

Disciplines in the Service of Educational Thought

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What kind of contribution has the 20th century made to educational thought? My own suggestion is that the 20th century has been the century of the application of disciplines to educational thought on an unprecedented scale. In particular philosophy, psychology, history, sociology, statistics, cognitive science, and computer science each has claim to be central to educational developments in this century. Also the same disciplines, in the service of the study of women by women, have led to a whole new complex of thought and action which promises to be the special contribution of the 20th century to the history of the world, greater than penicillin, radio, television, the atom bomb, the jet plane, or relativity.

Philosophy

Philosophy has been closely allied to educational thought in the West at least since Plato, his *Republic* being as much an educational as a political and metaphysical work. It foreshadowed the uses of education by the State which emerged in the 19th century and which became a dominant factor in national policy in the 20th century. The 20th century has been strongly influenced by philosophical thinkers, great and small. The names of Dewey, Russell, and Whitehead come to mind among the great who not only made major contributions to philosophy generally, but to educational thought as a central concern of their work. In the 17th, 18th, and 19th centuries philosophers like Locke, Descartes, Kant, and John Stuart Mill wrote philosophically about education, although lesser philosophers, like Rousseau and Comenius had much greater impact on actual educational practice. In some sense the 20th century has actually been Rousseau's century. Progressive education, often laid at the door of Dewey, Russell, and A.S. Neill, is largely the consequence of Rousseau-like assumptions

applied in the 20th century. Love children and let them flourish with as little interference as possible has been the main rhetoric of the great educators of the 20th century, if not the practice.

The 20th century is also a century in which some who were school teachers made major contributions to main-stream philosophical thought via their own experiences as teachers. To name perhaps the greatest, Wittgenstein's later philosophical work from 1929 until his death in 1950 arguably uses methods forged by a pedagogue struggling to overcome conceptual difficulties in his charges which then becomes a general philosophical method. Most philosophers of education in the last half of the 20th century have had an analytic flavour which can be traced to Russell and Wittgenstein.

Both Russell and Dewey founded schools, Russell struggling with his Beacon Hill for over a decade and his wife Dora for many years more. But, as in earlier centuries, it was often the philosophically humbler practitioners like A.S. Neill with his school, Summerhill, that had the greatest impact on educational thought if not on general practice. Certainly the emphasis of Dewey, Russell, and Neill on the place of democracy in school and the support which schools play for democratic institutions might be the central educational theme of the century, one which is only now being taken seriously in formerly repressed societies like South Africa and China.

Psychology

Late in the 19th century and early in the 20th philosophy began to loosen its grip on psychology such that it became a discipline in its own right. This was undoubtedly due to developments which meant that psychology, like other empirical sciences before it, appeared to have experimental methods which enabled it to be free from philosophical argument and move mainly to observation. Perhaps William James *Principles of Psychology* is the most important document in this development. By the advent of the first world war, psychology allied to experimental methods and observation, often in the form of testing conducted on large populations, had become sophisticated enough for its use by the American military.

The use of psychological tests to screen for literacy, numeracy, and intelligence (abandoning the 19th century's view that intelligence was essentially knowledge, and now interpreted as intellectual potential) became commonplace as the United States on entering the

First World War, rushed to develop an army of great magnitude in a very short space of time. This, in its turn spawned a whole industry and led to the development of psychology departments in North American universities, mainly in association with educational faculties or colleges. Human psychology and education became inextricably linked for nearly the whole century, while experimental psychology, which found rats and other mammals easier to work with, became separated from the educational connection in many places by the middle of the century. Thus the century began with the separation of psychology from philosophy as a separate discipline and ended with educational psychology or applied psychology separated from experimental or animal (mainly rat psychology) nearly universally. For much of the century, human psychology was seen as the "science of education" or at least in relation to education as say physics is to engineering. But whereas the uses of physics in engineering have become more effective and multiplied throughout the century, the end of the century raises doubts about the role which psychology might play in either educational thought or educational practice. Part of this might be explained by Wittgenstein's insight that "psychology has experimental methods and conceptual confusion." This has led "educational psychology" departments to wish to be styled "applied psychology" departments as their role in education diminished and their counselling role for the population at large expanded.

However, some psychologists have seen their role as essentially in the service of education. Perhaps the most famous and effective of these has been the great Swedish educational thinker and psychologist, Torsten Husén. Husén is perhaps the most well known international educator of the last half of the 20th century. He has consistently applied the statistical methods used by psychology in this century to illuminate educational questions and organization all over Europe, Asia, and Africa. His influence in North America has been less than it should have been, perhaps because his Institute for International Education in Stockholm specialized in working with the underdeveloped countries. But its massive legacy worldwide, due to Torsten himself and his astonishing collection of doctoral graduates, continue to make their impact felt around the world as the century turns and a new millennium dawns.

Cognitive Science and Literacy

Perhaps the most interesting of the developments closely relating psychology and education as the millennium turns are those in "cognitive science" or "applied cognitive science." Here we have collaboration among scholars of many ilks, psychologists, philosophers, historians, computer scientists, neurologists, and others all concerned to tackle difficult topics in education: literacy and its acquisition, learning difficulties, pedagogicogenic disorders, conceptual frameworks and learning, and the like. Thus as the century rolls out David Olson, an educational psychologist working in cognitive science, is perhaps Canada's most decorated educational scholar with visits to many institutes of advanced study, a member of Canada's Royal Society, and a University Professor at the University of Toronto. Olson has made literacy a serious study among a vast range of scholars working both in and out of educational faculties and research institutes.

History

But if the 20th century has been a great age of educational psychology, which has both risen and fallen, it is also the century of educational history on a scale unimagined a hundred years ago. What has made this a striking century for developments in educational history has been the advent of the computer with large memory and amazing speed of data processing. In North America serious application of the computer to educational topics involving large data bases was began by Michael Katz, at the Ontario Institute for Studies in Education. Katz had written an doctoral dissertation at Harvard, a study of early attempts at educational reform in Massachusetts. In this he used a computer in a small way to generate some statistical data of use to this overall thesis that the more things changed in Massachusetts the more they stayed the same. When he moved to the Ontario Institute for Studies in Education at the University of Toronto, Katz and his technical collaborator Ian Winchester, shook the educational establishment and moved educational history into the mainstream of social science history and history in general. They did this by discovering that many routinely generated records produced by government were of potential educational interest and that, by techniques of automated or semi-automated record linkage, remarkable research results were possible. For three decades Katz,

Winchester, and their students like Alison Prentice, Harvey Graff in Texas, and Ian Davey in Australia, and their students' students have been names to conjure with. Indeed, along with the Cambridge Group for the History of Population and Social Structure (Peter Laslett, Tony Wrigley, and Roger Schofield) and the various groups inspired by or assembled by Egil Johansson in Sweden at or associated with Umeå university only the group inspired by the work of Katz and Winchester has had similar international impact.

Johansson's work is monumental in scope and is a reflection of his discovery of the remarkable church examination records in Sweden. Johansson was working as a Lutheran priest in the little parish of Tuna in northern Sweden when he found a series of dusty volumes which appeared to contain complete records of the population of the rural parish of Tuna back to the mid-17th century. He found that the records contained literacy data on the whole population from birth to death, household by household, kept annually by the parish priest over a 300 year period. His discovery led to a remarkable doctoral dissertation, a professorship in education, the development of an immense demographic database, the development of a massive graduate program in social science history, and generations of first class doctoral graduates and hundreds of publications, nearly all with educational relevance or import. As the century turns scholars from everywhere on the planet will convene in Ballagio to discuss Egil Johansson's work.

These three examples, perhaps completed by reference to the work of Harvey Graff, a student of Katz and Winchester at the Ontario Institute for Studies in Education, are sufficient to complete the argument that not only has history become a central focus for serious educational scholarship, but also educational history has entered mainstream history and had a strong part in directing it in the last half of the 20th century. Graff, like Olson and Johansson, has been mainly concerned to study literacy in the 20th century and earlier. His numerous books and articles have been very influential and compulsory reading by any serious scholars of literacy in the last 20 years or so.

Sociology, Computing Science, and Statistics

Sociology, computing science, and statistics have also been brought to the service of education in this century for a variety of purposes.

Sociology in education, often allied with social history, has been central to the understanding of organizational activity in education. The work of Michael Fullen in the area of educational change is perhaps as good a testimony as any of the value of sociological methods and thinking applied to educational questions. Computing science, where it was not used as a support for administration, was mainly used to study or to aid individual learning in opposition to the view that the teacher characteristically taught to the class but not to the individual. This work, pioneered at the Ontario Institute for Studies in Education and at the University of Alberta in the 1960s and 1970s had initial great promise, analogous to that of automated diagnosis work in medicine. But it faltered in the 1980s and 1990s for want of real opportunities that involved low costs and real success with children. The advent of the microcomputer appeared to offer new opportunities for computing science married to education, but for the next 20 years or so virtually nothing interesting either practically or theoretically happened. It is too early to determine what the advent of easy access to the Internet via the World Wide Web will have. But there appears to be tremendous promise. Perhaps if one experimental and practical situation was to be mentioned it would be the Galileo Project at Banded Peak School in Rockyview school division in Alberta, Canada. There an entire school has been transformed into a computer integrated facility in which even the smallest children work in an individual way with their teachers in the context of ubiquitous information and computer enhancement of ordinary human powers like drawing, colouring, counting, and displaying. This project has migrated to the University of Calgary where, as the Galileo Educational Network group, it functions as a non-profit organization dedicated to the appropriate integration of multimedia into the everyday life of the ordinary classroom from kindergarten to the university.

The 20th century has also been a century of the application of statistical and demographic data gathering and statistical analysis in the service of education. Sometimes this has been beneficial and sometimes not. The data gathering prior to the report of the Royal Commission on Education in Ontario in 1950 is perhaps characteristic of this development. The massive documentation collected in the war period and afterward by Robert W.B. Jackson, subsequently the first Director of the Ontario Institute for Studies in Education, served

subsequent Ministers of Education in Ontario as a template and plan from which to revise the entire educational structure of Ontario. The revision was from small, isolated schools and school boards numbering in the thousands with poor equipment and poorly paid teachers to a relatively few large school boards with well equipped schools and well paid teachers. This trend has covered the whole of Canada and the United States following the second world war and has tended to be a global trend, although in the third world countries, and countries like South Africa, pre-war conditions still prevail in the main outside of the great urban centres.

Where statistics were used to show that consolidation was possible, or that the evening out of school board budgets could be managed, the tendency generally led to educational improvement. But such consolidation often was without educational thought and research. Nobody, for example, anywhere except in Norway, has asked what the optimal size of a school is. It may be significant that in the late 20th century in large school after large school, horrifying incidents involving alienated students have occurred, and the armed surveillance of large city schools is now often a given.

The Application of Disciplines to the Study of Women

The application of the various disciplines to the development of educational thought, then, has been a central feature of educational thought and action in the 20th century including the greatest revolution of the millennium, namely, the rise of the female professional and the rise to importance and finally dominance of feminine scholarship as the century ends and a new millennium dawns. This millennium has had three main intellectual stages. The first stage, the interrogation of God, involved the universities and the great scholars in the recovery of Greek learning and the trying to make something of that learning for practical use. The second great phase, the interrogation of nature which began with the Italian Renaissance and led rapidly to the scientific developments of the 17th century, has been the dominant phase of thought, including educational thought, until the latter half of the 20th century. The present phase, while it still has elements of the first two phases, is the phase of the Interrogation of Man, or at least what I should have called it in an earlier era. Under the impact of the rise to dominance of feminine professionals, feminine thinkers, and feminine scholars

the interrogation of man is properly to be thought of and referred to as the Interrogation of Humankind. This movement is the great legacy of the 20th century to the next millennium. For most of the past history of our species, with the exception of a few remarkable individuals, human thought as recorded was largely a catalogue of the human male's musings or actions. But the 20th century has changed all that. There are now more female scientists than there were scientists of any kind prior to the 20th century. At the present time, in the universities of the West, there is a majority of women in all faculties and programs with the exception of physics and engineering.

Clearly the next century and the next millennium will be the century and the millennium of the centrality of the thought and action of women. And this is surely the most revolutionary and important thing which has happened in human recorded history. One immediate impact has been that the feminization of university teaching staff has turned concern in the university towards the improvement of educational considerations and not solely disciplinary content ones. Nietzsche remarked, so far as I can see accurately, that the 20th century would be a century of wars and gigantic events due to the "death of God," that is, the death of the presupposition that God and God's laws lay behind all human thought and action. Certainly God is no longer placed in our lives and our legislation and in all our actions as He was during the first two great interrogations. But will the development of the phase of the Interrogation of Humankind lead us away from this century of horrors on a gigantic scale as well as achievement on an equally gigantic scale, to something which overcomes our "all too human" nature? I do not know, but I hope so.

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