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A Century of Evolution in Comparative Studies

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ABSTRACT *Since 1900 comparative studies of education have repeatedly changed their content, focus, concerns, intentions and political significance. Their practitioners have also changed in their methods and awareness. For centuries before 1900, when Michael Sadler gave a new reorientation to comparative analyses of education, envy of other countries' military and technological prowess had caused much spasmodic copying of special institutions and methods of training. But in that year Sadler first gave prominence to the need for systematic study of other countries' entire context of educational influences, as an aid to understanding and reforming one's own matrix of learning. Stronger social inclusiveness and a wider cultivation of competences arose from new careers and the transformation of all communications. These gave new access to learning—by alternative modes and by alternations of study at different ages, in various settings, as occasion demanded. Meanwhile, colossal expansion and diversification in all kinds of formal provision after 1945, and growing concern for hitherto neglected populations, altered the conspectus of 'educational' needs and potentialities—together with old hierarchies of provision. Countries changed shape; some disappeared; new ones arose; empires and entire occupational prospects faded everywhere. Thus the texts, methods and presuppositions of older 'comparative' studies lost justification in a rapidly evolving context of world-wide and life long uncertainty. New participants and novel partnerships now take active responsibility for lifelong education far beyond older systems of provision and compliance. This article considers shifts in the whole contextual, conceptual and operational framework of education, together with their implications for the development of teaching, research, programming and partnerships in Comparative Education itself.*

Introduction

Centuries and millennia are artificial divisions of time. Evolutions in the natural world and inventions of human contrivance pay no heed to such demarcations. They develop according to inherent tendencies and favourable circumstance. The same is true of educational change—more so because education (one of our most contrived activities) depends more on cultural inheritance and the opportunities and needs of present circumstance than almost everything else that we do.

That dependence on inheritance and circumstance is the justification for a new comparative investigation of education. We must measure accepted practices and perceptions against today's real-life conditions and demands. Education is about tomorrow, although all its established systems were developed for a world that no longer exists. We who are old enough to make pronouncements on education will not be there to answer for the results of any recommendations we make. The prime shapers and developers of education for tomorrow are young today, probably still unborn. It is they who are already re-shaping the very foundations

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of learning lifelong, outside schools as we know them, and beyond the reach of scholastic provision or 'educational research' as normally understood. Thus all educational systems are seriously open to question (King, 1999).

Comparative studies of education today are not merely lateral in their analyses of various systems. The fact that they assess existing provision makes them already retrospective in some measure: they look at what goes on now for reasons less relevant today. Thus comparative studies of present systems are looking at what previous educators inheriting *their* past established long ago for their perceptions of what seemed most needed and/or feasible then.

Those earlier planners and administrators contrived and evaluated the gradations and phasing of scholastic priorities in establishments which are often by-passed or outmoded now. They traded in 'certainties'. Many of those seem false or irrelevant today—not always or within every country where they were formulated, but nearly always falsified in the global perspective of unforeseeable change. Any worthwhile education today is education for uncertainty (King, 1976, 1978). It is a provisional first step, conditional for its success on lifelong learning and re-learning.

Comparative investigation is of little value if it serves documentation only. Its significance lies in informed interpretation of the interplay between context, policy-making and opportunities for fulfilment. That is why those making comparisons have to know very well the critical contexts and occasions where educational decisions are made. It is why we start this millennial review with an examination of comparative education's contexts, circumstances, decisions and responses over a century of more rapid and profound change than in any previous period.

It is particularly fitting to take a fresh look because of the keynote principle for all comparative studies enunciated by Michael Sadler in 1900 (Sadler, 1900), but all too often ignored by academics, planners and practitioners ever since. We cannot do better than repeat his words:

> In studying foreign systems of education we should not forget that the things outside the schools matter even more than the things inside the schools, and govern and interpret the things inside ... The practical value of studying in a right spirit and with scholarly accuracy the working of foreign systems of education is that it will result in our being better fitted to study and understand our own. (p. 3)

From Earlier System-building to More Inclusive Views of Education

In the 19th century some providers (like France, Japan and the state of New York) had established all-inclusive systems of education and training, but other industrialised countries (like the UK) had not. Nevertheless, whether state-managed or not, most educational systems have from time to time copied or been influenced by successful institutions and practices elsewhere. Military and commercial rivalry (often interconnected), as well as competition for international esteem and influence, have played their part in the race, not to be outdone by neighbours in various aspects of educational success. So has the fear of some political doctrines, like communism, or anxiety about some other country's technological or managerial pre-eminence.

We saw large-scale examples of that fear in the many books and articles (especially American) examining Japan's severely competitive school system as recently as the 1970s and 1980s. Many other countries took to subsidising their technological higher education on a nation-wide basis (e.g. Australia and the UK) in contrast to relying largely on local initiatives or the training given in professions and enterprises themselves. Of course, there had been

ample precedent for that during the 19th century when Americans copied Imperial Russia's highest technological college and Imperial Germany's postgraduate research institutions. Later some of that copying went into reverse: in our own time postgraduate business schools in Fontainebleau and Lausanne draw tomorrow's top managers from all over the world, and contemporary China is adopting principles and methods pioneered in North America. However, because of the Internet, no centre or method now has a monopoly of magic. I shall return to that consideration later.

During the 20th century comparative studies of education left piecemeal copying far behind; they have now moved on from competitive assessment of specific educational adequacy (often in terms of 'manpower') towards more subtle concerns. Increasingly in a global perspective, as frontiers crumble and mankind's problems in education, as in everything else, become more closely interlocked, serious comparative studies take fuller account of the total 'ecology' of educational decisions. Re-evaluations in single countries have often followed wars or national catastrophes. Now they are demanded by technological and social transformations permeating all countries and challenging all school traditions, all establishment hierarchies and curricula. A universal challenge faces the very concept of education.

Obviously, education is not one-way traffic between teacher and those being taught, and never has been; but the balance in that interaction has fundamentally shifted. The engagement between any learner and whatever teacher (or source of learning) today is more complex than ever. It is not limited in time or place or subject-matter or purpose: it is conditional in every respect, depending for its fulfilment on lifelong follow-up by the learner amidst endless uncertainty and ever-changing forms of learning. That shift brings into question nearly all the institutions and practices which it was the main task of comparativists to analyse. It certainly demolishes the orthodoxies and 'predictions' which flourished in some comparative education centres during the 1950s and 1960s.

Previous Stocktaking in Comparative Education

From time to time specialists in comparative studies have reviewed the state of their art. (They no longer presume to call it a science). In 1977 this journal devoted a Special Number to that purpose (Grant, 1977). Other journals and some books have attempted the same task. Yet few have acknowledged that a Protean change has overtaken not only their special field of 'education' but the whole business and time-scale of learning. We are not now talking of the same thing, as a 1999 Special Number of this journal on Lifelong Learning (Evans *et al.*, 1999) made clear. We are all on a frontier of perpetual re-education, served and serving ourselves from sources beyond the imagination of previous educators. That turnabout alone is sufficient justification for this millennium issue. Let us look back now on what we thought we were doing before, and why. We can make a start with publications.

Publications are intended for a public, of course. Most publications on comparative education, or collateral studies dealing with education comparatively in any way, were once intended mainly for teachers in training or in some form of professional postgraduate follow-up. In any case they were strongly pedagogical in their emphases and clientele. A big change, although one at first slow to develop, brought international comparisons of education before the general public in post-1945 and post-1970 calculations of national adequacy, first in the 'Cold War' and then in the contractions necessitated by international fuel crises. This shift of contextual emphasis brought educational questions on to the front pages of the daily press and into ordinary conversation.

Gradually, more attention than before began to be given to educationally disadvantaged groups at home, and to economically or socially under-developed regions of the globe,

especially in the aftermath of empires. Now guilt-feelings about the debts owed by impoverished nations to previous or present exploiters coincide with fundamental doubts about educational expectations in 'the West'. Today's questions are thus more global, more humane and fundamental, more interactive.

Simultaneously, books and journals dealing with education show growing concern for environmental and non-pedagogical influences on educational attainment. Before, such questions had been mainly aimed at teachers or other academic specialists, so much so that people outside 'education' paid little heed to them or made rude remarks about the wide gap between 'educational' and other academic studies. In the English language words like 'pedagogical', once so freely used in foreign publications on education, quickly came to seem dry-as-dust and remote. In step with the 'humanising' of educational concerns, and growing appreciation of their inseparability from the social context, journals, both professional and lay, began to reveal more profoundly comparative insights.

The same became true of papers presented at conferences of professional educators, even within national organisations. Hitherto it had been astonishing to find, from time to time, how insular were the perceptions and knowledge of teachers and providers whose eyes were only on their national system. What might have been a breakthrough when Ministers of Education began to undertake educational tourism, and even have serious discussions, was all too often marred by the complacency of others who might have introduced a proper comparative perspective, analytical and alert to changes profoundly influencing the whole educational context. Yet that expanding awareness was fostered by the growth of comparative education societies, both nationally and in international linkages.

Societies, New Publications and their Impact

There had long been dossiers of educational data in rather austere official centres. In the post-1945 period of conscious reform and expansion of educational systems these became more open and marked by international rivalry. Some countries put out glossy or otherwise glowing accounts publicising their systems. Previously it had often been difficult to acquire such information except in the original language of publication. However, omissions were often as important as what was actually said: for example, French publications made little or no mention of the 40% of secondary school pupils attending Catholic schools, and therefore outside the 'national' system at that time. This is but one example of the need to look behind all official statements. Comparative Education departments in colleges and universities probed intelligently. Many of them organised on-the-ground tours. In due course national societies were established for comparative studies.

These became linked internationally, arranging conferences and exchanges of views. In 1961 a Comparative Education Society in Europe (CESE) was founded at a London conference, and a World Council of Comparative Education Societies (WCCES) was established in 1970 at an international congress in Montreal. Very successful congresses have followed in all the continents. They attract scholars from ever more countries, fostering exchanges of information, and facilitating international and thematic researches. They give rise to books and reports encouraging intelligent investigation of new kinds, including *ad hoc* teamwork.

This expansion of interest, combining deeper insight with sensitivity to context, was encouraged beyond 'academic' societies by a new range of comparative books and journals—less 'official', more down-to-earth, and in the long run more influential for policy indications. In this article there is no space to survey the field of comparative books and journals in detail; but over the years they have not merely increased awareness of overlooked factors in

schooling but have enriched contextual perceptions of 'education' itself. Above all they have raised questions prompted by technological, political and social upheavals. These reflect the requirements and opportunities of new careers, new fields of study, and new technologies for communication and learning. Above all they mark the changed interactions of ordinary people in a lifelong situation of having to learn, unlearn and relearn far beyond whatever 'education' previously did for them. In other words, they heed 'the things outside the schools' of which Sadler spoke in 1900.

The same tendency can be discerned retrospectively in themes discussed at conferences of Comparative Education Societies. Once these seemed preoccupied with defining the nature and 'methodology' of a thing called 'comparative education'. (At least one society refused admission to an applicant who was not teaching a course under that title!). Fortunately, all that is now ancient history in most centres of comparative study. Instead of wasting time on past vagaries, we can pass on to real development in comparative education.

Serious comparative studies increasingly focused on the actualities of schools and their practices. (Some, like the International Mathematics Survey, still do). They assessed students' achievements and attainments in approved fields or expectations; but now there is less confidence that such internal measurements are contextually complete, or reliable bases for policy. For recently emancipated populations—often beset with age-old problems as well as dearth of resources—difficult decisions turn on questions about alternative criteria, alternative ways, alternative time-scales, alternative partnerships in learning, and (above all) on alternations in the lifelong learning process. Such questions pass beyond 'educational' institutions and precedents. Potential learners' responses and preferences (cultural as well as personal or economic) are central to any development programme. Yet they have been insufficiently researched by planners.

Most of the research units and programmes flourishing, and often well financed, during the 1950s and 1960s revolved around questions about sorting people out to fit existing institutional frameworks. They have been described as studies of 'bodies into boxes', or less euphoniously as 'bottoms on seats'. 'Effectives' was a word often used as a synonym for merely 'enrolled'. Accountants and managers had more to do with such counting than pedagogues or social analysts. While considering research it is worth remembering how recent was the explosion of new facilities for it. Nearly all comparative research during the first half of the 20th century was based on documents, often produced by governments relying on statistics of what officially went on in establishments.

Beyond the Statistics

Much information was compiled and disseminated in all honesty by early comparative education scholars intent on getting 'the facts', which in those pre-computer and pre-satellite days were far more difficult to ascertain than any present-day scholar can easily credit. True, there was an efficient and influential International Bureau of Education, dispensing information from Geneva, and several other UNESCO-linked agencies in other parts of the world. In addition to providing information these agencies sponsored conferences for exchanges of ideas between academics, policy-makers and others influential in educational development. Thematic presentation of current questions helped to sharpen focus, and the publication of specific conclusions affecting policy brought them to the attention of scholars beyond the bounds of 'educational studies'. However, there have always been limitations to the effectiveness of any such surveys.

Anyone who has attended international conferences or, better still, worked on their publications, knows that diplomatic politeness requires a delicate touch (or a total taboo) on

such themes as opportunities for girls and women, or the role of churches and similar bodies in providing education. Moreover, it is usual to give equal space or time to contributions from member countries. The editorial responsibilities placed on the rapporteurs of conferences curb them from reorganising the emphases presented, perhaps unintentionally, by those contributing chapters to reports or surveys.

To a smaller but significant extent the same limitations apply to many national or international information sources: their information and question-raising are good and helpful as far as they go. It seems churlish not to be grateful for the services rendered to comparativists on a lavish scale by, for example, the UNESCO Institute for Education in Hamburg, the Deutsches Institut für Internationale Pädagogische Forschung in Hamburg, the Centre International d'Etudes Pédagogiques in Sèvres, the Centro Europeo dell' Educazione in Frascati, from all of whose stimulation and hospitality I have benefited greatly. But was all that really comparative education in any deeply analytical sense—in Sadler's sense of heeding the total environment of educational influences at work? Was it 'scientific' enough? Doubts about the methods and competences of some scholars working on educational issues were raised by several sociologists and other analysts.

Indeed, quite outside educational studies, dissatisfaction with methods and assumptions prevailing in many socio-political studies had led to the appointment of Karl Popper in 1945 as Professor of Methodology of the Social Sciences at the London School of Economics, where for a while I was his student before I moved into comparative education. (That was when I followed Nicholas Hans at King's College in 1953). Popper earned world fame as a fierce challenger of accepted assumptions and methods in all the sciences. Above all he criticised hypotheses and 'laws' and 'predictions' not subjected to what he called 'the principle of refutation' by facts, intellectual analyses, and actual experience—preferably in different contexts. To that extent he was an implied advocate of a comparative method in educational re-thinking. In his late book *Objective Knowledge*, Popper (1972) clearly thought of knowledge not as resident in documents and people's minds but as publicly constructed, and understandable only in evolutionary terms. We now know that it must also be *interactive* if only because of telecommunications.

A Colossal Innovation in Comparative Investigation

During the three first post-war decades comparative theorists, with 'predictions', 'laws' and input-output models, still held sway in many institutions primarily concerned with teacher-training or specifically 'educational' studies despite such powerful repudiation on their doorstep. Elsewhere, other academics were already committed to 'area studies' and developmental analyses in which educational provision was being evaluated afresh for its socio-economic force or failures. Their analyses benefited from wider awareness, and especially from adopting established statistical methods from the social sciences, which in the 1960s were being updated extremely fast because of new techniques and insights.

It is hard to realise now that the first-ever computer (room-size but of limited scope) was developed only in recent decades. The first artificial satellite flew only in 1957, yet by 1972 there were over 500 Soviet satellites alone; telecommunications soon began to depend on such devices everywhere. Their implications for world-wide and in-depth exploration of new themes had lain beyond the awareness of earlier researchers. We shall return later to their challenges for comparative studies today.

For comparative studies of education in the narrow sense an innovation of almost incalculable importance occurred when the International Association for the Evaluation of Educational Achievement (generally known by its acronym IEA) was established under the

leadership of Torsten Husén and Neville Postlethwaite. A first Pilot Study of School Achievement was conducted in 1959–61 under the auspices of the UNESCO Institute for Education in Hamburg, reporting in 1962. From that time onwards many weighty volumes have been published in the attempt to document precisely what factors make a difference to the scholastic achievement of young people from many contrasting backgrounds in the secondary schools of many countries.

The first IEA report in 1967 combined the endeavours of numerous researchers (some 'educational', some technical) analysing comparative achievement in mathematics. That was chosen as a culturally neutral field of study. Later surveys have covered the mother tongue, science, foreign language learning, and civic knowledge. Detailed and meticulously scrutinised data about school learning and teaching have given plenty for the world (and comparativists) to reflect on. Home backgrounds and related factors were also documented. As Harold Noah of Columbia University Teachers College put it (Noah, 1998), by 1994 200 million pieces of information had seen collected and sorted from 21 countries at a cost of hundreds of thousands of man-hours and many millions of dollars.

From time to time since its very beginning the IEA has held working conferences which involved visiting commentators as well as direct participants in the research. Some of these noted unexpected omissions or background factors which had been undervalued, for example the effect of the key research year of 13 being the 'suicide year' in highly competitive Japanese schools, and so forth. But, possible errors and omissions excepted, the IEA surveys have been of incalculable importance in encouraging the application of social science techniques to comparative studies of education.

It is sad to report that some of the best-known centres of comparative education (under that name) played little part in the IEA programme itself, and that some professional comparativists would have nothing to do with it. Others (like me) participated only in so far as existing commitments allowed. It therefore happened that most of the IEA's initial leaders were experts in psychometric or sociometric methods or curriculum studies, rather than alerted to the contextual emphases now usual in comparative education. Consequently, perhaps, a major overall criticism might be that IEA studies have been mainly about within-school questions or the impact of *calculable* outside factors on them. The subtle cultural ecology or inner dynamics of the learning process and its possible follow-up lacked sufficient attention. Moreover, the establishments examined were largely of the West European or North American type, even when Asian countries were included. Other questions were needed: about youngsters not in school; about the follow-up to school-level attainments; and about any alternative learning or supplements.

New Perspectives in Comparative Education Itself

At this point we remember that during the 1950s and 1960s the social and intellectual climate pervading education changed markedly in many countries—not least because of the contraceptive pill, the development of feedback on radio and TV programmes, consumer research, and the rapid transformation of personal lifestyles in consequence. Reorientation was also required because of the obsolescence of many occupations, the transfer of staple industries to other countries, and ensuing globalisation of many uncertainties. In succeeding editions of *Other Schools and Ours* (King, 1979a). I traced 'three technological stages' with their attendant 'social and educational idioms' affecting school systems, the third of these characterised by a 'communications society'. Already accelerating and now limitless communications have opened up a Pandora's box of unforeseeable expectations and opportunities.

Of the questions claiming urgent comparative attention in the 1960s, the most pressing

resulted from rapidly increasing enrolments beyond compulsory schooling, with widened intake and expansion in both educational prospects and careers beyond that. Could school systems accommodate them? Institutions and providers had to be transformed. Little was really known about the 'new population' already bursting the seams of any system.

In any case, educational researchers eager to discover 'the inside view' of learners were rare anywhere. Rarest of all were researchers concerned with 'frontier populations' such as the youngest adults from about the age of 14 or so to the age of about 20 or 22. Girls too are still often newcomers to extended education and to prospects in the higher careers; yet if given the chance they are remarkably successful in formerly 'masculine' careers such as banking, commerce and journalism.

On the frontier of adult life, young men and women (fully adult in sexual matters and in the view of advertisers) were enrolling in schools' senior classes in ever-increasing numbers from the 1950s onwards. Very many of them, especially from the least prosperous strata of society (and 'strata' is the right word), had little acquaintance with what upper-secondary education and its outcomes were really all about. They were newcomers numerically and in their types and backgrounds as well as in their often experienced 'inside view' of contemporary life. In most schools most teachers of that age-group were unready for them. Even more so that was true of existing programmes. Certainly not enough suitable institutions were available. So a hard re-think was necessary. Providing more or novel institutions required a fresh look at possible new combinations of provision, of courses, of orientation, and perhaps changes of character.

In 1970, with two research associates, I established a Comparative Research Unit at King's College in the University of London to examine the educational and social implications of rapidly increasing enrolments in five West European countries. The three-year programme was financed by the Social Science Research Council of the UK. Obviously, we had to explain very carefully what we were hoping to find out beyond the statistics and official 'mission statements'.

We sought the 'inside view' from students aged from about 16 to 20, in all kinds of course and establishment, and in milieux ranging from prosperous suburb to disadvantaged inner city. We invited them to fill in carefully graded questionnaires covering their social and educational backgrounds, their scholastic experience and preferences, their academic prospects and occupational expectations. At the end of the hour-long confidential questionnaire, which we administered personally in each location, we invited the considered personal views of participants on the project itself and on possible improvements in their educational system, expressed in their own terms. An explanatory campaign was needed for everyone concerned, since the project was unprecedented. In total there were 12,000 questionnaires.

It was an intricate task to devise in five languages subtle, penetrating questionnaires to elicit confidential responses from students whom we induced to regard themselves as fellow-participants in comparative research, working in common with frontier people like themselves in neighbouring countries. It was still more delicate to persuade teachers to take part and answer complementary batteries of questions. It was an even more delicate matter to get permission to enter institutions so as to administer the enquiry in total confidentiality on the ground, and answer questions if necessary.

Still, we managed it. In many cases we had discussions on the spot with students and/or teachers afterwards, and some institutions and inspectors invited us back for a later overview. It is pleasing to report that two Ministers of Education and conferences of school inspectors in two countries invited our participation in a review of the research's implications. In addition the Council of Europe organised an international conference for specialists to review our investigation. A monograph arising from these meetings was published by the Council of

Europe in 1979 (King, 1979b). That, then, marked a change in the 'public' of comparative publications. In 1973 and 1974 the researchers themselves published a two-volume report on the results and implications of the investigation (King *et al.*, 1973, 1974).

Gratifying though these events were for the researchers involved, their significance much further afield lay in the acceptance of research as an influential aid to policy for an increasingly important range of educational decisions. It is worth noting here that some of our new key notions and phrases—'post-compulsory education', 'young adults'—instead of 'youth', 'youngsters', 'adolescents', etc.)—have passed into universal currency in many languages. A scrutiny of publications before 1970 reveals little or no previous usage of the words in our educational sense. Now advertisers, as well as educators, use them constantly. In other words, comparative research contributed directly to international perceptions and dialogue in a social as well as an 'educational' context.

For educators the essential point is that a comparative research programme identified a new constituency, and not just one of age or class or 'ability'. Young adults—and also older 'returners' needing a fresh start or topping-up at 'young adult' level—are increasingly provided for in a specific reorientation of post-compulsory education, with perspectives on lifelong learning beyond that (See King, 1999; Evans *et al.*, 1999).

A New Landscape of Learning

Why spend so much time here on one research programme among so many much larger enterprises? The answer is that we have a small pointer to real change, a reorientation towards lifelong education for uncertainty in an alien landscape. The frontier horizon of young adults gives a clue. They see everything afresh. All education today lingers in an altered landscape and time-scale of re-learning. At the beginning of the last century and until the 1960s the background to comparative studies was dominated by giants, the USA, the USSR, Japan, while the foreground was full of lesser giants such as France, West Germany, and any others you might care to name. Frontiers now shift with every decade, and the relative influence of the powers within them alters even faster.

Thematically, the main issues for comparative study in the 1950s and 1960s seemed to be comprehensive versus selective schooling, or the expansion and diversification of higher education, or readiness for technological/commercial competitiveness in globally constraining rivalry. Of course, developing opportunities for the neglected and disadvantaged was taken into account; but remedies suggested in terms of existing educational institutions and scholastic strategies may be no more fitting to meet today's and tomorrow's needs than castles and suchlike are appropriate for modern warfare.

The old public for 'education' as previously conceived has gone. Schools and higher education as we knew them in the optimism of the 1950s are less dominant, far less trusted to do all that is expected. Hierarchies of educational power and prestige persist, although membership of them is now accessible to 'outsiders', not only in terms of people but of academic studies both 'pure' and 'applied'. In fact, that distinction is already outmoded. So is the former line drawn between pre- and post-graduation studies, or the line between academe and industry.

Meanwhile the old centres of industrial power, physically or in terms of influence, have decayed. There is accelerating migration of the former urban workforce not only to suburbs and new 'sunbelt' cities' but to high-tech home-based occupations. People everywhere care much more about how to live, and for that they often take lessons from the young. In tandem with this tendency, social units such as the family, 'professions' and careers no longer have

a predictable shape. Older theorists and providers are more frequently shown not to have done their homework properly in learning from people's real-life learning experience.

The central field for comparative studies of learning henceforth is here. Although this statement is radically challenging, it is not iconoclastic or novel. It is implicit in Popper's denial of predictability, and in his emphasis on repeated trial-and-error refutation of any 'prediction' or hypothesis. In fact, in his later writing Popper clearly conceived of knowledge not as being 'possessed' but as being continuously made in people's minds, and intelligible only in evolutionary terms. In any case, even on the factual side of learning Hans Kornberg of Cambridge pointed out years ago that he was teaching undergraduates knowledge that was not simply unknown a short time previously but actually *unknowable*, because the instrumentation for its discovery had not been invented.

These observations do not relate only to the material sciences and philosophy. As I have said elsewhere, civilisation itself is a conversation down the ages about the things that matter most. That is a fundamentally comparative process. The comparative study of education is now more than ever an evolutionary process (King, 1989), because now far more of mankind can participate as *contributory* partners. At this millennial turning-point, continuously updated comparative studies of learning, both personally and together, are more necessary and potent than ever. Mini-computers and hand-held devices such as mobile phones are becoming nearly universal—not just for receiving but for *interaction*. They reach beyond any national or officially intended 'system'. Education and re-education today are in a market that is increasingly accessible and free. No non-comparative formula can be anything but presumption.

We must be careful not to be exclusive. R.M. Hutchins once spoke of the progress of thought as being sustained by 'giants calling from peak to peak' through time and space; but anyone familiar with mountains knows that such calls echo round the heights until they blur into a murmur, while ordinary people in the valleys get on with life regardless. Now education and re-education in one form or another can involve nearly everyone in a lifelong evolutionary process.

'Distance education' (that is, provision for people to learn outside school) has been with us in various forms for ages, but took on firm shape in the 1920s in places such as the University of South Africa (UNISA). Since then the Open University in the UK and parallel developments in many other countries have brought higher learning within the reach of homebound or working people whose previous schooling was limited or inappropriate to present needs. Previous academic sanctums are opening up to all. Opportunities to learn, unlearn and relearn are now within reach. In urbanised countries most young people now can use a computer; there are computers in many of their homes. In 1999 much publicity was given to a Brazilian venture which had established in very poor slums more than 100 schools using computers cast out by firms which constantly update hardware and software.

All such ventures give opportunities to contribute to the 'great conversations' of mankind. From the huge first computers of 30 years ago we have progressed through laptops to palm-size (or smaller) access to the communications and reciprocal learning systems of the whole world—through hand-held phones as well as other mini-computers. The Internet was invented only in 1984, yet it is already integral to every form of communication, commerce and learning. Interactive and instant communications world-wide, together with human responses, make ever more questions thinkable, ever more hypotheses testable. We are all potential re-educators in some sense, in every sense lifelong re-learners.

The interplay of present opportunities with our cultural inheritance and traditional systems of educating each other is of immense complexity. It is urgently in need of radical examination, since venerable institutions are being turned inside-out. People used to speak of

'encyclopaedic' knowledge, as something documented and treasured for a lifetime. Parents invested small fortunes in acquiring it for their children. As a parable for our times we note that in 1999 the *Encyclopaedia Britannica's* 32 volumes and 44 million words were not merely comprised on CD-ROM but made available free on the Internet.

The careful and supportive study of such revolutionary challenges to the entire learning and teaching process in an unforeseeable world is now comparative education's prime commitment.

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