy of the Schenectady and Deerfield massacres, of the truly incredible tales of Tom Quick and Captain Robert Rodgers. Nor need the method be entirely dominated by the teacher. Each historical idea can be conceived of as a kind of hypothesis, an end or aim which the student must strive to explore and test for validity at the same time. The main task of the teacher is to involve the student with historical materials in such a way that he comes to "see" the idea with all its supporting evidence. Facts still continue to be of great importance, but now they have been rallied in the cause of a larger meaning and make more "sense" to the learner than they might in Part A.

Until now, we have been concerned with Canadian history only, but perhaps the best demonstration of the connection between the organization of historical ideas and imaginative teaching is most evident in world history, particularly modern world history. Here the vast expanses of time and space, the multiplicity and diversity of historical events, makes it imperative that the student possess some guide lines to understanding. Fortunately the narrative of world history is studded with certain key ideas which are most useful here: revolution, nationalism, conservatism, liberalism, imperialism, socialism, totalitarianism. By specific reference to two of these organizing ideas, the first and the last, it is possible to extend our original argument into a wider and more complex subject area.

The work of Crane Brinton,⁵ the American historian, suggests the usefulness of the idea of "revolution" as an organizing device. Selected political revolutions (for example, English, American, French, or Russian) are compared within a common framework which provides for a beginning in some kind of Old Régime, a "move to the Left" in "stages" varying from moderate to extreme, and finally, a consolidation in a Thermidorian reaction to chaotic conditions or an excessive use of terror. In the process, considerable change occurs in most of the important forms of social relations.

This basic idea can first be explored with pupils in the abstract. Perhaps the teacher may diagram the pendulum swing from Right to Left and then the counterswing back to the Right. At the same time he may discuss the theoretical

stages, drawing his examples from a wide variety of revolutionary activity. Armed with this basic idea, the student can do a great deal of work on his own. He can be required to divide the course of a specific revolution, let us say the French Revolution, into appropriate "stages," and gather together for each "stage" those facts which seem to support his choice of arrangement. He may also be asked to discuss the forces which tended to impel the revolution to extremes, and so on. With the student involved in this kind of elementary historical problem-solving, one of the basic requisites of activist teaching, a kind of self-propelled investigative attitude, is being gradually encouraged.

The teacher must, however, be very careful not to grip the minds of his students in a rigid intellectual vise. Concepts such as "revolution" must always have about them more of hypothesis than of historical "law." It does not follow, for example, that a general idea of "revolution" will be applicable to *all* revolutions without serious modification. Attention to the differences as well as the similarities in comparative situations should help make this point clear.

The organization of historical events around key ideas suggests the possibility of various forms of activist teaching. One of these is a simple variant of team teaching in which a key lesson or lessons is given by one teacher to a very large group of pupils, with subsequent follow-up work carried out in smaller groups. In this way the concept of "totalitarianism" can be developed at some length in the larger group, possibly with the overhead projector and tape recorder used to illustrate some of the more complex facets of the idea. What is "total" about "totalitarianism?" How does "totalitarianism" differ from ideas such as "despotism" and "dictatorship" with which the student is already familiar? Under what conditions does "totalitarianism" develop generally? What was the geographic extent of "totalitarianism" in the period between the two World Wars? Are there degrees of "totalitarianism" and, if so, what are the criteria for determining a totalitarian state from a state which is merely authoritarian? The overhead projector is ideal for presenting charts, maps, and cartoons. The tape recorder can knit together source readings into coherent verbal illustrations, usually developmental in nature. For example, it is possible to tape readings from the works of Marx and Engels, Lenin, and Stalin,

so as to show the progression from the Marxist idea of a dictatorship of the whole proletariat, through the Leninist concept of the dictatorship of the dedicated élite, to Stalin's manipulation of the party as an instrument of totalitarian control.

Once the key concept has been thoroughly explored in the larger group, smaller groups work out the implications of the general idea in specific cases. The construction of charts or tables of statistics will help the student see for himself whether the background conditions in the various countries adopting totalitarian forms of rule were similar or dissimilar. The rise to power of the more important totalitarian leaders can be compared, as can the different party structures. The content of a selected totalitarian ideology makes a fascinating documentary study. Finally, the work takes on another dimension with the use of fiction. Parts of George Orwell's *Nineteen Eighty-four* may be read as a case study in "pure" totalitarianism; considerable amusement, and much instruction, can be culled from his treatment in *Animal Farm* of the conditions of aborted revolution, and the subsequent rise of the totalitarian state. Naturally, the type of work undertaken must vary widely with the circumstance of each particular small-group unit.

By and large, the approach to understanding world history through stress on key ideas is not incompatible with the conventional organization of the school history course. The key concepts are picked up, polished, and ploughed back into the material whenever possible in the ordinary progress of the work. The benefits, apart from that kind of built-in review which is almost automatic when there is comparison of one historical situation with another, derive largely from the *meaning* with which particular events are invested by the general idea. The general idea of "nationalism" makes intelligible historical events as varied as the composing of the French national anthem or Bismarck's handling of the Ems Dispatch. Also it is important to consider that the key concepts, explained, discussed, and returned to time and time again as the course unfolds, stay with the students long after the associated facts have faded from their memories. Thus, some conception of nationalism as an important agent in state-building survives when the details of the famous Telegram have long been forgotten. And surely this is the way we would have it.

This paper was inspired initially by the observation, confirmed over a fairly extensive period, that many student teachers of history encounter much difficulty in organizing historical ideas and communicating them clearly in classroom situations. That this difficulty is related to lack of experience, and in some cases to lack of knowledge of the subject, there can be little doubt. What is discouraging to the students, however, is that failure often takes place after much honest effort and considerable expenditure of time in the preparation of materials and visual aids. In an attempt to make a lesson "interesting" many student teachers fail to make it coherent. And there is every indication that this also holds true for some practising teachers in school systems.

The attempt to direct attention away from the use of materials *per se* to the consideration of the intellectual core which alone invests materials with meaning lies behind much of the argument advanced earlier in the paper. Perhaps this is just another way of suggesting that "activist teaching," at least where the teaching of history is concerned, infers activity of the mind, and has nothing to do with mere "busyness." With this summary position, few serious teachers of history would disagree.

Notes and References

1. The question of what constitutes *structure* in the history curriculum is an open one. Jerome Bruner in *The Process of Education* seems to equate structure with patterns of historical ideas. Neil Sutherland, in his article "Structure in the History Curriculum" reaches the conclusion that "structure in history cannot be found in an over-all systematized view of the past, or in revealed laws which govern the rise and fall of civilizations . . . Structure in history can be only partial structure, contained in its *nature* rather than its content." Both views of what constitutes structure have important implications for teaching method. Perhaps a synthesis is possible. In this case pupils would be involved in historical materials in such a way that they come to "see" an important historical idea with all its supporting evidence. The linkage of ideas provides direction and momentum in a course; the method by which the ideas are approached is essentially historical.
2. For the material on the topical approach to history teaching, I am deeply indebted to Dr. Alana Smith, Head of the History Department, Lindsay Place High School, and particularly to her recorded address "A Topical Approach to the Teaching of Canadian History," Audio-Visual Centre, Macdonald College.
3. For fuller treatment of this idea see my "Employing Concepts in the Teaching of History," *Macdonald Bulletin*, November 1964.
4. I am not suggesting here that topical outlines have no value for orientation and review. They do.
5. Crane Brinton, *The Anatomy of Revolution*, N.Y.: Vintage Books, 1957.

JUMP IN THE LAKE

C. HAWKINS

To learn to swim, jump into the water and swim.

Many expert swimmers have learned to swim in this manner. Some of them in the later stages of their apprenticeship have received instruction from coaches. Some have read books which suggest refinements of style. It is unlikely that anyone has learned to swim through listening to gramophone records, following a course of lectures or reading a book. All these things help, but they do not teach swimming.

You must plunge into the water and try for yourself. You will thrash around in an ungainly manner and swallow a considerable quantity of water. Several sessions and many pints of water later, you will find that you can swim.

Between learning to swim and learning to speak a second language a parallel may be drawn. The analogy is neither new nor complete, but it contains elements of truth which bear examining.

The very best way to learn to speak a language is to speak it. Place yourself in a situation where you must speak your target language to survive. Survive you will, and you will speak the language in question.

It is thus that the immigrant learns English in the United States and most of Canada. In this manner the French-speaking Québécois learns English. It is not, however, in this way that the English-speaking Canadian learns French in Québec or anywhere else. More of this later!

The idea of *bathing* the student in the target language — see how our analogy persists — lies at the root of university summer courses where students are forbidden to use a language other than the one which they are studying. The principle applies also in classrooms where a conscientious teacher enforces the same rule. We find a similar application in intensive courses like *Voix et Images de France* — a system which works most effectively when students have absolutely no access to their mother tongue throughout the duration of the course.

Did you notice the transition implied in the preceding paragraph? We had been dealing with the natural way of language learning; suddenly we turned to artificial ways of language learning. The best way is the natural way when it can be

followed. Sometimes we cannot follow the natural way; then we must resort to invented ways.

To return to swimming: a child of nature who lives in the wilderness where he must learn to survive, and where all his attention is focussed on this task, acquires the ability to swim as part of his survival technique. Nobody teaches him; he learns. A child who lives in an advanced society must learn many additional skills. There is no time for him to learn to swim the natural way, so he must be taught.

Similarly most people lack the time to learn a second language through immersion; they, too, must be taught.

It should appear from what has been said that teaching constitutes a short cut to learning. Teaching aims to eliminate time-wasting effort and to channel energies into activities most highly productive of learning.

Obviously, teaching will be most effective where some of the conditions of natural learning are found. English-speaking people should be able to find such conditions in the Province of Québec. That is why many English-speaking Canadians, leaving another part of the country to live in Québec, are sped on their way with the friendly observation: "*Now* you will learn to speak French!" A pious hope that is seldom fulfilled.

Extraordinary to relate, very few Anglo-Canadians in Québec can really be said to speak French. To this sweeping indictment there are notable and honourable exceptions; in the main, however, the statement is all too true.

In the past, motivation has been lacking. The English-Canadian has usually found himself in an economically favourable position. Thus he has been able to choose the language in which he desired to communicate. Not unnaturally he has chosen English. Furthermore, he has tended to associate chiefly with people of similar background, so that he has indeed lived in an Anglo-Canadian society. The problem of teaching French to him and to his children has not differed materially from that faced by teachers of French elsewhere in English-speaking America.

Surprised and vaguely ashamed because he does not speak French, the English-speaking Québécois has sometimes found comfort in the thought that after all the French spoken in Québec is not very good French. He is wrong. One can certainly hear poor French in Québec. One can hear poor French

in France, too — and poor English in England as well as in North America. In Québec as well as in France one can also hear excellent French, French which is second to none in “correctness” and style.

The myth of French-Canadian *patois* has foundation in fact. Canadian French suffers pressure from English, which surrounds and permeates the Gallic language. Canadian French contains a small proportion of expressions and of peculiarities of pronunciation which are vestiges of the language spoken in Europe when the Canadians came to the New World. Canadian French has evolved in the new environment much as Canadian and American English have evolved. Canadian French is spoken by the educated and the illiterate.

In some respects Canadian French has resisted anglicisation more successfully than has European French. *Le week-end, faire de l'autostop, le softball*, familiar to continental Frenchmen, are *la fin de semaine, voyager sur le pouce, and la balle molle* in Canada. The danger in French Canada is rather the temptation to think in English with a French vocabulary: *chercher pour (chercher), parler à travers son chapeau (parler à tort et à travers)*. For that matter, whether one speaks of *un week-end* or of *une fin de semaine*, one is dealing with an English contribution to the joys of living.

A frequently mentioned example of Canadian French evolution is the adoption of terms used for various conditions of snow. Snow is unknown in many parts of France, an occasional nuisance in others, a source of revenue in a few ski resorts. In French Canada, snow is a recurrent phenomenon for approximately one third of the year. Of course French Canadians talk about it. *Un banc de neige* is a snow bank; *la poudrerie* is fine powdered snow. Should the French Canadian not use the terms because they are unknown in this context in Europe?

If your politics are conducted in British parliamentary tradition, why not call the Speaker *l'orateur*? In France *l'orateur* is an orator, a spokesman, while *le speaker* announces programmes on radio and on television (*l'annonceur* in Québec). *Le speaker* has a feminine counterpart — *la speakerine*. *Oh, la belle pureté de la langue française de la métropole!*

Serious efforts are being made in Québec to direct the growth of Canadian French along orderly lines consistent with the historic development of French and the nature of

the language. Canadian French, well spoken, will continue to be acceptable in the French-speaking world just as Canadian English, well spoken, will continue to be acceptable in the English-speaking world.

Does the English-speaking Québécois consider that his own speech is a poor model for the French-Canadian learning English?

The English-speaking Canadian has an amazing ability to find reasons not to learn French. If you maintain that Canadian French is indeed worth learning, he is apt to assert that the programme taught in our schools is irrelevant to the needs of Québec because "it teaches Parisian French."

Nonsense!

The programme aims at teaching standard French — French that is neither the speech of Paris nor Marseilles nor Brussels nor Montréal nor Québec. Just French.

Learn standard French as taught in our schools. Listen to French radio. Watch French T.V. Speak French wherever possible — on the street, in the shops, on the train —

"Whenever I *try* to speak French, the French-Canadian answers me in English."

Of course he does! In the first place he is polite; he returns the compliment you have paid him by using his language. In the second place, he is astute. He knows that he needs practice in English. Finally, he is determined; he intends to speak English whenever he can. Be equally polite, astute, and determined. Continue the conversation in French. You have the right to use French and nobody can deprive you of that right in Canada, particularly in Québec.

"Oh! — Jump in the lake!"

That, sir, is exactly what we are trying to persuade *you* to do.

In times of change, we have three choices: we may resist change, we may accept the changes that are forced upon us, or we may participate in the reform movements, through which we may master the forces of change in some measure at least. The latter, it seems clear to me, is the choice we should make because it would be hopeless to set our minds against changes so insistent and urgent as those now facing us, and I would not wish to surrender the direction of education to the blind forces either of nature or of human nature. Too much is at stake for that.

DAVID MUNROE

THE LEARNING PROCESS AND MATHEMATICS INSTRUCTION

RICHARD WHITWELL

Introduction

In recent years much has been written concerning the widening gap between the newer developments in mathematics and the traditional mathematics taught in secondary schools. Not unnaturally, leading scholars in mathematics have looked at the school programmes and found them wanting. These people have considered that mathematics curricula should be reformed so as to bring the subject matter in line with recent developments. Professional educators, many of whom are prepared to take an active part in shaping the future policies of school programmes in mathematics, find themselves faced with the problem of translating the suggested reforms into action within classrooms. Thus, while it is recognized that the mathematicians are in the best position to determine the structure of the discipline, it is the professional educators' responsibility to prepare good school programmes in mathematics.

In the past, the main difficulty was to obtain for mathematics a legitimate position in the scheme of teaching. Today, this problem has been overcome, but another has arisen in its stead. The difficulty which now confronts those who are interested in mathematics education, whether from the point of view of general organization of the curriculum or in the actual teaching of individual branches of mathematics, is that of finding some guiding principles to animate mathematics teaching as a whole, to coordinate the instruction a student receives in different years in different branches of mathematics, and to decide which of the innumerable facts of mathematics should be inserted, which should be omitted.

If it is the mathematical point of view and not merely a collection of facts that we wish to impress on those we teach, then it becomes increasingly necessary to eliminate needless detail, to concentrate on fundamentals, to arouse the interest of the student at the outset. A student who has become involved in the ideas of mathematics and has been brought to appreciate mathematical method is educated in a much more desirable, and indeed in a much more complete, way than one

who has succeeded in assimilating a large number of detailed facts.

There is a vast amount of mathematics already, and the explosion of knowledge indicates that there will be more. The rapidity of change means that it is not clear just what the specific applications and methods will be in future years. Therefore, it is important that we try to develop in our students a point of view which will enable them to learn additional mathematics. This point of view can best be achieved by allowing them to take an active part in the formulation of ideas and in the evaluation of material as it comes to them.

Traditional Mathematics

For some time now students have been exposed mostly to a one-way type of communication. They have text books that purport to "show them how to do a problem," and they are directed to solve particular types of problems — problems that have already been solved. Many teachers today leave their students with the impression that mathematics consists of a series of operations or "manipulative tricks" and if one follows the leader — teacher or textbook — the answers will appear. Textbook problems usually fit into a recognizable slot. A turning of a crank grinds out the answer. Thus every "problem" presented in school is in reality no problem at all. Any student who applies himself assiduously to such "problems" has composed nothing that might be an inspiration for his leisure hours.

Our best trained and most conscientious teachers of mathematics find themselves dominated by textbooks. They forego the benefits of extensive questioning and inquiry because the present situation does not permit them to deal with each student simultaneously. Parenthetically, "subject promotion" has brought about much homogeneity within groups of students, but our teaching is still directed at the average student. Of more importance, however, is the fact that in a dynamic and rapidly changing world, where the concept of change should be paramount, we find ourselves reduced to mediocrity because we cannot or will not allow students to use and test various strategies in reaching the final goal. We tell students, in the same way as we would tell a computing machine, that "this is the way the problem should be done." Only by a fortuitous arrangement of albumen and hydro-carbons do we get

some of our students to respond. We discourage creative thinking, the intriguing phenomenon of choice does not occur and the student relies heavily on his ability to memorize. Now memory is a very useful intellectual power but many people who may be capable of absorbing an enormous amount of mathematical stuff and can recall it when necessary, may falter in the face of uncertainty of choice. It is this uncertainty that inhibits active, creative thinking and restricts both the learner and the teacher to considering only how the author of the textbook has suggested a problem *might* be solved. Thus we find in the mathematics classroom a group of people merely "learning about" something. Rather than engage these students actively in the task of discovering something new, in putting things together for themselves, we deny them the right to think.

Beyond the Bounds of Syllabus

Before proceeding, it may be worth while to note that school grades are not *ad hoc* groups but rather, they are dynamic groups concerned naturally with their own ideas as well as ideas of others. Through verbal intercourse and exchange of thought, a variety of responses is produced and the learner discovers the cunning of others. He becomes a strategist in gathering information. He is more likely to break down the barrier of compulsivity, to become more flexible, to discard a meticulous preoccupation with ideas that have already failed. One example of this can be observed in a game called "Twenty Questions" where, by an elimination process, a group of people, through questioning, approaches an answer as rapidly as possible. One might say that learning has been speeded up, because "the thinking of the learner" has been channeled "in such a way that the extreme incorrect hypotheses he may try out are eliminated from consideration."¹

Sometimes a student may suggest an alternative method for solving a problem. In this event he should be given an opportunity to demonstrate his ideas. He may find a more or less efficient method than the one prescribed by his text. The teacher, of course, should be prepared to point out the soundness or the fallacy in the reasoning process. He should be prepared to state whether the student has made a conjecture or discovered a generalization. In either case, by going beyond the requirements of a syllabus prescribed by the textbook,

the student will have added to his knowledge. Again, when a teacher guides his students in solving a system of linear equations by the "triangulation sweep-out procedure," he will have introduced an idea directly related to the solving of linear equations by modern automatic digital computers. The identification of a concrete example motivates the student by bringing to him one of the many new and challenging ideas in the field of mathematics. One might say to the student that this process is tedious by pencil and paper, and let it go at that. But surely teachers of mathematics will agree that computers are likely to play an important part in our lives. Allowing the student to think beyond the minimum requirements of a syllabus would be in the finest tradition of mathematics, and consistent with the modern world, for we shall have, in this case, channelled the student toward thinking about the impact of computing machines on contemporary society.

Further, if a student has acquired knowledge concerning the geometry of Descartes then he should be permitted to synthesize an idea by combining this knowledge with his understanding of Euclidean geometry. This combining of ideas exemplifies the manner in which mathematicians work. They reach back into mathematical history, exploiting the reservoir of pure mathematics, thus making use of previous discoveries and, having investigated a topic, they pursue the inquiry, just as Albert Einstein did when he made use of tensor analysis which had been developed in turn from the geometry of G. F. B. Riemann.

These instances emphasize the value of designing a technique to utilize things that already exist in the physical environment, and to develop a more cooperative position in the classroom in regard to generating a solid basis of knowledge in the individual. As Piaget has noted ". . . without interchange of thought and cooperation with others the individual would never come to group his operations into a coherent whole: in this sense, therefore, operational grouping presupposes social life."²

From Intuitive Perception to Logical Reasoning

A number of researchers including Bruner and Dienes, and recently Allendoerfer, have suggested that an individual "first gets an intuitive perception" not based on logical thought or reasoning and "this rather vague perception urges him on to

constructive or creative effort to confirm the intuition by logical argument.”³ If we fail to recognize that constructive thinking develops before analytic thinking, we shall not derive the most profit from our efforts to engage the students in inquiry.

Consider the following. A student may observe that:

$$1 + 8 + 27 + 64 = 100$$

Helping him to develop this observation, we seek a pattern and find that:

$$1^3 + 2^3 + 3^3 + 4^3 = 10^2$$

Let us see if we can develop this idea further.

We have:

$$1 = 1 = 1^2 = 1^2$$

$$1 + 8 = 9 = 3^2 = (1 + 2)^2$$

$$1 + 8 + 27 = 36 = 6^2 = (1 + 2 + 3)^2$$

This pattern seems to indicate that:

$$1^3 + 2^3 + 3^3 = (1 + 2 + 3)^2$$

A student may suggest that: The sum of the first few n cubes results in a squared quantity. This tentative generalization, the teacher will know, is indeed so for all positive integers. We can generalize as follows:

$$1^3 + 2^3 + 3^3 + \dots + n^3 = (1 + 2 + 3 + \dots + n)^2$$

This example of a pattern of reasoning leads to a fundamental process in mathematics usually called “mathematical induction” which we can use when we want a rigorous proof or systematic deduction. The important thing here is to engage the student in arriving at the generalization before attempting the rigorous proof.

The teacher’s role in this “guided discovery” process or “hypothetical mode,” as Bruner has called it, is not merely one in which he exposes his students to certain pieces of mathematical knowledge, but it is rather a dual role in which the teacher must remain alert at all times to the underlying concepts of mathematics and to the principle of action or, as Gesell has termed this, “the principle of motor priority.” “This principle,” says Gesell, “is so fundamental that virtually all behaviour ontogenetically has a motor origin and aspect.”⁴ The mere exposition of knowledge is not enough, and the

teacher should be prepared to listen and test novel ideas that emanate from the students themselves. Hilgard has noted,

In order to tolerate the frustrations along the way, prior to the thrill and excitement of discovery or creation, a student has to develop confidence in his own capacities as a creative person. There is no short way of engaging in inquiry and in creation, and receiving the rewards that come through creative efforts, for this confidence to be achieved. The teacher helps by celebrating small achievements, so that larger ones can come in due time. ⁵

Whether we regard mathematics from the utilitarian standpoint, according to which the student is to gain expertise in using a tool, or from the purely logical aspect, according to which he is to gain skill in argument, it seems clear that teachers of mathematics have not done enough either in helping students to converge upon a standard mathematical proof or in encouraging divergent thinking of students so that they may build, or structure, or create for themselves. These activities have been neglected, and too much attention has been given to characterizing definitions and designating them by symbols before emphasizing the awareness of a concept. The instructional practices in the schools have been inadequate because the usual procedures of chalking on blackboards and the making of marks in workbooks are not functional activities. Much of this sort of thing should give way to allow students the opportunity of making mathematical discoveries, and of proving or disproving conjectures. For example, if a student thinks he has discovered something, anything at all about prime numbers, then he should be allowed to explore his conjecture. He may write his name indelibly in the history of mathematics. If his discovery is already known to others, this in no way need detract from his accomplishment. He may not find a "black rose" but he may find a "black swan." In any event, the teacher is afforded an opportunity to acquaint students with Fermat's theorem of 1640, Goldbach's "guess" of 1742, Vinogradov's proof of 1937 and the "eureka's" of others who have tried to unlock the many secrets of primes.

In summary, the teacher who affords himself the privilege of participating with his students in "beating around the

bush" for a while, even though concealing his own expertise, identifies himself as a person of high professional ideals, for he is joining his own students as "frontier thinkers" in mathematics education. In fact, the teacher who is likely to be successful in the future, is the one who gives serious consideration to the psychological foundations of the "action basis" for learning and is abreast of recent developments in mathematics. He will be both dreamer and practical man within the same skin.

An Approach to Creativity

All of the above implies that the teacher of mathematics must be well qualified to create a climate of learning. The point here is that, in securing an atmosphere more akin to that of pure scientific investigation, it will be necessary for the teacher to ensure that the student follows some kind of productive procedure. If this is not done, the important process of inquiry will not be mastered and we shall have in its stead a series of random trials, a "pot-shotting" procedure where errors are not evaluated, and where the student cannot know whether or not his responses are leading him on to the final goal. It may well be that no one teacher can control each student's behaviour. B. F. Skinner has warned us "that a teacher cannot supervise 10,000 to 15,000 responses made by each pupil per year."⁶ Thus it may be essential that we turn our attention more toward teaching by television, team-teaching, and toward some of the "techniques for controlling behaviour, so that the student does actually go through more productive processes . . . and here some of the techniques of programming for guiding and controlling behaviour may be applicable."⁷

In pointing out the need for a systematic approach to creativity, we cannot overlook the sort of training given to potential teachers of mathematics. Polya has noted that the curriculum of mathematics teachers has given no attention to the ability to reason and to creative thinking. Says Polya, "Here is . . . the worst gap in the present preparation of high school mathematics teachers."⁸ This assertion by a renowned teacher of mathematics emphasizes the importance of methodology in the training of teachers. If we are to encourage young people to investigate a topic in mathematics as a voyage of discovery, we should pursue the quest, as it were,

by engaging the intending teacher in the demands of the educative process. To this end, professors of mathematics education should have freedom to shape the methodology of their students in those lectures which have usually been devoted exclusively to subject matter, and this will mean, in turn, that examinations would be different, but by no means weaker, from those given in purely academic courses. Method is what counts when training teachers for primary and secondary schools. The inspiration must come from the teacher and not from the things that are taught —

... let us always recognize that *content and method* are exactly the things with which our subject is concerned; for *Mathemos* is literally 'A subject of Instruction' and *Mathematike* is 'The Art of Teachable Knowledge'. These are the two elements that make for us our profession.⁹

Another important factor concerned with a systematic approach to creativity, and one which should engage the minds of professors of education and student teachers alike, is the age at which the attempt can best be made to maximize active thinking. Improvements in the mathematics programmes of schools depend, to a great extent, upon the answers to such questions as "What about the age placement of geometry?" and "Generally what information can we extract from the development studies that will help us to structure curricula content in terms of the normative developmental time table of young people?" For example, the "ontogenetic" order of spatial concepts is first topological, followed by projective and Euclidian, with one exception: the abstract notion of infinity follows after the categorization of the aforementioned three concepts.¹⁰ If we believe that "activist education" will enhance the teaching-learning process, then it behooves us as teachers to arrange the subject matter in a sequence which will correspond, as far as possible, to the cognitive development level of the student.

Thus it will be the teacher's task, and one often demanding considerable ingenuity, to analyze the content to be learned in terms of the operations implicit in it. Having done this, he will arrange the learning materials so that these operations can actually be

carried out by the student himself, and then see to it that the student does carry them out.¹¹

In particular we should attempt to make fruitful use of the developmental findings of Piaget and others engaged in this particular branch of educational research. Mining the educational lode of such researchers will guard us against redundancy when planning curricula. An awareness of the most favourable time to cultivate the mathematical imagination of young people could provide us with the best conditions for increasing their productive creativity.

Conclusion and Some Recommendations

The studies of schoolmen will be atrophied if attempts are made merely to replace the deadwood of mathematics curricula by so-called "new mathematics." What is required is a bold attempt to engage students in "active commerce" within a world of mathematics, and this can best be achieved by allowing students to use their intuition more and to organize material in terms of their own interests.

Such an approach will necessitate that teachers be up-to-date not only in subject-matter knowledge, but that they apply their pedagogical skills to organize information in a manner that will not discourage or confuse students. Moreover, changing over from a traditional expository form of instruction to one where we lead the pupil to be an autonomous and self-propelled thinker, will involve us much more than in the past in a question-and-answer technique. We shall be catapulted, as it were, into the briar patch of an articulate and opinion-forming society of unsophisticated mathematicians. Consequently, teachers will be compelled to look for other techniques for guiding and controlling behaviour, and to recognize the most favourable time in a learner's life when to apply an "activist technique."

Some areas for study in the teaching of additional mathematics include:

- i) programmed instruction, not just as a means of teaching mathematical "stuff," but also as a means of enhancing the "investigative process;"
- ii) the changing of examinations, particularly at the matriculation level, so as to emphasize more the importance of cognitive activity — arranging for

- a student to take an examination when the teacher feels he is ready;
- iii) a major overhaul in the training of teachers of mathematics, particularly those teachers preparing for primary schools — emphasis to be placed on the “growing body of knowledge of how young children learn mathematics.”

The Royal Commission on Education in the Province of Quebec has demonstrated an awareness of the increasingly important role of mathematics in the contemporary world by indicating that any new programmes for school mathematics are now the responsibility of those actively engaged in education. We thus have the opportunity to exercise fundamental leadership in the creation of a better mathematics programme. It would indeed be tragic if we should not be equal to the task.

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EXAMINATIONS: THE CONTRIBUTION OF THE SCHOOL

NORMAN FRANCE

At a time when the Province is taking a completely new look at education, it is wise to think again about the form and function of examinations. Why do we test and examine? Our reasons are many and varied. They will not be the same as those offered by parents or by students and we shall differ among ourselves depending on the age of the students we teach and the type of institution we teach in. Any one of us, if pressed, could perhaps advance three or four reasons in detail but we do not always realise that some of the functions we suggest are hardly compatible one with another. An examination devised to assess what a student has learned in high school is not necessarily the most efficient predictor of his success at university.

One of the most recent investigations in Canada is described by the Central Advisory Committee on Education in the Atlantic Provinces in Report No. 2 "C.A.C. High School Testing Project — Loss of Student Potential and Prediction of University Success" (1962). Marks in the external high school examinations in Grades Eleven and Twelve, scores on the School and College Ability Test (SCAT), and other objective test and examination marks at the end of the first year university course were all inter-correlated. It was found that the high school average mark was much the best predictor of the first year university average. The correlation for all participating Atlantic Universities and Colleges was between 0.6 and 0.7. Such a correlation implies that about a quarter of those admitted will fail and that a significant proportion of those not admitted would have stood a good chance of succeeding. At this level and for the numbers involved, this means that the high school leaving examination is a useful tool of selection but it is more than likely that ways can be found of improving the efficiency of selection. To this end we are looking for accurate instruments of prediction. Basically we test a student's ability to answer certain questions at one moment of time. It seems obvious to us that his score on this test is related to his past experiences. It is not so self-evident that his score provides a forecast of what he will do in the future. The predictive value of a test is really determined by the passage of time. In the past, experience may

tell us that performance on test A is well correlated with performance on examination B, say, four years later. With this evidence we can then say that A is a good predictor of B.

Perhaps these then are the two main functions of examinations, a "looking back" and a "looking forward." Both tend to be confused and merged in our thinking of examinations. If a high school leaving examination is to have status, if it is to be recognised by the business world, by parents and by institutions of higher learning then it must be an efficient predictor. This is really how an examination is judged.

In England the introduction of the new Certificate of Secondary Education (taken at age 16+) has aroused understandable fears. Will it have status? Can its introduction into secondary schools be justified as a replacement for the more academic and long-established Ordinary Level of the General Certificate of Education? The outcome rests on whether or not it will be used as a measure of selection for later stages of training. The University of Oxford recently gave a lead and indicated that minimum qualifications for entry could in future be expressed in terms of the new Certificate. Here then is one more example of the fact that status cannot be separated from the "looking forward" function of examinations.

If the emphasis shifts to the future, we need to consider the construction of examinations to meet these aims most efficiently. The backward look of examinations can indeed be educationally harmful. The distrust of examinations, the belief that they distort the school curriculum and engender unnatural fears and tensions in the student are very much in our minds when we talk about the "backwash effects." Parents and teachers inevitably encourage these by the degree of importance they attach to the results. The trouble is to know whether all the effort that goes into the preparation and the writing of examinations is worth while. After all this striving, are the results to be trusted? Do the scores serve as a forecast of what the student is likely to do in the future and do they really sum up what he has done or, what is often more to the point, what his teachers have done in the past?

The Report of the Royal Commission of Inquiry on Education (The Parent Report) states: ". . . the key to the educational log jam lies in the examination system. As immediate steps in the right direction, their number should be sharply reduced and more recourse should be had to examinations pre-

pared by teacher teams within each (elementary) school . . .” (Paragraph 189 — Part 2) and again: “. . . Teachers are however, unanimous in their recognition of the fact that their work is seriously hampered by the frequent recurrence of examinations. It is thus paradoxical but true that the system of examinations works against the normal development of the child. Moreover, the very validity of examinations as such has been increasingly called into question; up to the present, examinations have been made up entirely on an empirical basis and have no claim to being scientific.” (Paragraphs 1118 - 1126 - Part 3)

The trouble is that in practice only a relatively few investigations have been carried out into the efficiency of formal examinations. Where studies have been made, the general low validity and reliability found for formal types of examination have been disturbing. But what has emerged from a study of testing and examinations, particularly with younger students, is the importance of the role played by the teacher. What a student achieves is a function of his own ability, of the support he receives from his family environment and the particular contribution of his teachers to the student’s attainment. To the extent that selection at later stages depends upon achieved examination scores, then the quality of the teachers can largely determine the future career of any student. Should this be so in a democracy? Ought we not to be looking for those able students who, through no fault of their own, have not had good support from their family environment and who have not had good educational facilities? If the answer is in the affirmative, then we need to develop examinations which will allow the student to reveal his ability.

Fortunately this development would not contradict the parallel desire to reduce the backwash effect on the school curriculum. We need to think of the examination syllabus as providing only a minimum outline so that teachers will be free to develop the detailed topic to suit the particular circumstances and interests of themselves and their pupils. Only in this way can we free the schools from the feeling that they are circumscribed by “they” — the external examiners. In fact, the teachers themselves must become the examiners. This can be done as it is being done in England with the new Certificate of Secondary Education. This does not mean that teachers are being given a licence to “cook” the results for their pupils. Teachers naturally feel a strong loyalty towards

their students and it is inevitable that some of the "geese" become "swans" for the benefit of the outsider. It is, however, possible and easy to make use of the considerable skill that teachers possess in assessing their own students without falsifying the comparison with other students in other classes and in other schools. There is little doubt, and this has been verified time and time again, that one of the most valid and reliable instruments for arranging a group of young students in order of ability or attainment is not an examination and not even an objective test but the assessment of the teacher who has taught them for several years. What the teacher cannot do is determine an absolute level of achievement. This can be done, however, by means of a test or examination common to all students in the region. The combination of the teacher's assessment for within-school order and the common test or examination for absolute level is the most powerful one known for the valid and reliable assessment of students. This greatly simplifies the examination procedure which needs only to concentrate on the production of one or, at the most, two measures of overall ability. For the rest, the school determines the order in which it wishes to place its pupils in each subject, while the regional board, by means of its common paper, assigns the appropriate grade levels to individuals in the school's order.

Further simplification can be achieved by dealing with grade levels rather than with percentage marks. It has long been recognised that the mark assigned to an English composition is appreciably more reliable if it is the result of a quick impressionistic reading by each of three or four readers than if it has been assessed by a detailed analytical scheme. Perhaps one of the most illuminating discoveries to emerge from the preparation for the setting up of the Certificate of Secondary Education was that the same principle applied to examinations in other subjects including even science and mathematics.

An experiment has shown, for instance, that when a group of mathematics teachers was asked to assess worked mathematics scripts by quick impression into grades from 1 to 6, the correlation between their assessments exceeded 0.9. The aggregated impressionistic assessment had an even higher correlation with an analytical marking scheme which had considered accuracy and method in detail. This represents perhaps what it is fashionable to call a "break-through" in

the assessment of examination papers. Have we, perhaps, been spending too much time as slaves of percentages and detailed marking schemes when virtually the same result can be achieved by other means? Of course, we need to agree on the meaning of "the same result." If mainly what we want is to know in which broad group of ability or attainment any particular student can be placed, then these methods will be effective. After all, we cannot do more. Even when we use percentages, we do not really have any grounds for believing that a score of, say, 68 is better than a score of 61. In practice we already use broad grades of classification so this fact could be openly acknowledged.

All the measures outlined above emphasize the developing importance of the teacher's role as an examiner. Every teacher of every subject in every school has his contribution to make. He has the privilege of freeing his teaching from the shackles of a restricted unenlightened examination but he has equally a wider responsibility not only to his own pupils, to his own subject disciplines but also to the whole body of students and fellow teachers in the schools. In other words such a scheme of internal assessments, which have been externally moderated, calls for a great deal of co-operation between teachers not only in the same school but also in all schools within the region. There must inevitably be more frequent exchanges of opinions and views in the discussion of individual and common problems and this greater communion can only be beneficial to all concerned. Greater co-operation rather than a feeling of competition between neighbouring schools is an ideal which can be achieved in a surprisingly short period of time given the incentive of a common endeavour.

Measurement in education is essential if we are to provide the most efficient and effective help for our students. It is all too easy to measure badly and it is all too easy to misinterpret the results. We need to avoid the danger of rejecting the principle of measurement on these grounds. Measurement can be simplified and yet simplification does not mean less accuracy. Streamlining our examination system can reduce the backwash effect on the school curriculum and at the same time give more responsibility to the teacher in the classroom. The teacher's role is clear. He is an essential partner of the examination system and the time is now ripe for him to assume his responsibilities.

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