Jeffrey W. Bulcock

School assessment

The middle way

As any part of the human race falters in faith in the point of its own existence, so do the prospects of the institutions charged with supervising its self-renewal. Yet as Bulcock points out, if only to secure the immediate future to which the race is already committed - up to about the year 2040 - the schools of Western society have an immediate and challenging task: to make the most of our numerically dwindling younger generations. We are in a state of astonishing ignorance about the effectiveness of those institutions - our schools - that should meet this new challenge, namely to provide the minority work-force of a different society that is already on the way. He discusses the reasons why we at present maintain and indeed protect that state of ignorance, and offers examples of the means, already available to us, to overcome it.

Schools are historically recent social institutions, designed among other things to counteract social inequality in open societies. Few deny the importance of schooling, and it is well known that the goals of people everywhere require education as the chief means of reaching them. Thus, in most societies schooling is a necessary condition for the acquisition of self respect and successful participation in daily life. Nevertheless, many Canadians seem dissatisfied with the schooling provided, and many believe that the schools are in need of reform. There might even be support for the view that the schools have failed in their historic mission as the "great equalizers ... and balance wheels of the social machinery". Yet, few Canadians would, with confidence, be prepared to identify the specific aspects of schooling that need to be changed. Thus, few would be prepared to specify what the schools should do that they are not doing, or what they might stress that they are prone to ignore.

School systems seem to be relatively independent institutions in society. Compared to most organizations in the public household sectors of most nations, they seem to be able to operate more independently of the economic and political arrangements. The complex relationships between schooling and the other infrastructural arrangements in society seem little understood. We do not know what the schools are doing; what children should know, that they do not know; in which areas of schooling progress is being made; or who benefits and why?

Though Statistics Canada churns out masses of descriptive and quantitative information about Canadian schools, so that there is an abundance of data which parallels that on health, incomes, employment, and the cost of living, there is nevertheless a paucity of information of the kind needed. If there is a change in X what would be the concomitant effect on Y, other things being equal? For example, how responsive are achievements Y1 and Y2 (in grade 5 science and mathematics) to changes in X1, X2, and X3 (in the opportunity to learn school-related skills at home, in the stage of thinking, and in reading comprehension)? In the absence of firm answers to such questions, effective policy-making is sometimes difficult.

Three of the several reasons for conducting school policy research follow.

Demographic changes

Two successive demographic anomalies - a baby boom followed almost without pause by a baby bust - have ensured that within another generation there will be fewer workers in relation to both young and old dependents than at any other period in Canadian history. Statistics Canada has forecast a shift in demographic balance at some time between 2020 and 2021 - a situation where there will be more elderly than children and youths. By the year 2031, if immigration rates remain constant at 100,000 per year, and if the total fertility ratio declines steadily to 1.50 in 1985 and remains constant thereafter, there will be four persons over 65 for every three under 18. The leading edge of the projected workforce during this period of demographic imbalance is just beginning school now. The scarcity value of these children makes them the most precious in Canadian history: they have to be socialized to accept responsibility for caring for both young and old dependents; they have to be given incentives to have children of their own. Their values and beliefs will influence the quality of retirement life for the "boomies" who are now aged 21 to 35.

These children who will be entering school over the next two decades will probably have to pay well over half their earnings in

taxes to support soaring expenditures on actuarially unsound pension schemes; they will have to be much more productive, hence more highly trained, and probably more prepared to stay on for post-secondary schooling, than any previous generation of workers. Given expected political realities, these future workers will probably have to accept less active political roles than past workers, since the future elderly and near elderly combined may well have greater political clout than the workers. This situation, where the least productive have as much or more political influence than the more productive, will be unprecedented, so that in the 21st Century demographic imbalance and political imbalance may occur in tandem.

Though the prescience of demographers is notoriously weak, if these demographic projections are reasonably correct one can predict that in tomorrow's society the young will have scarcity value. Society will not be able to afford blighted individuals; thus, debilitating environments will not be tolerated. It can also be predicted that today's cherished educational theories are likely to prove but modest way-stations on the route to the construction of more comprehensive and authentic educational theory. Indeed, today's theories may well prove to be the vestiges of a wasteful era in public education. Thus, given current demographic realities, today's educational practices are unlikely to be equal to the tasks ahead.

Even today the problems of coping with the contradictory features of the public school system seem formidable. Consider the following facts:

- that even though puberty comes some two years earlier than it did two generations ago, the length of psychological dependency, thanks to compulsory schooling laws, continues to increase;
- that few teachers have direct experience of productive work themselves despite a mandate for initiating youth into the world of work;
- that despite longer material dependency on the nuclear family, youth are increasingly segregated from adults by a compulsory placement in schools;
- that the schools continue to operate as if they still held a monopoly on knowledge transmission, in the age of television and the computer;
- that whereas the instructional functions of schooling are undermined by the media and its socializing functions are undermined by the peer group, the legitimate functions of schooling which remain (screening/selection and custody/control) are perceived as constraining and repressive rather than liberating;
- that several of the values of the adult society which are simulated in school settings (for example, social competition and consumerism) are exploitative of youth; and
- that in school settings there is a conspicuous absence of the natural learning incentives that impel learning in everyday life; rather schools are dependent for instrumental incentives on loss of reward (negative

punishment), extrinsic reward, and disguised competition, all of which can have debilitating effects on the motivations and ambitions of students. (1)

Because of these inconsistencies in the formal features of contemporary schools, it is reasonable to ask whether such arragements are suitable for coping with the educational requirements of a society with a worker shortage.

The educational problems attendant upon radical demographic change call for policy-defining research, that is, research designed to provide an information base for social policy in situations where the problem is recognized but where no social policy action has been taken. Policy-dictated research is the other side of the coin: that is, commissioned research designed to evaluate the effectiveness of educational programs and policies. Both kinds of assessment research are necessary.

Changing incentives

School assessment research is necessary to monitor developments in schooling not only during periods of rapid demographic change but also in periods of economic change. According to human capital theory, occupational attainments are responsive to educational achievements, and national economic growth is responsive to the aggregate educational levels of the labour force.

The human capital model of school performance is essentially a predictive model. The individual is seen as being confronted in the late teens with a spectrum of alternative paths. One choice is between school and work; another is between jobs in a wide range of alternatives. A major criterion is individual welfare, or lifetime utility; that is, the job selected will be the one which maximizes the individual's expected lifetime earnings. The individual's decisions restrict his options, in the sense that one choice (in preference to another) will foreclose some options while maintaining the feasibility of others. The model is predictive, then, to the extent that the anticipated gain from pursuing a selected future activity will motivate the very behaviour which is designed to make the preferred future activity feasible.

The theory posits the notion that educational behaviour is governed by the individual's perception of the consequences of that behaviour. It can be hypothesized that student decisions will be influenced by the perceived labour market opportunities. The decision to attend a post-secondary institution will depend to an unknown but knowable extent on the student's perception of the long-term benefits of college or university attendance; that is, on the anticipated differential between the lifetime earnings of college graduates on the one hand and high school graduates on the other. The central idea is

simple: the greater the anticipated net gain from the decision to enter the higher education sector, the greater the individual's investment in intellectual competencies. Theoretically, then, a lack of articulation between education system outputs and labour market opportunities would depress the incentives for youth to invest in additional intellectual competencies. The direct consequence would be a significant and real decline in test score performances. Though test score declines have been documented in other countries, little or no evidence is available on either a national or provincial level in Canada.

Because this mismatch between schooling and work is common to most OECD nations, it has been predicted (Bulcock, ed.,1976) that in the absence of compensatory mechanisms the school mathematics and science curriculums will prove unequal to the task of meeting the infrastructural needs of Western science. Current leadership in the sciences enjoyed by Western nations could be eroded - even lost in some fields (Smith and Karlesky, 1978; Commission on Human Resources, 1979). Thus, the effect of declining birth rates and declining employment opportunities in the intellectual occupations could prove a decisive negative influence on the development of scientific research in Canada and other Western nations.

What is the magnitude of the test score decline? Is it a real or spurious decline? How responsive are performances in the content fields of schooling to any predicted declines in the lifetime earnings of college and university graduates compared to high school graduates? Are the effects for girls different from those for boys? What other factors might account for declining investments in intellectual competencies? Are there, for example, curriculum effects; grade inflation effects; homework, television, or textbook effects; broken home effects; life style (including drugs, the "pill", and alcohol-related) effects; absenteeism effects? Canadians do not know the answers to these questions.

There is no Canadian institutional equivalent to the National Institute of Education in Washington, the National Institute of Educational Research in Tokyo, the Australian Council of Educational Research in Melbourne, the Max Planck Institute of Educational Research in Berlin, the Academy of Pedagogical Sciences of the Soviet Union in Moscow, or the National Council for Educational Research in England and Wales. We do know that the magnitude of school assessment research in Canada is negligible compared to that in many other nations.

Changes in the locus of competition

The earliest school assessment research, conducted in the last quarter of the nineteenth century, was designed to evaluate the quality of public schooling. Not surprisingly, these early efforts were

complete failures because teachers regarded them (probably quite rightly) as attempts by outsiders to attack the teaching profession. These early attitudes of mistrust toward educational researchers have continued to the present day.

Despite vestiges of this mistrust, school assessment is part of a broader movement toward the construction of social indicators designed to ascertain the quality of contemporary social life. The movement is accelerating for at least two reasons. First, as Tyler (1971, p.25) points out, decision makers in open societies need more relevant information than can be obtained by personal observation or by descriptive information alone. Second, one of the ways of minimizing the costs of policy error is to monitor today's decisions and policies because these are the ones which affect the future.

There is evidence that Canada is entering a post-industrial era characterized by a highly developed tertiary or service sector, complementing the increasingly capital-intensive secondary or industrial sector. According to Daniel Bell (1973) such a society is one in which theoretical knowledge assumes a larger role in economic and political affairs than in non post-industrial nations. The post-industrial society is also necessarily closely integrated into the world economic system (see Laffer, 1975 and Mundell, 1975). Whereas in industrial societies the competition for such scarce zero-sum resources as wealth and prestige was assumed to be confined within and between groups inside countries, in post-industrial societies the competition assumes an additional dimension - that between countries within an open world economic system. It does not mean that because a country has a well-legitimated structure for coping with within-system competition, that it can **ipso facto** cope with between-system competition.

Talent loss - a failure to make the most of what talents people have even when they are not in the first rank - is apt to follow from competitive situations in school or society. Though the legitimacy of the structure of competition at the within-system level has been traditionally associated with a degree of tolerance for talent loss - hence the welfare state as a compensatory mechanism - the evidence from most demographic and many economic indicators suggests that to cope with between-system competition at the international level the continued tolerance of talent loss may be seriously debilitating (World Bank, 1980). High national levels of educational achievement are probably necessary if nations competing in the world's market economies are to cope with the competition for scarce international resources. And a major way of bolstering the aggregate educational level of any nation is through investment in improving the quality of the population.

Positions opposed to school assessment

Earlier it was asserted that there was a paucity of relevant information on Canadian education of this kind: How responsive are behaviours Y1 and Y2 to changes in Z1, Z2, ..., Zn while taking other things such as X1, X2, ..., Xn into account? Why is assessment research of this kind not conducted by educational researchers in Canada? The fact that the Provinces are sovereign entities insofar as education is concerned, and the fact of their niggardliness when it comes to financing educational research, are ready answers. But why the niggardliness? Consider two reasons. The first relates to bureaucratic interests, the second to the firm opposition to any research defined as behavioristic.

Canadian educational systems, like the Canadian postal service, are largely self-regulating. Both services are state-sanctioned near-monopolies. It is common knowledge that the members of the postal service have developed self-serving mechanisms which constitute powerful barriers to change. And if one strips away educational rhetoric to the bones, similar self-serving arrangements may be shown to prevail. The role-players in Canadian educational systems are beholden to their immediate superiors: the students to the teacher, the teachers to the principal, the principals to the superintendent, and so on. Each strives to please the other - a system of conditional freedom which ensures that the direction of the incentives in educational bureaucracies is toward self-maintenance and preservation. Such incentives lean educational systems as well as the post office in the direction of organizational conservatism; that is, toward the non-disturbance of the prevailing organizational environment.(2) Now, if this requires the occasional suppression of a controversial or critical report, so be it. And if the preferred state of affairs might be threatened by comparative research between provinces or between countries, then organizational imperatives will demand the non-support and non-sponsorship of comparative educational research.

The official position of the educational bureaucracy, however, will probably be one of conditional but tacit support, for two reasons. First, there is recognition that a demand exists for information. Second, there is recognition of the principle that the schools are accountable to their supporters.

Such principles would probably be voiced in low key. The fears of the officials would probably be given much greater prominence. These would include (a) that a proposed assessment program might be poorly developed; (b) that the results of school assessment would be misused, especially through the making of odious inter-school and inter-provincial comparisons; (c) that teacher interests would be overlooked - for example, assessment instruments if not developed in

cooperation with teachers could result in the distortion of the curriculum (3); (d) that school assessment would be a further step toward greater centralization of schooling; (e) that the costs of assessment research would be excessive; and (f) that the time spent by students writing tests would be unnecessarily disruptive of the ongoing program of the school.

The net result of all this would be a set of caveats designed to restrict the purposes of school assessment research. First, the instruments would have to be constructed not merely with the approval of the teachers, but by teachers. Second, the research organization would have to be part of the bureaucracy; that is, lodged under the appropriate wing of provincial departments of education. The results would have to be presented so as to prevent any identification of schools, school districts, and even provinces. Any questions related to ethnicity, religious affiliation, social status, and other "sensitive" matters would be tabooed on the grounds of "invasion of privacy".(4)

Ironically, there is a desire to suppress comparative evaluation and school assessment research on both the bureaucratic right and the ideological left. Bureaucratic objections are based on the joint interests of teachers and officials. The objections of the left wing of the ideological educational-spectrum are based on a self-appointed role as guardian of the interests of the young. They include the following: (a) that student assessment depends on tests which are unreliable and invalid, because contrary to popular opinion the purposes of education are concerned not so much with achievement in the content fields of schooling as with students' states of mind; (b) that (such is their obsession with the assessment of cognitive competencies) school assessment models ignore the conative and affective outcomes of schooling, a host of important intangible outcomes which simply defy measurement; (c) that all too often the assessment measures prove to be merely weakly predictive of school performance, and therefore research results do not warrant the efforts demanded by the research participants; (d) that unintentionally, achievement tests have debilitating and discouraging effects on the many students who, as a function of invariant mathematical laws, must fall below arbitrarily selected criteria of competence; (e) that achievement testing procedures inadvertently reward conformity and passivity; thus, divergent and creative thinking, aesthetic appreciation, and a host of performance-based skills are completely ignored by test makers; and (f) that achievement testing promotes cheating behaviour and the invidious comparison of students.

While several of the arguments which counter school assessment research are spurious, they nevertheless have a "ring of truth" and a plausibility which demands serious attention.(5) Obviously school assessment research cannot be successful if it rides roughshod over the interests of teachers and students. Obviously, too, assessment research is not possible unless wider interests can override bureaucratic

interests, and unless the educational research climate becomes more supportive of empirical methods favouring quantitative social modelling (see Kendall, 1968).

The question which arises, then, is this. Is there a middle way? Is there an authentic position, supportive of school assessment, lying midway between the strong pincer movement of the bureaucratic right and the ideological left? The writer thinks there is. Four prototypical studies of the school assessment variety are described in the next section.

Prototypical school assessment projects

(i) Development of school assessment indices

Over a decade ago Henry Dyer (1970) of the Educational Testing Service, Princeton, New Jersey, made a proposal for the establishment of an educational accounting system - which is not to be confused with the different notion of fiscal accounting. The idea had considerable merit, but was probably threatening enough to the self-serving interest groups in education that the proposal has long since been forgotten.

The central notion of educational accounting was that the school staff - the principals, specialists, and teachers - were collectively responsible for keeping themselves informed about the diverse needs of their pupils and for doing their best to meet those needs. The three principles governing the idea of professional responsibility were first, that the professional staff were collectively responsible for knowing about the conditions and educational services which facilitate or impede pupil development; second, that the professional staff were collectively responsible for using this knowledge to promote the development of pupils toward performance objectives of the school; and, third, that the school board had the corresponding responsibility for ensuring that the school staff were provided with the means for carrying out its duties.

It is inferred from these principles that educational accounting is a dual partnership between the professional staff of a school and the school board. Thus, though the staff is responsible to the board, the board in turn is accountable for supplying the appropriate information and facilities that each school staff requires to operate effectively.

Close to the notion of a school or district accounting system is the development of School Effectiveness Indices (SEIs). Though SEI construction is complex, the idea is simple. Consider, for example, the construction of an English Language SEI. As the major pupil and instructional resources which determine achievements in the language arts become better known, it becomes feasible to predict language

scores for pupils in a given school; the estimated scores are based on both school and pupil resources as governed by the models of school learning. The discrepancies between predicted and actual scores for individuals may be regarded as language effectiveness scores, which when aggregated to the level of a school then constitute the Language Effectiveness Index of the school.

Simple linear transformations of the scores could provide easily interpretable scales; for example, a score of 100 might indicate that the student's actual score and predicted score were the same, or a score of 105 would indicate that the pupil is performing five points above what can be predicted. It is relatively easy to conduct separate analyses for students grouped in various ways. Suppose a school had a significant proportion of pupils whose mother tongue was different from the language of instruction. Or suppose it were believed that the school resources were being used disproportionately to favour a special group. Analyses could be conducted to see whether the groups specified were benefiting to the same extent as other groups in Language Arts. If it were found that a particular group was benefiting disproportionately, it would be possible to examine the parameters for the different groups in order to identify in what respects the process of language attainment was different. If the process differences were attributable to manageable variables it might then be feasible to initiate curriculum or other changes in order to compensate.

If the principle of educational accounting systems were accepted, schools could be given effectiveness ratings. School A might **appear** to be more effective than other schools largely because school A's resources in terms of the background characteristics of students ensured high absolute levels of performance. But the students' performances in school A might be lower than those predicted on the basis of the resources available. By the same token, the students in school B may only achieve at modest absolute levels, yet, in terms of the resources available, they might be performing significantly above predicted levels. In today's terms, school A is the better school because of its higher level of absolute performance. But on the basis of its School Effectiveness Index school B would be the better because the children in it are responding more positively to the opportunities available, given their resources. The use of SEIs would thus offset some of the inequities used in evaluating schools, and would help to bring about a more equitable distribution of the scarce, policy-manageable, educational resources in a community.

One caveat. The implementation of a school assessment program should be done in such a way as to safeguard the delicate balance of interactions between students and teachers, which requires a wide margin of indeterminacy if the goals of social maturity and self actualization are to be met. To achieve such school level organization there must be an unimpeded flow of communication and information

between the primary actors - the students, the teachers, and the parents. The development of SEIs as unobtrusive components of a school accounting system could prove to be one useful element in meeting the information needs of a school.

(ii) **Culture adjusted achievement-scores**

SEIs would not obviate the need for individual testing. Psychological diagnostic tests are as legitimate today as they were when begun by Binet at the turn of the century. Analogy tests are probably the most commonly-used measures of mental ability. Aptitude tests are used to measure particular skills, largely in order to be able to predict what an individual might attain with specialized training. Education or achievement tests usually measure school-related skills: reading comprehension, spelling, grammar, numeracy, and work study skills.

All of these tests have been attacked - often in the name of humanistic schooling - on a variety of social and political grounds. There are those who fear the misuse of test results by the State or quasi-governmental agencies, and who invoke the dangers of self-fulfilling prophecy. Some egalitarians believe that the whole concept of testing is shot through with questionable assumptions and principles associated with elitism and meritocracy.

The use of culture-adjusted achievement scores is designed to allay some of the fears of test abuse and to undermine some erroneous notions about "fixed" abilities. Indeed, adjusted achievement scores are compatible with a view of mental ability which holds that intelligence consists of a skill in a culturally-defined context - a view which takes account of the contribution of motivational factors in skill performances. In this way emphasis can be placed on the role that poverty might play in depriving children of learning opportunities.

On the basis of information gathered by test instruments, medical examination, and parental interviews, a child's cognitive, socioeconomic, cultural, and physical resources are assessed. This assessment is compared to those of children of the same age and background. The child's score is not being compared to unlike children from different backgrounds, but rather with children who come from similar groups. The child's ability or achievement score is ranked in terms of those in the representative group, and the resultant adjusted score can be regarded as an indicator of the individual's learning potential (see Rice, 1979, p.34).

(iii) **The quality of school life**

It is well known that there are environmental differences between schools. Some are dull and depressing, even oppressive; others are lively, cheerful, and stimulating. If the gap between such schools could be reduced it would enhance the quality of life for large numbers of students (as well as teachers) who spend upward of a fifth

of their lives in school.

Research currently under way at the Australian Council for Educational Research (ACER) is designed to identify the framework of the social-structural influences that determine the quality of the students' and teachers' school life. To this end a quality-of-school-life measure (from the students' perspective) has been successfully developed with high reliability and validity (Williams and Batten, 1979; ACER, 1979). Work is under way to develop a multi-dimensional measure of the quality of school life from the perspective of the teacher. Subsequent findings on this affective dimension of schooling could be fed back to school decision-making structures.

Measuring the perceptions of students about the strengths and weaknesses of their schools is a necessary step in improving the environments of schools for both teachers and students. School assessment research has tended to be restricted to the evaluation of school achievement. This writer believes that research into the quality of school life may prove to have as important an impact as research into the evaluation of school achievement.

(iv) **Final examinations**

The final examination is a time-honoured educational practice which nevertheless constitutes a serious obstacle to equality of educational opportunity for some minorities and the disadvantaged. Though attention is usually focused on grade 12 final examinations, the end of the year (or grade) finals conducted in the elementary and secondary school classrooms are justified on similar principles and are in practice equally discriminating.

Exam results are useful for identifying the best students in terms of standards assumed to be absolute. If only the best are selected for entry to a college, that institution's outputs will be of high quality, as will its reputation - what comes out depends on what goes in. If only a few minority students get in - even those with high learning potential - so be it.(6)

Education, however, has little to do with ranking student performances; rather, education is concerned with changing students for the better. Final examinations have little to do with measuring cognitive change or moral development. They are merely measures of performance at a given point in time, not measures of change in performance.

As ranking devices examinations are usually reliable, but because they do not measure learning potential or the student's responsiveness to instruction they are of limited pedagogical utility. When the examinations are final examinations for students in their last year of secondary schooling, and when a student's post-secondary opportunities and future socioeconomic career depend on success in these "one shot"

exams, they become pernicious and repressive in their effects. To have redeeming pedagogical value the examination would have to indicate what the student has learned over a specified period of time - a semester, a grade, a high school career. In order to do this an examination result would have to be compared to a base-line measure, preferably with the same metric, given at an earlier point in time. In this way one could gauge how much an individual's performance has improved.

Measures of growth in educational performance have pedagogical merit on three grounds: (1) the change score indicates what, and how much a pupil has learned; (2) the scores can be used as a diagnostic aid - for example, to help direct students along the most productive paths; and (3) the scores are indicators of instructional effectiveness, hence useful for teachers as aids to improving their pedagogical strategies.

Schools which place importance on the use of examinations tend too frequently to emphasize the prediction of student performance rather then the provision of opportunities to improve their performance. In effect, the schools which accept uncritically the legitimacy of the final examination are imposing (unintentionally for the most part) zero-sum rules on the learning context. Zero-sum practices limit the numbers of high achievers because the mathematical logic of normative scoring methods forces the scores into a curved distribution, when the test is discriminatory. These artificial learning incentives are pernicious because they work only by ensuring that someone's gain is someone else's loss.

There is something bizzarre about public institutions which by virtue of compulsory attendance laws enjoy monopoly status, but which impose rules which by definition ensure that a proportion of the clients will not benefit. When the clients are the young the situation, if not macabre, is certainly coercive.

School assessment procedures can be introduced whereby final examinations become standardized post-tests designed to measure cognitive or affective growth, moral development, the quality of school life, and the effectiveness of instruction. Their use would almost certainly reduce the prevailing obsession with ranking students, and in this writer's opinion would help humanize the art of teaching.

Conclusion

In this paper an effort was made to illustrate the kinds of question about schools and schooling that school assessment research can answer; to demonstrate the current need for school assessment research in view of impending demographic changes and structural changes in the economic order, which are shifting traditional

alignments and linkages between the schools and other social institutions; and to explain the traditional suspicion of school assessment research by teachers, the fears of school assessment research by educational officials, and the objections to the testing methods and grading practices erroneously attributed to school assessment researchers by pedagogical idealists.

It was argued that a middle way between the fears of the bureaucratic right and the objections of the ideological educational left could be found; and that school assessment projects which avoided most of the legitimate objections of both interest groups could be justified and implemented. In particular the notions were advanced of school-effectiveness indices, culture-adjusted achievement scores as measures of an individual's learning potential, quality of school life indices, and standardized pre- and post-test examinations, all as measures of educational change and of student responsiveness to instruction. Their implementation would reduce the zero-sum principle which in large part accounts for the repressive and coercive aspects of today's schooling. School assessment research of the kind advocated would provide an information base which could be used to reduce talent loss and move closer to equality in educational opportunity.

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NOTES

1. Most of these issues are discussed at greater length in Bulcock (ed., 1976), Coleman et al (1974), and Husen (1979).

2. A similar argument is developed by Coleman (1971, pp.78-81).

3. The notion here is that in order to ensure that their students perform well on the assessment tests teachers would teach for the tests and tend to neglect the less tangible but no less important aspects of the school curriculum.

4. A case study of bureaucratic intervention in a proposed school assessment reached project in the U.S. is presented by Tyler (1971).

5. Space does not permit a rebuttal of these arguments which counter research of the school assessment variety. The arguments are representative, not exhaustive. Ebel (1980) takes some of the arguments and draws attention to their limitations.

6. For similar arguments, but with reference to the post-secondary level of education, see Astin (1979).

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