

Accountability and Educational Philosophy: Paradigms and Conflict in Ontario Education

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Ontario is one of only two Canadian provinces not carrying out every-student achievement assessment. Until recently, Ontario did not have a province-wide assessment program. The Ministry of Education now conducts provincial assessments, and recently released benchmarks of expected student achievement. The Ministry also participates in interprovincial and international studies. Involvement in these programs, however, is at odds with the province's child-centred educational philosophy. I examine some examples of consequences of the conflict between the child-centred educational approach and the development of objectives-based programs, then scrutinize the educational implications of these two conflicting models (child-centred or organismic, and objectives-based or mechanistic), highlighting weaknesses of the child-centred approach.

À part une autre province, l'Ontario est la seule à ne pas effectuer des évaluations du rendement scolaire de l'ensemble des élèves. Jusqu'à tout récemment, l'Ontario ne disposait pas d'un programme d'évaluation pour toute la province. Le ministère de l'Éducation fait maintenant des évaluations à la grandeur de la province et a publié dernièrement des repères pour le rendement escompté des élèves. Le ministère participe en outre à des recherches interprovinciales et internationales. Ces programmes ne concordent pas toutefois avec la philosophie de l'éducation de la province, laquelle est axée sur l'enfant. L'auteur se penche sur certaines des conséquences du conflit entre l'approche qui privilégie l'enfant et l'élaboration de programmes qui se fondent sur des objectifs. Il examine ensuite les répercussions sur l'éducation de deux modèles opposés (organiciste ou axé sur l'enfant et mécaniste ou fondé sur des objectifs), en mettant en lumière les lacunes de l'approche organiciste.

Every Canadian province examines student achievement through either student or group assessments. Many do both (Raphael, 1990). *Student assessments* provide a test score for each student. These scores contribute to grades and give students and teachers feedback about a student's achievement. Student assessments can also provide school-, district-, and province-wide data through aggregation of scores. *Group assessments* produce scores reportable at the school, district, or provincial level.

British Columbia conducts both student and group assessments: group assessments at various grades, and student assessments (through course examinations) for numerous senior-level subjects. Quebec and Alberta also conduct group and student assessments. New Brunswick and Newfoundland have well-developed student assessment programs and Manitoba conducts group assessments in a variety of areas (Raphael, 1990).

Prior to 1968, the Ontario Ministry of Education administered province-wide examinations as a basis for awarding the grade 13 diploma.¹ These examinations were replaced in 1968 by administration, for post-secondary admission purposes, of the Ontario Tests for Admission to College and University; in turn, these tests were discontinued in 1974. Since then there has been no provincially-mandated student assessment (McLean, Raphael, & Wahlstrom, 1984).

In 1987 Ontario instituted a provincial group assessment program modelled after that of British Columbia, and this now provides estimates of school, school district, and provincial levels of student achievement in the various subject areas. Reviews of Canadian geography, senior division chemistry and physics, elementary-level reading and mathematics, and grades 8, 10, and 12 mathematics have been completed.

In contrast to its limited focus on within-province assessment, Ontario has participated in virtually all recent comparative studies of achievement: the Second International Mathematics Study (SIMS) (McLean, Raphael, & Wahlstrom, 1984), the Second International Science Study (SISS) (Connelly, Crocker, & Kass, 1989), and the 1988 and 1991 International Assessments of Educational Achievement (Lapointe, Askew, & Mead, 1992; Lapointe, Mead, & Askew, 1992; Lapointe, Mead, & Phillips, 1989). Ontario is committed to involvement in the Council of Ministers of Education, Canada School Achievement Project, the Organization for Economic Cooperation and Development (OECD) Indicators Project, and the Third International Mathematics and Science Study.

The premise of this paper is that Ontario's lack of emphasis upon provincial assessment and its reluctance to institute provincial monitoring of student achievement stems from the ongoing conflict between the predominant child-centred educational philosophy in place since the early 1970s and increasing concerns with educational accountability.²

PARADIGMS AND WORLD VIEWS

Paradigms impose a view of events in the world, suggest a framework for organizing these observations, and direct attention to events worth noting (Kuhn, 1962). Communication between adherents of various world views is difficult.

To the extent, as significant as it is incomplete, that two scientific schools disagree about what is a problem and what a solution, they will inevitably talk through each other when debating the relative merits of their respective paradigms. In the partially circular arguments that regularly result, each paradigm will be shown to satisfy more or less the criteria that it dictates for itself and to fall short of a few of those dictated by its opponent. . . . Both are looking at the world, and what they look at has not changed. But in some areas they see different things and they see them in different relations one to another. (Kuhn, 1962, p. 149)

For Reese and Overton (1970), the field of child development is dominated by two well-defined and irreconcilable world views: the organismic and mechanistic models. “Organismic” and “mechanistic” refer to two psychological approaches to understanding child development; in educational theory and practice they are represented by the terms “child-centred” and “objectives-based,” respectively. The organismic model of child development is best represented in contemporary education circles by the acceptance of most of Jean Piaget’s (Flavell, 1963) notions of development.³

THE CHILD-CENTRED MODEL OF DEVELOPMENT

The assumptions of the child-centred model determine how we view children and the type of education they should receive (Looft, 1973; Overton & Reese, 1973; Reese & Overton, 1970). This model is translated by the fields of epistemology and psychology into the active model of development. The tenets of the active model are: (a) the organism is inherently and spontaneously active and is the source of acts, rather than the collection of acts resulting from external forces; (b) the organism is an organized entity, one that gains meaning from the totality of organization rather than from the parts of which it is constituted; and (c) change is assumed as a given and predictability is limited. The epistemological position derived from this model is constructivism: reality results from an interaction of the individual with its environment.

The individual who accepts this model will tend to emphasize the significance of process over products, and qualitative change over quantitative change. Products (behaviours) or achievements will be employed to infer the necessary conditions for their occurrence, that is, to infer psychological structures. Changes in psychological structures will be the basic referents of developmental interest, and these changes will reflect basic qualitative changes conceptualized as changes in levels of organization or stages. In addition, he will tend to emphasize the significance of the role of experience in facilitating or inhibiting the course of development, rather than the effect of training as the source of development. In general he will emphasize a structural or structure-function analysis of behaviour, rather than a functional analysis. (Reese & Overton, 1970, pp. 134–135)

Reese and Overton (1970) outline corollary issues associated with the models.

Holism versus elementarism. The dictum the “whole is more than the sum of the parts” illustrates this view. Piagetian theory is the best example of the holistic viewpoint and is illustrated in the concept of organization, one of the two basic functional invariants (the other being adaptation). The concept of conservation illustrates the relationship between the organized cognitive structures of the individual and its reflection in behavioural referents.

Elementarism is the view that development is the addition of many smaller parts comprising the whole. Gagné’s (1968) analysis of skills involved in conservation and his explication of the role of learning hierarchies in attaining

educational skills illustrates this position in developmental and educational psychology.

Structure-function versus antecedent-consequence. The child-centred model directs attention to the relationship of structure to the developmental functions. A marked teleological bent is seen as development of internal structures has definite end-purposes. Study emphasizes the development of structures and their relationship to behaviour. There is a distinction between process and achievement.

Structural versus behavioural change. What changes as children develop? The adherent to the child-centred viewpoint looks for changing internal structures. The child thinks differently, according to her/his need to adapt to the environment. These changes may not be apparent and reliance upon external signs of these changes could be misleading. Changes are self-directed toward identified end-points.

Discontinuity versus continuity. Structural change is discontinuous. Ways of looking at the world shift as higher forms of structures are organized. Change is not the continuous addition of information and knowledge.

The issue of stages. The child moves through stages as new, qualitatively differing structures appear.

Unidirectional versus multidirectional courses of development. The child-centred viewpoint outlines a single course of development through which children move at differing rates; multiple developmental courses are not seriously considered. In Piaget's theory the end point is formal operational thought.

Sources of development. Although the environment can support or inhibit movement upon the prescribed course, the impetus for development resides within.

Table 1 outlines educational practices used by education consultants and teachers who adhere to the child-centred model. More sophisticated analyses of how the child-centred emphasis can be correlated with an activist assessment approach can be developed, but my point is not to design an ideal educational strategy but to demonstrate how the average policy maker and practitioner use these paradigms to define and to justify their educational and assessment activities.

THE ONTARIO EDUCATION SCENE

Ontario educational philosophy since the late 1960s has been child-centred. Obvious manifestations are the provincial documents and guidelines such as *Living and Learning* (Ontario Department of Education, 1968), the *Formative Years, Education in the Primary and Junior Divisions* (Ministry of Education, 1975a, 1975b), and most recently *Science is Happening Here* (Ministry of Education, 1989a). This worldview has influenced many aspects of Ontario's

TABLE 1

Corollary Issues Associated with the Child-Centred Model of Development

<i>Issue</i>	<i>Child-centred approach</i>	<i>Suggested educational practice</i>
Active vs. Passive	Active	Child sets the pace; education must be child-centred; unfair to assess children according to objective, external criteria; teachers provide learning opportunities but instructional options are limited if child is not learning.
Holism vs. Elementarism	Holism	Focus upon the whole child; do not teach or assess skills in isolation; since cognitive and affective skills grow in tandem, avoid aversive learning experiences.
Structure-Function vs. Antecedent-Consequence	Structure-Function	Provide positive learning opportunities so the child will naturally develop advanced structures; since these structures are unique to each individual and cannot be mapped onto outward manifestations of achievement, assess activities rather than objective outcomes.
Structural vs. Behavioral Change	Structural	Important change occurs within the child and cannot be assessed using measures of outward behaviours; objective measures may not show what the child really knows; assess attitudes, not achievements.
Qualitative vs. Quantitative Change	Qualitative	Change cannot be understood as the accumulation of parts; it makes no sense to identify components of learning to teach or to assess.
Stages	Stages Exist	Identify stages or levels of development; promote movement through general environmental support; use homogeneous grouping of children for effective instruction.
Unidirectional vs. Multidirectional Course	Unidirectional	Assume one way of developing; children make their own strategies; group and stream students to teach those at various developmental points; use methods that promote this natural progression.
Internal vs. External Source of Energy	Internal	Change and motivation emanates from the child; the environment can only provide support.

education system, among them the Ministry's role in curriculum development, ongoing teacher training practices, and student assessment practices.

Curriculum Guidelines

Ontario curriculum guidelines lack specific content and goals, especially at the elementary level. The reasons for this include adherence by the guidelines' authors (all of whom have worked in the prevailing ethos) to the child-centred viewpoint and associated education and assessment assumptions outlined in Table 1. The second is Ontario's commitment to a decentralized system where the Ministry outlines broad goals and local school authorities adapt these goals to local circumstances.

Living and Learning (Ontario Department of Education, 1968) was the report of the Provincial Committee on Aims and Objectives of Education in the Schools of Ontario. The following, taken from the section "The Learning Experience," illustrates the child-centred approach to education policy:

Learning by its very nature is a personal matter. There is virtually a metabolism of learning which is as unique to the individual as the metabolism of digestion. Parents and teachers may create conditions for learning, and may provide stimulating experiences with learning in mind, but the actual learning experience is intimate and subjective, for each human being reaches out to the world in his own idiosyncratic way. . . . Learning is not always visible to the observer. Solid programming for every moment of time may not of necessity create a positive learning experience. For the mind, unlike a machine, may make its leaps in moments of serenity and solitude. . . . The road to learning takes personal effort, and no human being can jump the hurdles for another. (p. 49)

Education in the Primary and Junior Divisions (Ministry of Education, 1975b) was released as "an extensive philosophical basis and rationale for the program of these [primary and junior] divisions" (p. 3). After presenting the behaviourist approach to learning, the document states:

The cognitive-field development approach is based on the assumption that learning is an orderly development in successive patterns of increasingly intricate mental structures. These mental structures develop as the child grows through experience with people, things, and symbols. According to this theory, learning is purposeful and the child is an agent in organizing his or her own knowledge. Of the two approaches, a cognitive explanation is more appropriate in dealing with complex behaviours such as communication, concept-formation, and problem solving. (p. 10)

Circular P111: The Formative Years (Ministry of Education, 1975a) outlined provincial curriculum objectives for the primary and junior divisions (in Ontario, grades K–6). First issued in 1975, it remains, as does *Education in the Primary and Junior Divisions*, Ministry policy for these school years. Although some specific objectives of learning are delineated, the thrust of *Circular P111* is similar to that of *Living and Learning*.

It follows that the curriculum will *provide opportunities* for each child (to the limit of his or her potential): to acquire the basic skills fundamental to his or her continuing education; to develop and maintain confidence and a sense of self-worth; to gain the knowledge and acquire the attitudes that he or she needs for active participation in Canadian society; to develop the moral and aesthetic sensitivity necessary for a complete and responsible life. (p. 4; italics added)

Programs developed at the local level should provide each child with *opportunities to achieve* the levels of competence and the forms of growth and development implied in the aims that follow. Such programs would allow individual children to move beyond the expectations of the program without subjecting those who cannot reach them to loss of self esteem or confidence. (p. 5; italics added)

Science is Happening Here (Ministry of Education, 1989a) outlines the science curriculum for grades 1–6 and is remarkable for its lack of specificity about what children are expected to learn at each (or any) grade in science. The teacher is again expected to “provide opportunities” for learning rather than to meet certain instructional goals.⁴ Guidelines therefore emphasize how children supposedly learn (and teachers should teach), rather than expected learning outcomes. Although recent Ministry statements (see the commentary for Ontario in *A World of Differences* [Lapointe, Mead, & Phillips, 1989]) suggest guidelines are being made more specific, such recent releases as *Science is Happening Here* contradict this suggestion.

The shift to the whole-language approach to reading is another manifestation of the paradigm. This model has been adopted by most Ontario boards (Ministry of Education, 1990) despite research (see, for example, the United States Department of Education booklet *What Works*, 1987) documenting the efficacy of the phonics method (Chall, 1989).⁵

Assessment and the Birth and Death of the OAIP

Acceptance of the child-centred model of development makes formulation of assessment or testing models problematic because assessment of student outcomes run contrary to the model’s tenets. Teachers must assess and grade, however, and administrators are sometimes asked for evidence of system-wide functioning. During the late 1970s the Ministry of Education was concerned about board assessment practices and commissioned a number of studies of assessment practices and assessment needs at the board level (Bramwell & Vigna, 1979; Wahlstrom & Danley, 1976, 1979, 1980; Wahlstrom, Danley, & Raphael, 1977; Wahlstrom, Raphael, Jones, & Weinstein, 1977). These studies found that without guidance from the Ministry, schools and school boards applied a bewildering array of assessment practices but frequently used achievement and aptitude tests developed in the United States to report system-level data.

Educators depended on materials developed by particularly innovative school boards (e.g., *Making the Grade* by the Etobicoke School Board, 1985), the Ontario Ministry of Education's *Evaluation of Student Achievement: A Resource Guide* (1976), and local teacher-developed materials. I participated in two of these studies and in our final reports we recommended the Ministry assist boards by preparing item test banks that could be used at a variety of levels to assess student attainment of educational objectives. The Ministry moved quickly on the recommendation. The Ministry Task Force on Evaluation called for the creation of like instruments, and the Ontario Assessment Instrument Pool (OAIP) was born (Ontario Ministry of Education, 1981).

OAIP development began in the late 1970s. Contract teams drew on the latest developments in instructional assessment to develop curriculum-based item banks for use in Ontario schools. Ministry statements released during this time anticipated that these item banks, keyed to the Ontario Ministry of Education Guidelines, would be used at three levels: (a) by teachers at the classroom level to assess and improve both class and individual student achievement; (b) by school board personnel to assess system-level functioning and student achievement; and (c) by the Ministry of Education to assess province-wide achievement through periodic sampling of student performance (Ontario Ministry of Education, 1981). If educators knew what they were doing well, it was assumed, they could explain their approaches to others; if they knew what they were doing poorly, they could modify and improve their instruction. The Ministry also carried out a series of extensive field trials collecting data on provincial-level achievement in chemistry, physics, mathematics, and English.

Development of instruments for such important purposes was expensive. Ontario teachers, consultants, and Ministry advisory committees worked diligently over two decades to create thousands of assessment items running the entire spectrum, from multiple choice, fill-in-the-blanks, essays, and skills demonstration to lab exercises. The items' quality was examined psychometrically using the latest computer technology. The instruments themselves were extensively field-tested, and data on provincial-level achievement in selected areas were collected in a series of field trials (McLean, 1987a, 1987b; Talesniak & McLean, 1987; Wolfe, McLean, & Gaudino, 1987).

The British Columbia, Alberta, and Manitoba ministries of education routinely use OAIP questions in their provincial assessments. Since 1987 the Ontario Ministry of Education has used OAIP instruments in provincial reviews. Some were also used by the recent International Assessment of Educational Progress (IAEP). At a 1988 planning meeting for IAEP in Toronto, representatives from the 20 participating countries were so impressed with the OAIP pools that bundles of these measures were carried or sent to countries around the world for use by classroom teachers in such countries as China, the former Soviet Union, Ireland, Jordan, Israel, Spain, England, Hungary, Switzerland, and Scotland.

The Ministry of Education's own provincial reviews provided some striking findings. The Provincial Assessment in Canadian Studies Geography (Ontario Ministry of Education, 1988a, 1988b) found that almost two-thirds of Ontario teachers reported using OAIP rarely or not at all. The Ministry's Senior Division Advanced Level Chemistry and Physics Provincial reviews (Ontario Ministry of Education, 1989b, 1989c, 1989d, 1989e) found 23% of physics teachers *never* used OAIP instruments and an additional 49% used them *occasionally*. The figures for chemistry teachers were 23% and 47%, respectively. The most recent review found that 67% of grade 6 teachers use the available mathematics instruments *not at all*. Although these instruments were distributed to boards, the Ministry's own information (personal correspondence, Ontario Ministry of Education, December, 1990) indicates that no money was allocated for implementation or monitoring of the instruments' use.

The absence of systematic research into the rise and decline of the OAIP makes it impossible to advance definitive reasons for its failure. Some hypotheses can, however, be advanced. At the very minimum, the rationales for its development conflict. The Ministry assured teachers' federations that the OAIP would be an open system used primarily by classroom teachers. Trustees were told the banks would be useful for monitoring achievement levels of the system, school boards, and schools.

I believe the OAIP failed mainly for two reasons. First, the Ministry outlined a child-centred, non-assessment-oriented educational philosophy, yet produced a multitude of test items supporting a very different (objectives-based) approach to instructional practice. Second, the Ministry was unwilling or unable to mandate educational practice among Ontario school boards consistent with the decentralized education system. It is clear from Table 1 that use of a set of instruments assessing components of student learning, presumably affected by instruction and conducive to public discussion of results, is incompatible with a model that sees the child as the master of his or her learning rate, whose learning cannot be assessed on external, objective measures, and whose learning itself is frequently seen as unaffected by instruction.

Province-Wide Testing and Assessment

As noted earlier, Ontario has consistently been involved in international studies of student achievement. Yet while supporting such involvement, the Ontario Ministry of Education resolutely resists imposition of province-wide student testing at any level (Silipo, 1992). As a Ministry employee set the task of communicating the value of provincial assessment, I personally encountered strong resistance to the Ministry group assessment program by elementary-level educators both at the Ministry and in the field.

Research by Holmes (1991) supports these impressions, indicating significant differences between views of testing held by Ontario directors of education and

by similarly educated members of the general public. The directors oppose testing in the elementary years, the public supports it. These differences extend to educational philosophy, with directors of education being more likely to accept the progressive or child-centred approach to education than is the public.

It is therefore unsurprising that the education establishment, adhering strongly to the child-centred model, most oppose standardized assessments. Yet in Ontario these criticisms are being muted by various factors, among them strong demands for public accountability (including a recent government-commissioned report critical of the child-centred approach) and some disturbing results of recent comparative studies on mathematics and science achievement. Hardly a week goes by without another Ontario constituency group criticizing the education system (Raphael, 1990).

During the late 1980s, Ontario's government established educational accountability as an important goal, and commissioned a report on the relevance of education and the issue of drop-outs (Radwanski, 1987). The report was a scathing indictment of the prevailing child-centred educational philosophy and approach. According to Radwanski (1987), teachers are expected to provide opportunities for student learning but the responsibility for learning (or not learning) falls upon the shoulders of children. It is difficult, then, to specify common deficiencies in instruction, since common objectives for all children are usually not outlined. Radwanski also pointed out another major concern: the Ontario drop-out rate for students in the academic stream is 12% but 62% for students in the general (non-academic) stream and a whopping 79% for students in the basic (remedial) stream. Radwanski used his own constructed indices to arrive at these figures, since he found that the Ministry kept no completely accurate drop-out records. The Premier's Council (Ontario Premier's Council, 1988) also released a critical study of the functioning of the education system. Both reports called for the institution of student testing.

The 1988 International Assessment of Educational Progress (IAEP) involved four Canadian provinces. Ontario students knew less mathematics than those in Quebec, British Columbia, and New Brunswick, and less science than British Columbia students (Lapointe, Mead, & Phillips, 1989). The 1991 IAEP found Ontario 13-year-olds knew less mathematics than students in virtually every other province, and less science than their peers in Alberta, British Columbia, Quebec, Saskatchewan, Nova Scotia, and Manitoba. Of 9-year-olds in the four participating provinces of British Columbia, Ontario, Quebec, and New Brunswick, those in Ontario knew the least mathematics and science (Lapointe, Askew, & Mead, 1992; Lapointe, Mead, & Askew, 1992). The Minister of Education described these results as "disturbing" (Silipo, 1992), and the Ministry announced another plan of action.⁶

Concurrent with the announcement of the poor 1988 IAEP results, the Ministry of Education announced a program to develop expected standards of achievement, that is, benchmarks, and diagnostic tests to allow teachers to

ascertain whether students are meeting these standards. Benchmarks in mathematics and science were to be developed by December 1989. A renewed commitment to produce benchmarks in mathematics, by June 1992, was made upon release of the IAEP II results (Silipo, 1992). No work was done on diagnostic tests, and fulfilling the previous government's commitment is not a priority of the present government (personal communication from M. Boyd, Minister of Education, June 1991).

The Ministry has announced Ontario's participation in the Council of Ministers of Education, Canada School Achievement Indicators Project (CMEC, 1991) and the Third International Mathematics and Science Study. Involvement in these studies will strengthen the movement toward assessment of outcomes (Raphael, 1990). Aspects of these initiatives, however, are at odds with the child-centred educational philosophy still on the Ministry books.

THE ALTERNATIVE PARADIGM: THE OBJECTIVES-BASED APPROACH

Recent reviews of provincial educational practices suggest the child-centred ethos is on the wane in most provinces and nations (OECD, 1989; Raphael, 1990). Suggestions of a shift are apparent in Ontario, where the Minister of Education recently stated that the answer to Ontario's problems lies with common and clear standards of attainment, improved curricula, and better teaching methods (Silipo, 1992).

The alternative paradigm is the objectives-based (mechanistic) world view. In some this evokes images of automatons mindlessly digesting facts and numbers. This view is unfair. It is no coincidence that the philosophy most associated with mechanism is that of John Locke and empiricism. Empiricism was and continues to be a cornerstone of democratic thought, arguing as it does that experience comes mainly through the senses, and that all are equally capable of benefiting from such experience (Lerner, 1986).

Mechanism takes the metaphor of the machine (Reese & Overton, 1970) and represents the universe as discrete pieces operating in a spatio-temporal field. In combination these form the reality to which all complex organizations are reducible. Forces are applied to these components and prediction is possible. Purpose is derived through examination of events, and purpose in itself does not serve as cause. In education the mechanistic view is best illustrated by the objectives-based strategies of Gagné (1968, 1975, 1977) and Bloom (Block, 1971; Ryan & Schmidt, 1979). Table 2 presents the educational practices that stem from acceptance of the objectives-based approach.

Radwanski (1987) provides a political statement and Gronlund (1990) an educational statement of the value of the objectives approach. No one model satisfies all needs. Admittedly, the objectives-based model neglects somewhat the role of structure and its influence upon perception and learning. In the field of child development, Scarr (1982) elaborates on the mechanistic psychological

TABLE 2

Corollary Issues Associated with the Objectives-Based Model of Development

<i>Issue</i>	<i>Objectives-based approach</i>	<i>Suggested educational practice</i>
Active vs. Passive	Passive	Teacher sets the pace; education must be teacher-centred in that teachers determine the means and methods of instruction; important to assess according to objective external criteria; teacher can readjust instruction if child is not learning.
Holism vs. Elementarism	Elementarism	Focus upon the components of instruction; teach and assess component skills to derive higher-order skills; since cognitive and affective skills grow in tandem, provide successes in learning; since generalization must be taught, provide transfer of training; assess same.
Structure-Function vs. Antecedence-Consequence	Antecedence-Consequence	Provide instruction so that successful learning will occur; since learning should follow successful instruction, assess the success of instruction through objective means.
Structural vs. Behavioural Change	Behavioural	Since changes within the child cannot be assessed use objective measures of performance, see what the child can do at a variety of tasks.
Qualitative vs. Quantitative Change	Quantitative	Change occurs as the result of accumulation of parts; identify components of change; teach, and assess same.
Stages	No Stages	Identify components of development; promote movement through teaching of component skills.
Unidirectional vs. Multidirectional Course	Multidirectional	Assume many ways of learning; teachers provide a variety of learning strategies to students such as cognitive strategies; accept a variety of ways to learn and teach.
Internal vs. External Sources of Energy	External	The environment can direct and effect change; use assessment to define effectiveness of instructional approaches.

model and its role; his probabilistic epigenetic approach deals with some of the model's weaknesses. Lerner's (1986) dynamic interactionism moves beyond strict mechanistic tenets. The strengths and optimism of the objectives-based model,

and its suggestions about the role of instruction and assessment in improving learning, provide a powerful argument for a shift away from the child-centred model.

Interestingly, researchers in child psychology and development have become increasingly critical of Piagetian stage-type constructivist approaches. (See Kuhn, 1986 for a recent review.) Kuhn identifies two main weaknesses:

First, the actions generated by the individual's cognitive system that give rise to change are described by the model in such general abstract terms that it is not easy to draw on the model in conceptualizing the varieties of more specific, cognitively salient acts the individual engages in, and their likely influence on cognitive development. . . . The second limitation, closely related to the first, is that in emphasizing the role of the individual's own self generated actions, the constructivist model neglects the social context in which these actions, and therefore cognitive development occur. The constructivist process, whatever its precise nature, does not take place in a vacuum. (Kuhn, 1986, p. 229)

The dissatisfaction with Piagetian-type constructivist approaches noted by Kuhn is responsible for the increasing enthusiasm for Vygotskian (Vygotsky, 1962) approaches. As reviewed by Belmont (1989), one aspect of this enthusiasm is the strong instructional orientation of the Vygotskian approach and its emphasis on the social nature of learning. Although not explicitly noted by the objectives-based approach, the social context is necessarily included in the design and delivery of instruction, a key component of the model.

SUMMARY AND IMPLICATIONS

Since *Living and Learning* (Ontario Ministry of Education, 1968), the child-centred credo has dominated Ontario education. Radwanski (1987) and other critics question the very foundation of the approach; poor achievement results support these criticisms. This approach limits enthusiasm for assessment and reduces public accountability, as evidenced by the failure of OAIP. I have outlined the limitations of the child-centred approach and presented the alternative, objectives-based approach. For those who believe that instruction can make a difference, that most children can learn most material, especially the basics, and that assessment provides a powerful tool for ascertaining whether we are reaching our goals, the child-centred view has outlived its usefulness; assessment programs that can verify achievement of educational objectives are necessary (Raphael, 1990).

Acceptance of the objectives-based approach is well under way in most Canadian provinces,⁷ the United States, and nations around the world (CMEC, 1988; OECD, 1989; Raphael, 1990). The participation of the nine largest provinces in the 1991 International Assessment of Educational Progress, and the

commitment of all provinces except Saskatchewan (which now has observer status) to the Council of Ministers of Education, Canada, School Achievement Indicators Project show the increasing acceptance of this approach. The Ontario education bureaucracy, however,⁸ still marches to the tune of the child-centred drummer, even though this tune is no longer popular with the public and is abandoned almost everywhere else in the world. It remains to be seen how long the music will continue to play without dancing by or approval from the public.

NOTES

- ¹ University-bound students have traditionally been required to complete a core of additional courses, hence the grade 13. More recently these courses are now called Ontario Academic Credits (OAC) rather than grade 13.
- ² A version of this paper was first presented at a meeting of the *Effects of Changes in Assessment Policy Group*, at the Ontario Institute for Studies in Education, Toronto, Ontario, in November 1988. The paper was updated for distribution at the December 1989 meeting of the *Association of Educational Research Officers of Ontario* (AERO) in Toronto. The present version was written November 1992, 24 months after election of the NDP provincial government.
- ³ I have chosen to concentrate on two psychological models and the associated educational approaches. There are, however, at least four major schools of thought specifically concerned with children and learning: cognitive developmental, behaviourist, information processing, and humanistic (Good & Brophy, 1986).
- ⁴ An interesting episode illustrates the translation of this approach into educational practice. I made a presentation on the relatively low level of science achievement in Ontario to a group of teachers in Ottawa. One teacher said that "If students enjoyed working with science-type materials such as magnets or mirrors, I really don't care if they learned anything." A principal standing nearby stated, "As an educator I fully agree with that view, but as a parent it scares me to death."
- ⁵ The issue is an active one in Ontario, as shown by contributions such as that by Doreen Kronick in the *Toronto Star* (1989, October 2): "Most boards have embraced the whole language approach to reading and spelling which means that spelling, grammar, decoding, and learning to write have been replaced by reading for meaning and spontaneous writing. They underestimate the difficulty inherent in learning to spell, decode and write with skill."
- ⁶ It is impossible to draw upon published documents to identify the strategic processes of how these decisions are made. Press releases provide politically astute presentations of actions but true motivations for government action frequently remain obscure.
- ⁷ Not surprisingly, the British Columbia Ministry of Education's attempt to implement aspects of a child-centred approach through the "Year 2000" initiative is sparking controversy.
- ⁸ The Ministry of Education working paper *The Common Curriculum* (1993) takes the child-centred approach to even further extremes. The document outlines a non-subject-discipline approach from grades K to 9: "Subject matter and outcomes are organized into broad program areas rather than traditional subject disciplines" (p. 1).

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