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CHAPTER 23

Some Barriers to the Introduction of Competency-Based Education

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As we have seen, there is no doubt that higher education, like education more generally, *should* be primarily concerned with nurturing general transferable high-level skills or competencies. Further evidence supporting this claim comes from the work of:

- Roisen and Jepson[1] - who showed that employers are primarily concerned to recruit graduates who possess initiative, the ability to get on with others, problem-solving ability, and the ability to build up their own understanding of their organisations and society and thereafter play an active part in them.
- Flanagan[2] - who showed that it was such competencies that people were most likely to say their education should have helped them to develop and that, where they had been developed (usually through involvement in committee work related to extracurricular activities), it was these developments that represented the most important benefits of their education.
- Marris[3] - who conducted a remarkable comparative study of a number of universities and colleges in Britain, eventually coming to the conclusion that the universities need to distinguish three roles: the transmission of up-to-date specialist knowledge through short, packaged, modules; the development of general high-level competencies; and the provision of courses which enable people to pursue topics that are of particular interest to them - primarily for leisure purposes.
- Winter, McClelland, and Stewart[4] - who showed that the most important benefits of higher education were only available to those who attended ivy league colleges and that these benefits consisted of the development of high-level competencies. These high-level competencies were developed through working with individual members of staff in demanding research activities. Importantly, the main benefits of having developed them were reaped by the community at large rather than as income for the individuals concerned. (Marris reached similar conclusions by comparing the experience of students at Cambridge with those at a number of other institutions in the United Kingdom.)

Actually, it is not necessary to cite any such evidence to come to the conclusion that the main role of institutions of higher education in promoting student development and understanding *must* be to nurture generic high-level competencies (and not to communicate specialist knowledge), because it follows from the simple observation that employers select bankers from chemists, managers from arts graduates, accountants from geologists, diplomats from physicists, and so on. Fewer than 60% of graduates find employment in their discipline of study.[5]

Yet, despite this evidence of the importance of such qualities, few schools or colleges do much to nurture them.[6] And, despite the allocation of huge amounts of time and money to the task, most of those who have tried to create educational programmes that do devote time to trying to nurture them have either given up themselves or had their programmes closed down by others - or the programmes have lapsed when they retired.[7] This has proved to be true of even well-funded, theoretically-based, programmes such as those of Argyris and Schön.

The fact that most schools do not do much to nurture the wider aspects of competence is perhaps more remarkable than the failure of colleges to do so, since the notion that they *should* do so has been promulgated - with the aid of considerable investment in curriculum development programmes - for more than a century. In the last decade or so in Britain, the heavily funded Technical and Vocational Education Initiative (TVEI) was also meant to be centrally concerned with the development of problem-solving ability, the ability to communicate, the ability to work with others, and the competencies which make for enterprise, but it generally failed to implement the necessary activities.

Why do such programmes so often fail to get off the ground in the first place, fail to work, or fizzle out?

Schön attributes the failure of his attempt to reform management education at the Massachusetts Institute of Technology to the hegemony of the technico-rational model of competence and the way lecturers can gain prestige and advancement only by working within disciplinary structures. But there was also the problem that no one really knows what managerial competence involves or how to recognise it in the workplace. Schön's students therefore knew only too well that they would in future be promoted not for displaying managerial competence but for doing what they are required to do in traditional colleges: that is, for parading the "right, bright" ideas in front of superiors. Eraut[8] has noted the same thing in teaching. In the course of in-service education, teachers learn to say the right things to advance themselves in their careers - that is, they learn "policy-speak" so as to be able to tailor their utterances to currently fashionable policy debates and thus make a good impression on career gatekeepers. This does not help them to do a better job in their classrooms. In any case, there is very little understanding of the meaning of competence in the classroom, let alone about how to assess performance against appropriate criteria. The whole notion is problematic. No one knows what good teaching consists of. And the problem only becomes worse when one realises, first, that the teacher's job is to nurture a wide variety of *alternative* high-level competencies in different pupils or students (for how is one to evaluate a teacher's ability to nurture a *variety* of competences that cannot be specified beforehand?) and that to do so they have to intervene in the host of societal systems processes which, while external to schools, nevertheless overwhelmingly determine what *can* be done within schools. Inability and unwillingness to tackle these external constraints thus lies at the heart of teachers' incompetence. As we have seen, Boyatzis, et al.,[9] like Schön, found that it was the *students* who were most resistant to change - mainly because there was no way of getting credit for having developed the desired competencies in a form that would count when the time came to

get a job.

Because of the documentation available, experience at the School of Independent Studies at the North East London Polytechnic is particularly revealing. With the benefit of hindsight, it would appear that the main problems encountered by the School included the fact that, while there was indeed a specific orientation toward competency-based education, ways of thinking about competence and the implications for the role to be played by members of staff were never clearly articulated. Instead, the programme was presented as being concerned with non-traditional students who, it was argued, possessed competencies that higher education had traditionally overlooked; the programme would stem academic drift and introduce individualised forms of "learning."[10] Very quickly, therefore, the School was asked to demonstrate that it was a quality programme equivalent to a traditional degree.[11] Since the accepted way of doing this involves demonstrating that one's *entry* qualifications are high, this resulted in the School being pressurised to bring its admission requirements more into line with those of other departments. In the event, however, the School's willingness to admit "otherwise qualified" students was accepted - but for quite other reasons that, in the end, contributed to its undoing: the Polytechnic as a whole discovered that the School's argument enabled it to admit more students and thus obtain per capita funding from government without having to make any great investment in the infrastructure required to support independent studies. Then there was the problem of specifying outcomes. Although a remarkably innovative procedure for breaking the hold which traditional degree examinations have over course content had been carefully thought through and - incredibly - negotiated with the Council for National Academic Awards, it is not clear that the discussion was really conducted in terms of high-level competencies. Although there was an almost unique - and absolutely essential - emphasis on time being set aside for students to think through their needs and to plan individualised programmes of work, it is not clear that those concerned were provided with a conceptual framework to help them to think in terms of multiple talents and the processes needed for their development. (Make no mistake about it, however, these two components - change in certification and personal counselling are *crucial* to the success of competency-based education.) In the end - so far as can be judged from the writings of Robbins[12] (who, remarkably, remained with the School from its conception to dissolution without apparently ever developing any insight into what it was all about) - the staff eventually lost sight of the School's original competency-oriented objectives, drifting into vague humanistic educational programmes (of the "they will have learned something from the exercise" variety[13]) on the one hand and individualised subject-competency-oriented programmes of study on the other. This led Robbins to recommend that the School return to a discipline-based focus and this, in the end, was exactly what happened as a result of a review by Her Majesty's Inspectors of Schools (HMI's). In a sense, this can be viewed as yet another triumph for the processes that have elsewhere perpetuated discipline-based study. But there is a gloss: HMI's main criticism was not of independent studies or competency-based education. It was that the Polytechnic as a whole had not supported the School of Independent Studies with the infrastructure which would have been required to make independent studies work. Instead, the Polytechnic had seen Independent Studies as a means of increasing student numbers - and therefore cash flow - at minimum cost.[14]

In the remainder of this chapter, the - often surprising - barriers to work in this area that have come to light in the course of our research will be summarised.

Lack of Understanding of the Nature and Development of High-Level Competencies

One major problem, already highlighted in this book, is that, despite the advocacy of work in this area, there is little formal, explicit understanding of the nature of qualities such as those that have been mentioned, how they are to be fostered, or how their development is to be monitored for formative or summative purposes.[15] It may be thought that this is sufficient to explain the lack of progress.[16] Unfortunately, as the experience of Schön and others has shown, this is far from the case.

The Problem is Not a Lack of Time, Money, Resources, or Staff Training

Before moving on to discuss the less obvious barriers, it is important to appreciate that the significant barriers to educational reform do not include a lack of time, money, resources, traditional support staff, staff training, or accepted forms of staff development.

In the United Kingdom, numerous attempts, each costing millions of pounds, have been made to reform the educational system. These have included the introduction of comprehensive schools and mixed-ability teaching (both of which were, in part, designed to stimulate the invention of ways of identifying and fostering more of the talents of more of the pupils and to focus attention on ways of cultivating talents which are, in many ways, more important than those that pass for academic ability in most schools), some of the curriculum development projects of the 1960s and 1970s (e.g., Nuffield Science and The Schools Council Integrated Science and Humanities Projects) that were intended to foster a wider range of competencies, and the introduction of profiles and records of achievement (which were intended to enable pupils to get recognition for a wider range of talents and thus legitimise more broadly based programmes).[17] None of these "initiatives" met with notable success. They are now being joined by the (equally well funded) TVEI (the programmes for which, as actually implemented on the ground, rarely even address the wider competence objectives [i.e., the development of initiative, the ability to communicate, the ability to work with others, and the qualities that make for enterprise] laid down in the TVEI *Guidelines*), the Manpower Services Commission's (MSC) Higher Education Initiative (intended to foster similar qualities), the Scottish Consultative Council on the Curriculum's guidelines for Secondary Education, and the attempts to improve education by specifying curriculum content, testing pupils and teachers, devolving power to school boards, and offering parents and pupils a choice of school in the context of published performance data.[18]

Progressive education has a still longer history of well-funded and resourced attempts to tackle the problems which confront the educational system. These include the efforts of Dewey,[19] Aikin,[20] Caswell,[21] and the Newton School System.[22] Dewey had one adult to every four pupils in his experimental school. Billions of dollars and endless teacher and support time, as well as professional assistance from university staff, were poured into seven U.S. school systems. Yet, in all these experiments, only about 5% of the teachers ended up doing what it was hoped they would do.[23]

Lack of resources and time for conventional development work are, therefore, not among the main barriers to the introduction of effective education.

The other contributory factors that have emerged in the course of our work will be

discussed under nine headings.

(1) *The absence of tools to help teachers and lecturers to manage multiple, individualised, competency-oriented programmes of education.*

Running competency-oriented educational programmes is a creative and inventive, but difficult and frustrating, job. As indicated in an earlier chapter, teachers or lecturers have to find out what each student cares about and is good at, invent a personalised developmental programme which will enable the student to practice (and thereby develop) some of the wide range of competencies that it is possible for them to develop and which are needed in society, monitor the student's reactions to those experiences, and take corrective action when necessary. When there are 30 or more students in a class, this is an almost superhuman task. We have found that those teachers who do manage it have painstakingly - and often at considerable personal cost - developed the necessary sensitivities, monitoring strategies, and competencies over many (perhaps 20) years.[24] If more teachers and lecturers are to do what these outstanding teachers appear to do "instinctively," it will be necessary for them to have some tools that will help them to undertake the activities mentioned above explicitly. Those tools will have to enable them to identify each student's motives or values, initiate personalised developmental programmes for each student, and familiarise them (the staff) with the concepts they need to think about multiple talents and their development[25].

(2) *The absence of the means of giving students, teachers, and lecturers credit in the certification and placement process for their achievements in these areas*.

The next problem is the absence of appropriate summative assessment procedures. To understand the importance of this, we must first note that most students and parents now know that the main benefit offered by the "educational" system is not education at all. It is the award of certificates that will buy entry to courses of further and higher education and thence entry to protected occupations - that is, occupations which afford access to a disproportionate share of the good things in life.[26] Students therefore face a dilemma when they are offered programmes that are genuinely developmental but which do not lead to tradable certificates.[27]

Teachers and lecturers have a similar problem. They would be jeopardising their students' life chances if they offered them programmes that nurtured important high-level competencies but, by taking time away from the syllabi on that they will be tested, simultaneously reduced their chances of obtaining high grades. Perhaps just as important, since teachers' and lecturers' reputations depend on their students' grades, they would be jeopardising their own career prospects as well.

It is for these reasons that it is what is assessed in the certification and placement process - and not the educational aspirations of parents, pupils, teachers, lecturers, curriculum councils, ministers of education, or anyone else - that primarily determines what happens in educational institutions.[28] Teachers and lecturers would generally prefer not to recognise this sociological reality and address the dilemmas it poses.[29] Many of them come into teaching because they want to help people and do a worthwhile job in the community.[30] They resent - and are demeaned by - the child-minding and social allocation roles that society thrusts upon them. Rather than think about how the sociological imperative that educational institutions allocate position and status

might be grasped and satisfied in a way which would push them in the direction in that they wish to go, they want someone else (such as employers) to perform these tasks and leave them free to get on with education. Unfortunately Dore's[31] data shows that this is sociologically naïve. Teachers' and lecturers' behaviour continues to be determined by what is assessed in the certification and placement process, regardless of who does the assessing.

Actually, ways of assessing high-level competencies are needed not only for certification purposes. They are also needed if lecturers, teachers, and students are to be able to monitor progress toward important goals and obtain the feedback they need to improve their performance - and, indeed, if they are to know that they have accomplished anything worthwhile in the time they have devoted to the activity. Means of assessing such qualities are equally badly needed for use in evaluation studies and accountability exercises. If no such measures are available, the educational system's failure to achieve its main goals will continue to be unknown on the "factual" register that largely determines the educational policy-making agenda. So long as it is known only "intuitively" - in the way it is currently known to parents, teachers, students, and employers - it does not figure in the discussions which determine educational policy. Proposals to improve education will continue to focus on the easily measurable (but relatively trivial) and miss the important (witness the way the philosophy of educational improvement through testing has swept the world).

The growth of the "profiling," "reports of personal experience," and "statements" movements is, of course, fuelled by a recognition of at least some of these facts.[32] These movements are, unfortunately, nevertheless about to demonstrate, yet again, the truth of my earlier proposition that the problem is not one of money, resources, and goodwill. They, like the great educational reforms that have preceded them, will fail because they do not sufficiently recognise either (a) that both (i) changed educational processes and (ii) the development of a new psychometric model are prerequisites to obtaining meaningful assessments of such qualities, or (b) the dilemmas (which will be discussed below) which are involved in assessing competencies that are, as we have seen, *by nature* permeated by values.[33]

(3) *The conflict between the procedures that are required to foster high-level competencies and the widely held view that "teaching" means "telling."*

The activities which are required to promote the development of high-level competencies are best indicated by the term "facilitating growth."[34] Yet, overlooking the fact that fostering the abilities required to read, write, and count involves advancing skills or competencies, most people believe that teaching is about "telling" - transmitting *information* from teachers and lecturers to students. Schön[35] has thrown the problem into sharp relief by arguing that while the culturally dominant claims of the technical-rational model of competence has driven the concept of professional competence into a corner, discipline-based studies are unable to help people to develop the competencies they will need to deal with the unique, uncertain, changing, and messy situations that they will later encounter. Such programmes therefore output graduates who are no more competent than they were when they started. He found that the claims of the dominant belief system (perhaps combined, although he does not say so, with the widespread recognition that advancement, both in the educational system and outside, is achieved not by possessing and displaying any kind of useful competence but by demonstrating familiarity and facility with the "in" words and jargon desired by those above one), were so deep-rooted that change was virtually

impossible: Despite attempting to do so for 15 years, he and Argyris together were unable to introduce the types of programmes that they had observed in architecture, music, and psychoanalysis into other - even nominally "applied" - areas such as management education.

This equation of education with "telling" on the one hand and knowing the "right" things to say on the other has resulted in a vicious cycle: Teaching as a profession recruits a disproportionate number of people who want to be the centre of attention and the source of wisdom, and these are exactly the sort of people that many pupils and students think they want as "teachers."[36] Those who have the skills and sensitivities which are required to facilitate growth tend not to become teachers or lecturers in the first place - and are, then, often rejected by pupils and students if they do find their way into teaching. The conflict between the satisfactions that most teachers and lecturers want from teaching and those available to those who facilitate development - even in language laboratories - results in many teachers and lecturers finding such activities so distressing that they corrupt them back into telling.

Nuttgens[37] has developed the same argument for pupils and students. In the educational system we promote and advance those who are least willing and able to do anything useful (and squeeze out those who are willing and able) precisely because these are the ones who can most clearly see through the system and realise that what is presented as useful is of little value other than as a means of securing personal advancement. The students who remain are those who are least capable of making their own observations and least interested in developing, and least able to develop, competencies which are useful for anything other than securing personal advancement. Not only does this make change in the educational system increasingly difficult as one moves to higher levels, those who remain are set on tracks which lead to influential positions in society. They continue to earn promotion in the world of work in the same way, scorning management development programmes that would actually help them to do their jobs more effectively but would not provide them with words to show off to their superiors. McClelland[38] independently documented this process several years ago: Those people on whom our society is most dependent for innovation - that is, those who have a high need for achievement - are typically dropouts from school.

What these observations show is that there is a serious conflict between the role required of teachers and lecturers if they are to facilitate the development of competence and:
i) The accurate observation of parents, pupils, and students that the "educational" system is not mainly about developing competence but about legitimising the rationing of privilege and teaching people how to buy personal advancement by ingratiating themselves with their superiors, and
ii) The satisfactions that teachers and lecturers want from their jobs.

If progress is to occur, it will be necessary to get this conflict out into the open and ensure that it is addressed.

If more emphasis is to be placed on facilitating the growth of competence, it will also be necessary to challenge another assumption that derives even more directly from the technical-rational model of competence. This is that "learning" can be chopped up into 40-minute "periods" or 40-hour "modules." While there is no doubt about the need to create a greater variety of short, specialist, up-to-date, knowledge-based modules to support individualised, competency-oriented, educational programmes, it is crucial to recognise that high-level competencies mainly develop whilst people are involved in difficult and demanding activities which occupy an extended period of time but that, in the end, lead to something worthwhile (thus enabling those concerned to

experience the benefits and satisfactions which come from having engaged in such difficult and demanding activities and thus reinforcing the tendency to engage in them). What this means is that it is essential to organise modularised material around the ongoing developmental process - and not to try to organise competency-oriented educational programmes around, or through, modules.[39]

(4) *The problems that stem from the transformational nature of the educational activities which are required to foster high-level competencies.*

To promote the development of high-level competencies one starts by studying students' motives and incipient talents. One then tries to invent individualised developmental experiences that will test one's initial hypotheses about incipient interests and talents and the processes which will lead them to flower.[40] One cannot know the outcome of this process in advance. One may end up doing things that are quite different to those one initially envisaged. Unexpected talents surface and develop. In this way students are *transformed*.[41] All of this is fine from an educational point of view. But it conflicts with widely held beliefs about the ways in which public money should be spent. It is generally believed that one should not take risks with such money and that contractors (teachers, lecturers, or researchers) should be able to specify in advance what the outcome of the expenditure will be. Funding an *adventure* that may (or may not) transform people or existing understandings is viewed as not merely risky; it is viewed as illegitimate. The solution to this problem has to do not only with legitimising venturesome activity in the public sector. It also involves finding ways of identifying the sorts of people (whether teachers, lecturers, or researchers) who are able to capitalise on what they stumble across in the course of an adventure - that is, people who are able to recognise the value of something they have come upon "by chance" and turn it to advantage. To do this, it will be necessary to develop staff appraisal tools that will make it possible to identify, recognise, reward, and encourage among teachers and lecturers the very competencies that we have been concerned with in this book.

(5) *The dilemmas associated with catering for diversity*.

We have seen that high-level competencies can only be nurtured when people are doing things they care about and that this means tailoring developmental tasks to students' personal values, priorities, and motives. It is sometimes impossible for one group of students to pursue goals which they care about in the same class group in which other students undertake tasks *they* care about. For example, one cannot, in the same classroom, meet the needs of those pupils who want to develop toughness and strength and those who wish to develop the sensitivities required to learn how to set their minds to the dreamy state required to notice the fleeting feelings on the fringe of consciousness that form the germ of nearly all creative new insights and slowly bring them to the centre of attention so that they become articulate and communicable.

This need for variety and choice conflicts with the widely accepted emphasis on equality and uniformity in public provision (The British National Curriculum has gone over the top on this). It is therefore essential to make explicit, and possibly challenge, the reasons for this distaste for variety in the public domain. One of its causes is the experience-based belief that such variety leads to a *hierarchy* of options - running from those which are of high quality to those that are poor - rather than to alternatives which are very different from each other, but all of which are of

high quality. When the quality of provision varies only from good to bad, the more informed, articulate, and powerful get the best deal.

It was to counteract this tendency that education was brought into the public domain in the first place. If the stultifying effects of the emphasis on equality in public provision are to be reduced, it will therefore be necessary to introduce much more effective quality control mechanisms to both (1) document the personal and social consequences of each of a number of demonstrably different options and (2) assure the public that each option is of high quality.

Another objection to providing variety and choice in public education is the fear that it will lead to the ossification, even exacerbation, of class differences in the social structure. Fortunately, the available evidence does not support these fears. In the first place, a wide variety of different patterns of competence is required in modern society. Even a single occupational group requires people who want do very different things and who possess different patterns of competence. For example, Taylor and his colleagues[42] have shown that there are 20 different types of outstanding physician and 12 different types of outstandingly creative scientist. Second, no one person could possibly develop all the concerns and patterns of competence we have identified in the course of our work.[43] Third, students have very different preoccupations, concerns, and talents: they want very different things from their education and very different satisfactions from their work.[44] Fourth, this variation is more closely related to the occupational destinations pupils are bound for than to their social origins - indeed, there is wide variation between the values and aspirations of pupils who come from similar backgrounds.[45] Fifth, there is, in our society, a great deal more intergenerational social mobility - both upward and downward - than people believe. Thus Hope[46] found that there is as much social mobility in Scotland as there is in the United States, and Payne[47] showed both that 72% of adults in Scotland were upwardly or downwardly mobile by at least one category and that 20% of Class 1 occupants originated in Class 7. The picture is therefore a great deal more complex than has often been thought, and it points very strongly toward the need to respect, and build on, the variance in students' values, priorities, and patterns of competence instead of "inculcating middle-class values into working-class children." The spectre of teachers perpetuating socio-economic divisions and creating a caste society if they treat different students in different ways therefore does not seem to be well founded.

(6) *Value conflicts*.

A host of serious problems flow from the fact that high-level competencies are heavily value-laden and involve social and political beliefs.[48]

The first is that any teacher or lecturer who attempts to foster high-level competencies is invariably confronted by parents and pupils who do not value either (1) the competencies (such as the tendency to ask questions or the ability to find information for oneself) which the teacher hopes to foster or (2) the activities the teacher hopes to initiate to allow pupils to practice, and thereby develop, such competencies. (A teacher might, for example, plan to foster a range of high-level competencies by encouraging a class to try to stop a factory polluting a local river - an activity that would almost certainly generate immediate resistance from some parents).[49]

There are several reasons why this problem cannot be resolved simply by offering the public a variety of programmes which are tailored to different values and which aim to foster alternative talents. Among them are:
  a) As we have noted, the idea that teachers and lecturers should treat different students in

different ways conflicts with the current emphasis on equality in public provision.

b) Even parents who are basically in favour of educational institutions nurturing high-level competencies are faced by the dilemma that working at such activities will take time away from subject- and-grade-oriented activity. However, a related problem is that, while many parents want their children to enjoy the economic and social benefits that are associated with high-status managerial jobs, they do not want them to do some of the things that it would be necessary for them to do in order to develop the competencies required to perform those jobs effectively. For example, managerial ability involves the ability to ask pertinent questions, yet many parents do not want their children to ask questions - particularly if it would mean that they themselves would have to justify their commands. Another important competence is the ability to venture into the unknown, yet many parents cannot tolerate the anxiety which arises when their children undertake tasks which are on the verge of their capabilities.[50] Worse still, many parents (and teachers) know that they themselves lack the competencies which are required to manage independent, adventurous, children who take initiative, think for themselves, and guide their behaviour by reference to personalised reason-based moral codes.

c) Many parents not only do not, on balance, want educational institutions to foster high-level qualities in their own children, they do not want them to foster them in other people's children either: If they did, those other children would do better in life than their own. This is one reason why so many people oppose private schools even when they would not send their own children to them even if they could. Private schools can, and often do, inculcate important values and political beliefs - and foster important value-based competencies. But any state school that attempted to do the same would be engulfed in a political furore.

It follows from the observations we have made that while, in the end, the solution to the problems posed by the value-laden nature of important competencies will have to be found by offering students and parents a variety of demonstrably different educational programmes, the provision of variety is not sufficient in itself. It will also be necessary to, at the same time, surface and challenge many social and civic beliefs and resolve some of the dilemmas that have been identified.

To resolve those dilemmas it will be necessary to:

i) Systematically generate a range of educational programmes that will appeal to people with very different concerns and incipient talents and which will lead them to develop very different concerns and patterns of competence.

ii) Accumulate much better research data on the consequences of each of the alternatives for the students concerned and for the societies in which they live. (Such data should include information on the consequences of each option for (a) the patterns of life satisfaction and competence the students develop at the time, (b) the career options open to the students in the future, (c) the patterns of life satisfaction and frustration that those concerned are likely to experience [in the context of alternative changes in society], and (d) societal change itself.)

iii) Develop the tools and structures that are needed to (a) assure the public that the options, although distinctly different, are all of high quality, and (b) administer that variety equitably.

It follows from these observations that if the public is to be offered a variety of options

which have very different consequences and be invited to choose between them, we will need to run our society very differently. Among other things, the public service will have to (1) invent, and provide in each community, a variety of options, and (2) collect, and provide people with, the information they need to make meaningful choices between those options.

The second of these implies that the public service will need to feed information *outward* to the public, rather than upward through a bureaucratic hierarchy to elected representatives who take decisions *for* the public. This will mean that the main decision-makers will be the public, not elected representatives.

The task of supervising the information collected and disseminated at each level will require much greater public and media involvement. If this is to happen we will need a much more transparent public bureaucracy, changed roles for elected representatives, and changed citizenship activities. Put another way, we will need to develop new, network-based, participative (rather than representative) forms of democracy to monitor and influence the public service.

It appears, therefore, that (1) fundamental research directed toward the solution of these practical problems, (2) a wide range of development activities, and (3) programmes of adult civic education to promote the evolution of new means of managing society are unexpected prerequisites to effective education. It follows that one of the first steps to be undertaken by institutions of education is, somewhat surprisingly, to change the beliefs they lead their students to adopt about the procedures that are required to promote social development.

A second problem posed by the value-laden nature of competence is that fostering important competencies means influencing students' values and political, economic, and civic beliefs. This raises the spectre of brainwashing. Once again, the dilemmas this poses are most likely to be resolved by finding ways of making what is going on more visible, by providing markedly different options, and by providing better information on the long-term personal and social consequences of each of the alternatives.

But a still more thorny issue must be addressed. We have argued not only that all important competencies are value-based but also that the effective operation of both our educational system and our staff guidance, placement, and development systems is dependent on the *assessment* of these value-laden qualities. The spectre of explicitly assessing value-based motivational dispositions for these purposes throws the moral questions associated with educators working in this area into sharp relief.

There are a number of things to be said about this issue. The first is, obviously, that unless these questions are addressed, we will continue to squander vast resources on demoralised teaching staff, indifferent students whose aim is not to learn anything worthwhile but to beat the system, and a dysfunctional "educational" system which offers little more than a means of legitimising the allocation of privilege on the basis of qualities that are in reality unrelated to occupational or social performance. The second is that failure to address the issue only drives it underground: People will still try to assess these qualities - but continue to do so by selecting ex - "public school" (ie private school) students or seeking assessments over the telephone - in the course of which those concerned will get information based on chance (and highly unreliable) observations and interpretations of students' behaviour, and without those students having any opportunity for redress. The third is that failure to address these issues means that, as a society, we will continue to promote a disproportionate number of the *wrong* people - that is, highly self-interested people who destroy their organisations in the quest for personal advancement or people whose only competence is the ability to earn prestige and advancement by demonstrating a facility

with words that have little connection with current economic and social realities - into senior management positions in society.[51] Once again, therefore, the way forward seems to involve programmes of adult civic education designed to lead people to think through these issues.

Throughout this section we have noted the importance of adult civic education. We may now note that the success of any such activity will be critically dependent on better information about the personal and social consequences which follow from people possessing alternative competencies and belief - consequences which will vary with the social and organisational structure in which they live and work. Not only is little research of this kind available, there is both little recognition of the need for it and a widespread belief that it would be too difficult to carry out. To make the problem still more intractable, these misunderstandings and oversights are part of a more general climate in which social research is not viewed (by most social scientists as well as most public servants, politicians, and members of the public) as relevant to the solution of important and pressing problems but, like the educational system itself, mainly as a route to personal advancement.

(7) *The barriers posed by the latent functions of the educational system.*

By now we have seen that the educational system (a) nurtures the tendency to work out which behaviour one's superiors will favour and then to do whatever is necessary to secure one's preferment regardless of the consequences for one's organisation or society,[52] (b) breeds that kind of facility with words that enables people to create a good impression by using fashionable phrases, (c) advances those who are best able to do these things, (d) squeezes out those who are most anxious to act in the long-term interests of society and those who are best able to invent new ways of thinking about and doing things, (e) selects those who are, because of personal ambition or naïveté, most willing and able to undertake the fraudulent "work" of modern society, and (f) operates to perpetuate an inequitable society by legitimising the way in which privilege is rationed instead of fostering and promoting those best able to identify and introduce changes in the way society is organised. We have also seen how educational programmes which foster the ability to enquire into the workings of society become the targets of systematic campaigns to destroy them and tend, in any case, to be choked off by the reactions of the system of that they are part. These processes make it very difficult to change what happens.

It is time now to introduce further observations about the functioning of the educational system. The first of these is that the way in which it works mirrors the way modern societies work. To substantiate this claim we must first recall from our introductory chapter on the learning society that, despite its rhetoric, the main things manufactured by the marketplace are: (1) useless jobs, and (2) discriminations which compel participation in the make-work activities of which modern society is largely composed. There we saw how the insurance industry manufactures endless jobs and magnifies differences between the rich and the moderately rich in such a way as to induce all to invest in private insurance. The educational system works in much the same way: It creates activities that occupy a lot of time of a lot of people - not only of pupils and students but also of teachers, lecturers, administrators, researchers, publishers, librarians, editors, and test agencies; it manufactures discriminations - both in schools and in lifetime earnings - between individuals whose competence differs only slightly and obscures differences in ability and contribution to society that are of vital importance; it makes use of norm-referenced assessments which require more people to spend more time in the system to attain the ever-higher educational

qualifications deemed "necessary" to enter the same occupational position and creates a situation in which the "incompetent and ignorant" must by definition forever remain with us (and thus in need of "education," denigration, ostracism, and "motivation by low income"). The processes we are describing are purely sociological, but they clearly contribute to the difficulties involved in introducing change.

We have also seen how the job definitions laid down for teachers, the denigration of those whose pupils do not perform "well" in norm-referenced assessments as "lazy and incompetent," and the (norm-referenced) accountability procedures set up to check on them force teachers to concentrate on low-level goals, neglect any attempt to intervene in the wider social constraints that prevent them working effectively, and thus behave in ways which are both incompetent and unethical: They do not do the things they would need to do to run any educational programme worth the name; they applaud the gullible and self-interested among their pupils; they ignore, and fail to develop, most the motives and talents of most pupils; they join in the chorus that denigrates many pupils as stupid and incompetent; and they participate in the process of assigning such pupils to a social scrap heap in which they are treated in demeaning and degrading ways. Clearly, in failing to nurture their pupils' talents - talents which are vital if society is to get out of the mess it is in - such teachers are behaving incompetently (albeit that competence would require them to get outside their classrooms to influence the constraints that force them to behave in this way). But their behaviour is also unethical. This is true both in the sense that they unjustifiably assign large numbers of individual pupils to a demeaning lifestyle and in the sense that they fail to nurture talents which it is vital for our students to possess if they are to transform our society in such a way that the human species will *have* a future - never mind a *desirable* future.

But these are not the only ways in which the educational system seems socially functional in the short term but dysfunctional in the longer term: The system also operates as if it were designed to lay the blame for the ills of society at the door of the uneducated and those who are least able to do anything about social problems instead of at the door of the leaders and managers of society. In the same way, the "devolution of management and control" procedures currently being widely advocated for the educational system throughout the world seem designed to lay the blame for the ills of the educational system on teachers and parents rather than on the administrators and politicians who could do something about them: Teachers and parents are in no position to do anything about the social constraints on what schools and teachers can do, to fundamentally alter the tests that are inflicted on schools, to influence the textbooks that get written, or to generate the understandings and tools which are required to run alternative educational programmes.

In a similar vein, by arguing that the educational system is there to nurture the qualities required to promote something called "economic growth" (but which does not deliver high quality of life) through competitiveness and then arguing that such competitiveness demands the low-level competencies which figure in the most widely disseminated lists of "necessary" "competencies," employers have been able to deflect attention away from the fact that the capitalist system has not been delivering a high quality of life but rather has been destroying the environment in such a way as to ensure the absence of a future, away from what employers have *not* done to promote climates of innovation and genuine efficiency, and away from work which promotes the long-term public interest. By highlighting the costs of schooling and of "looking after the unemployed," employers have been able to deflect attention away from the fact that it is they who have evaded payment of the most significant tax contributions, they who have created

unemployment to drive down wages and conditions of work and compel participation in an inhumane and socially destructive system, they who have acted in the most socially destructive - and unethical - ways, they who have conspired to eliminate enquiry-oriented education, they who have failed to develop and utilise the talents of their employees, and they who now wish to foist the costs of upgrading the skills of employees onto an educational system to which they have failed to make a financial contribution.

The educational system emphasises "respect for authority" while leaving those with "authority" with the right to define who will be counted among their members. It presents "science" as concerned with "knowing what is right" - that is, what authority (those in positions of power with an interest to protect) approves of - rather than a process of enquiry. As the work of Robinson[53] and others has shown, those in authority - from Mrs. Thatcher to the National Association of Manufacturers in the United States - correctly recognise that enquiring scientific minds threaten vested interests. By creating a training and assessment system that focuses on low-level "competencies" specified by authorities and assessed by means determined by authority, the educational system creates conditions in which people must accept the dictates of authority if they wish to avoid demeaning lifestyles in which their quality of life is determined by whatever indignities those same authorities choose to heap upon them. More directly, it both teaches that authorities have the *right* to decide what one will learn and what one will do, assess one, and generally push one around and gives that same authority the power to decide what knowledge - actually low-level useless knowledge - will count, thus creating a self-perpetuating structure. It creates a culture of acceptance and dependence. It prevents those concerned from developing the motivation and the competencies required to enquire into the workings of their society and get control over their destinies. The competency movement seems to have been hijacked to perform precisely these functions. Not surprisingly, those responsible for it vehemently deny that it is necessary to problematise, and enquire into, the nature of competence. But there is something else of interest there. Something of an unholy alliance seems to have grown up between those in authority in the system and "postmodernist" sociologists who argue that enquiry into the workings of the system is futile. One may therefore be forgiven for suspecting that support for the postmodernist position may be coming from precisely the same group of people as used their might to bring about the replacement of all classical economists in U.S. ivy league and land-grant universities by neo-classicists in order to discredit the observations that the classical economists had made and introduce the obscuranticisms of the neo-classicists.

Perhaps the most insidious aspect of the educational system is that it nurtures the tendency to accept things that are not what they seem to be and promotes those who are most willing to quote the conventional wisdom despite its lack of reference to reality. Those who are unwilling to notice that things are not as they are said to be are, in the short term, ideally suited to jobs in insurance, the World Bank, "aid" agencies, welfare agencies, the public service, the food industry, and politics and government. The most pervasive, but least remarked, feature of modern society is that *nothing* is what it seems to be - and everything is, in fact, usually the opposite of what it seems to be.[54] The tendency of the educational system to disseminate false consciousness and promote those most inclined to engage in "double-talk" makes it extremely difficult to conduct any rational discussion of wider social processes.

Although it is tempting to see some kind of conspiracy in the parallelism between what happens in the educational system and the wider society and in the educational system's tendency to introduce false consciousness into discussions of social processes when these threaten the

short-term interests of those with more power in society, it is not necessary to make that assumption. The educational system has grown on the basis of myths. These include "if we all get more education we will all get good jobs" and "more education will make for economic and social development."[55] It has also grown as a result of the less mythical fact that, whatever doubts there may be about the educational benefits of the system, persisting in the educational system confers a greater likelihood of obtaining a good job. Despite these observations, Robinson's discovery that there *was* a very effective conspiracy to discredit the work of Harold Rugg is disconcerting.[56] Precisely because Rugg's books were *effective* in fostering in pupils the tendency and ability to think critically about the workings of society, the National Association of Manufacturers mounted a deliberate campaign to discredit both Rugg and his books - a campaign from which he never recovered. The documents which Robinson has reviewed show beyond reasonable doubt that this involved numerous accusations which were known to be false and deliberate lies to congressional committees of inquiry. It is hard to credit that work as innocuous as Rugg's - directed toward what is widely agreed to be one of the main goals of education - could have produced such concerted, sustained, dirty tricks. Robinson's (and Bellini's[57]) work leads one to take more seriously the claims of those, such as Chomsky,[58] who are inclined toward conspiracy theories. Their suspicions are supported by the available information on the way in which the Schools Council Integrated Science and Humanities projects were closed down and deprived of resources as soon as it became obvious that they were centrally concerned with encouraging pupils to make their own observations about how society worked (and, in the first case, deploy scientific methodology to check those observations).[59] They are also supported by observations about how a series of specific university departments - such as the Centre for Human Ecology in Edinburgh - have been closed when it became clear that their students were not only becoming embarrassingly good at asking questions but also at using what they did know to press effectively for change. They are also confirmed by the way in which the Conservative government in the United Kingdom, having inveighed against the "Questioning Students of the 1960s" and asserted the need for "people to learn their place," set about introducing changes into the universities that had the effect of eliminating most of the time available to staff for unfettered enquiry, insisting that most research be funded from commercial sources, and controlling the content of all publications based on research carried out with the aid of government grants[60].

If these observations are correct, it is obvious that it would be extremely difficult to do such things as introduce any form of multiple-talent education designed to develop and credential at least some of the talents of all of our children - because this would undermine the educational system's role in manufacturing and legitimising discriminations of a kind which compel participation in institutional arrangements which give meaning to life in modern society.

That this hypothesis is not so far-fetched as it may at first sight appear to be can be seen by reflecting on what happened to attempts to reform examinations in England and Wales. For 20 years committees of the Schools Council for Curriculum and Examinations debated the desirability of establishing a common system of examinations without coming to a conclusion. Then a Minister for Education established a new committee - The Waddell Committee - with a specific remit to come to a conclusion. The committee observed that pupils had a wide variety of talents that could only be fostered through very different types of educational programme. It noted that workplaces and society required a wide variety of people who possessed very different talents. It therefore concluded that there was a need for a wide variety of educational programmes which would foster very different competencies and in the course of which pupils would cover

very different syllabi. This led it to the conclusion that it would be necessary to retain a wide variety of examining boards which would each promote a wide variety of courses covering different content, aim at different goals, and be assessed using different forms, or "modes," of assessment. Only the latter would make it possible for pupils to get credit for having developed high-level competencies such as initiative and leadership. Then it did something that was, at first sight, inexplicable. In one sentence embedded in a long paragraph it said "the results will be expressed on a single scale of seven points in the subject area." This, of course, negated all the steps - based on all the educational and occupational observations it had made - that it planned to take to promote and cater for diversity. How does one express assessments of "leadership" on a single scale which also measures knowledge of 17th-century history? If one asks oneself what could have caused such an action one can only conclude that the sociological need for a single and unarguable criterion to legitimise the allocation of position and status - and with it a whole social system for rationing privilege - had overridden all human, educational, and occupational considerations.

What all this means is that if education is to be brought back into "educational" institutions, those concerned (including teachers and lecturers) will *as part of their professional duties deriving from their remit to achieve educational goals* have to take active steps to influence the way society is organised.

(8) *Dysfunctional beliefs about the role of the public servant.*

We have seen that competency-oriented education requires teachers and lecturers to pay attention to the needs of individual students and to invent individualised developmental programmes that will lead them to blossom. It also requires them to get together with other teachers and lecturers to invent better ways of meeting students' needs, to find ways of influencing the tests which are available from test publishers (so that tests cease to direct their attention toward low-level goals and away from high-level goals), and to influence the beliefs which parents and others hold about education itself and about how the public service should operate. Unfortunately, teachers, like other public servants, are not generally expected to be inventors and activists of this sort. They are viewed as functionaries who should do the bidding of elected representatives. To solve this problem we not only need to rethink our beliefs about how the public service should operate and to create structures (à la Kanter[61]) that promote innovation, we also need to apply new criteria to judge the effectiveness of public servants and to develop new tools to use in staff appraisal, so that teachers and lecturers can get credit for engaging in the difficult, demanding, frustrating, and time-consuming activities that are required if they are to do their jobs more effectively.

Several things follow from this brief discussion. What we are saying is that teachers and lecturers, like other public servants, should be expected to orient themselves more toward the needs of their clients than toward the directives of elected representatives. They should be held accountable for making good, discretionary, and forward-looking decisions about what is in the best interests of their clients rather than for following the directives of their superiors. They cannot be held accountable for following prescriptions, because the requisite activities need to vary so much from one teacher or lecturer to another and from student to student. If these observations are correct, it follows that new procedures are required to hold teachers and lecturers accountable to the public for high-quality performance. Yet the issue is not merely one

of criteria and tools of staff appraisal because, having once admitted the need for initiative and diversity, it is obvious that the chain of accountability cannot be purely hierarchical to distant elected representatives. Toffler,[62] Schön,[63] Ferguson,[64] Howard,[65] and I[66] have all argued that the structures that are needed to manage modern society effectively involve replacing representative democracy by new, network-based, participative forms of democracy which would be much more dependent on the involvement of local citizens, place greater reliance on formal evaluation procedures, and make greater use of (Information Technology-based) networks to exchange information. This discussion also indicates a need to move beliefs about how innovation is to occur away from faith in centre-specified (committee-specified) innovations to the creation of climates which breed innovation at all levels. How such climates are to be created will be discussed under the next heading.

(9) *The absence of an innovative educational system*.

In the course of this and earlier chapters, we have seen that the attempt to deal with the conspicuous problems of the educational system by trying to prescribe what students will learn and then find out whether they have learnt it using centrally prescribed tests of the traditional type is misguided. We have seen that the barriers to effective education are deep-seated and non obvious, that what people need to learn to do varies markedly from one person to another, that the available tests are unable to reflect the high-level competencies which students need to develop, and that our hierarchical management system has been unable to eliminate even grossly incompetent teachers and lecturers, never mind create a ferment of innovation. Pervasive innovation in every nook and cranny of the educational system is required. There is no way in which any central authority can lay down what teachers and lecturers will do, never mind prescribe what individual students should learn. Instead, the task of a central authority is to create a structure and set of expectations that will (1) lead to increasing clarity about the goals that are to be achieved and the procedures which are to be used to reach them, (2) encourage all concerned to assess whether they are achieving their goals effectively, (3) encourage them to identify the barriers to success, and (4) lead them to vigorously set about trying to do something about those barriers.

It is clear from these observations that one of the barriers to the evolution and diffusion of educational innovations has to do with the fact that the educational system operates in the context of a set of beliefs to the effect that it is the job of publicly elected representatives and senior management to establish the goals of the educational system and the procedures to be used to reach them - with its corollary that the job of teachers or lecturers is to carry out the activities prescribed by such authorities. These beliefs and expectations discourage teachers and lecturers from studying the needs of their students and trying to invent better ways of meeting them. Unfortunately, these beliefs are only part of a much wider problem: In Britain, since innovation is thought to be the prerogative of management, the educational system does not have a management structure - and a climate of beliefs and expectations - which stimulates and facilitates innovation. We have already seen that the stimulation of innovation involves creating within the educational system what Kanter has called "parallel organisation" activity focusing on innovation. What we are now saying is that we also need to replace our hierarchical management structures - our structures of bureaucracy and democracy - by network-based management structures. These will be discussed shortly. Here it is sufficient to note that the failure to create an innovative

educational system is not only dysfunctional in itself - it also has the greatest knock-on effect on society as a whole because teachers and lecturers powerfully communicate to their students their own beliefs about what it is important to attend to and how things should be done.[67]

We may conclude by noting that what has been said implies that the areas in which research and innovation are *most* badly needed in our society do *not* have to do with finding better ways of producing goods of one kind or another but with finding better ways of running society itself.

Summary and Integration

Our next step must be to note that these barriers do not operate independently. We have therefore attempted, following the procedures described by Morgan,[68] to map the connections. The outcome is presented in Diagram 23.1.

What we now see is that:

1. What happens is determined by a *system,* or *network,* of hidden social forces which drive the system.[69]

2. Any attempt to change any one part without considering the system as a whole will be negated by the rest of the system.

3. Pervasive, *systems-oriented,* change is required. But that change, although systemwide, cannot be centrally mandated because too many new things need to be done.

4. What happens is not determined by the wishes of parents, teachers, ministers of education or anyone else but, both directly and indirectly, by the sociological functions the system performs for society. One needs to take these sociological forces seriously and ask how they can be harnessed in the way that marine engineers harness the wind: They won't go away.

5. The effects of these sociological forces are reinforced by inappropriate beliefs about society and how it is to be managed. The educational system *teaches* these beliefs, and what can be done to improve it is very much constrained by them.

6. Points (2), (4), and (5), individually and collectively, (a) drive common sense attempts to reform the system ever more narrowly, and ineffectively, around the triangle at the top left of the Diagram and (b) divert attention from the necessary developments that are listed in the bottom part of the diagram.

7. The *causes* of the symptoms (and thus the appropriate place to start reform) are far removed from those symptoms.

Figure 1. Feedback loops driving down quality of education.
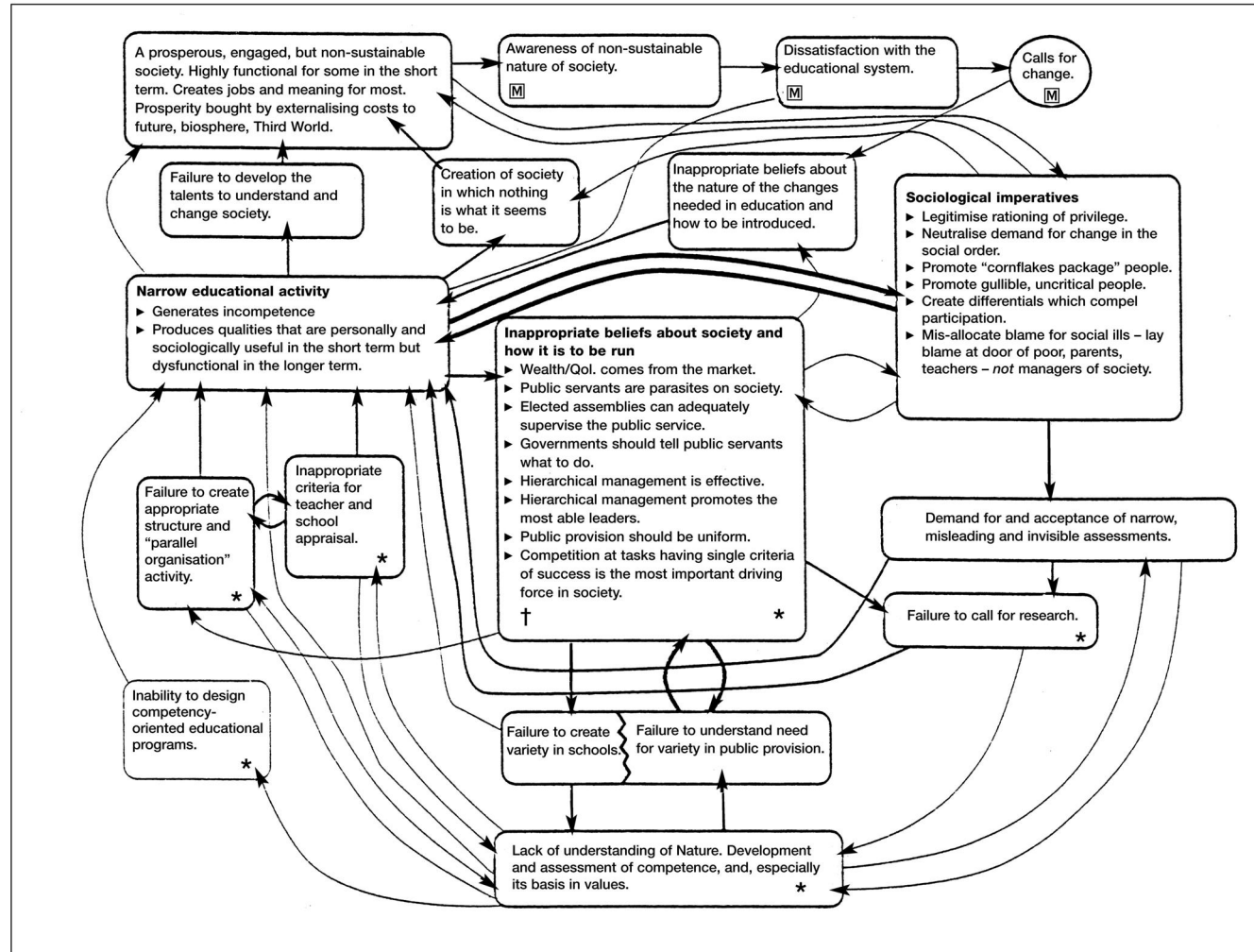
*Intervention in these cells would help change the nature of the qualities nurtured and rewarded in the system. Motives which could be harnessed to do this are marked [M].

†These need to be replaced by acceptance of the need to make managed economies work – to find way of giving effect to information concerning the public long-term interest, the need to explicitly create variety and information on the personal and social consequences of the options, and to find ways of holding public servants accountable for, and getting them to act in, the long-term public interest. This means systematic, broadly based, evaluation and participative democracy.

8. The most important developments have to do with (a) finding better ways of conceptualising and identifying the sociological forces we have discussed, and (b) clarifying how they are to be harnessed - that is, articulating the societal management arrangements required to do so. (Note that both of these call for both classic academic activity to generate fundamental developments in theory and for what might be called "social engineering." Remember [i] that sailing boats could not sail into the wind prior to Newton and [ii] that, once the principles had been articulated, marine engineers were able to do a great deal to find better ways of harnessing the wind to do useful work for mankind instead of allowing it to drive our ships against the rocks.) The most important developments that are needed if the problems are to be tackled are therefore anything but obvious and have to do with the management of social research and development. "Common sense" alone will not work.

9. The fundamental need is to create a system of innovation and learning in which everyone's observations are used to experiment with curricula which will make it possible to cater for diversity and nurture multiple talents, with assessment systems which will help teachers to implement multiple individualised developmental programmes and give pupils credit for the outcomes, and in promoting the development of new forms of democracy and public management. Note that this conclusion is precisely the opposite of that which guides current government policy and informs widely held beliefs about how public management - and hierarchical management more generally - should work. But such work needs to be guided by awareness of the need to use these experiments to better understand and find ways of influencing hidden systems processes and by concepts of comprehensive evaluation which are in stark contrast to the assumptions of the reductionist science that permeate modern society.
In more detail, the diagram shows that:

A. The narrow educational activities that dominate schools are produced by (a) a series of sociological imperatives (e.g., that schools assist in legitimising the rationing of privilege); (b) inappropriate beliefs about the nature of the changes that are needed in education itself, the management of the educational system, and the management of society; (c) failure to initiate research which would yield useful insights into such things as the nature of competence and how it is to be fostered and how to manage the educational system to nurture high-level generic competencies; (d) the absence of (i) systematically generated variety in, and choice between, educational programmes which have demonstrably different consequences and (ii) information about the consequences of each of these alternatives; (e) failure to introduce "parallel organisation activity" to produce innovation within schools; and (f) inadequate dissemination of the results of research into the nature, development, and assessment of generic high-level competencies, and, especially, the implications of the values basis of competence.

B. This narrow educational process has a series of knock-on effects that finally contribute to its own perpetuation. The competencies and beliefs that are nurtured and inculcated in educational institutions reinforce a social order which offers major benefits to "able" people who do what is required of them without questioning that order; it creates endless work that gives meaning to people's lives (but does not enhance the general quality of life); it creates wealth at the expense of the biosphere, future generations, and the Third World; and it protects its citizens from a knowledge of the basis of their wealth. The educational system helps to teach a host of incorrect beliefs which collectively result in nothing being what it is popularly or authoritatively said to be. This double-talk makes it extremely

difficult to conduct any rational discussion of the changes needed in society. The sociological imperative that educational institutions help to legitimise the rationing of privilege helps to create a demand for, and encourages acceptance of, narrow, invisible, and mislabelled assessments. Those predisposed to acquire these "qualifications" are not inclined to see the need for, or to commission, genuine enquiry-oriented research or notice other talents in their fellows. Teachers who discover the hidden competencies of their "less able" students experience acute distress. The lack of understanding of the nature of competence leads to a failure to underline the need for a variety of value-based educational programmes and thus to the perpetuation of narrow educational activity.

C. The main motives for change are widespread awareness that there is something seriously wrong with the educational system and, more specifically, awareness that it fails miserably in its manifest task of identifying, nurturing, recognising, and utilising most people's motives and talents. The most commonly proposed solutions to this problem, based as they are on other misunderstandings, are, however, inappropriate. Another motive for change is that there is increasing recognition that we have created a non-sustainable society and that basic change in the way society is run is essential.

D. There are a number of points at which it should be possible to intervene in the feedback loops to create an upward spiral. These involve: (a) promoting wider recognition that one cannot get value for human effort in modern society unless we introduce better means of monitoring and evaluating the long-term effects of what we are doing and better ways of giving effect to information on such effects. This points to the need to change the way we run society, to the need to introduce more, and more appropriate, social research and evaluation activity, and to the need to find ways of holding public servants and politicians accountable for seeking out and acting on information in an innovative way in the long-term public interest; (b) introducing the "parallel organisation" activities that are required to promote innovation within educational institutions; (c) establishing a greater variety of distinctively different, value-based, educational programmes and providing information on the short and long-term, personal and social, consequences of each; (d) creating public debate about the forms of supervision - the nature of the democracy - needed to ensure that public servants seek out and act on information in an innovative way in the public interest and; (e) disseminating what is already known about the nature, development, and assessment of competence and its implications.

The Way Forward

The points at which one could fruitfully intervene to begin to promote the necessary developments and understandings are shown in Diagram 23.2.
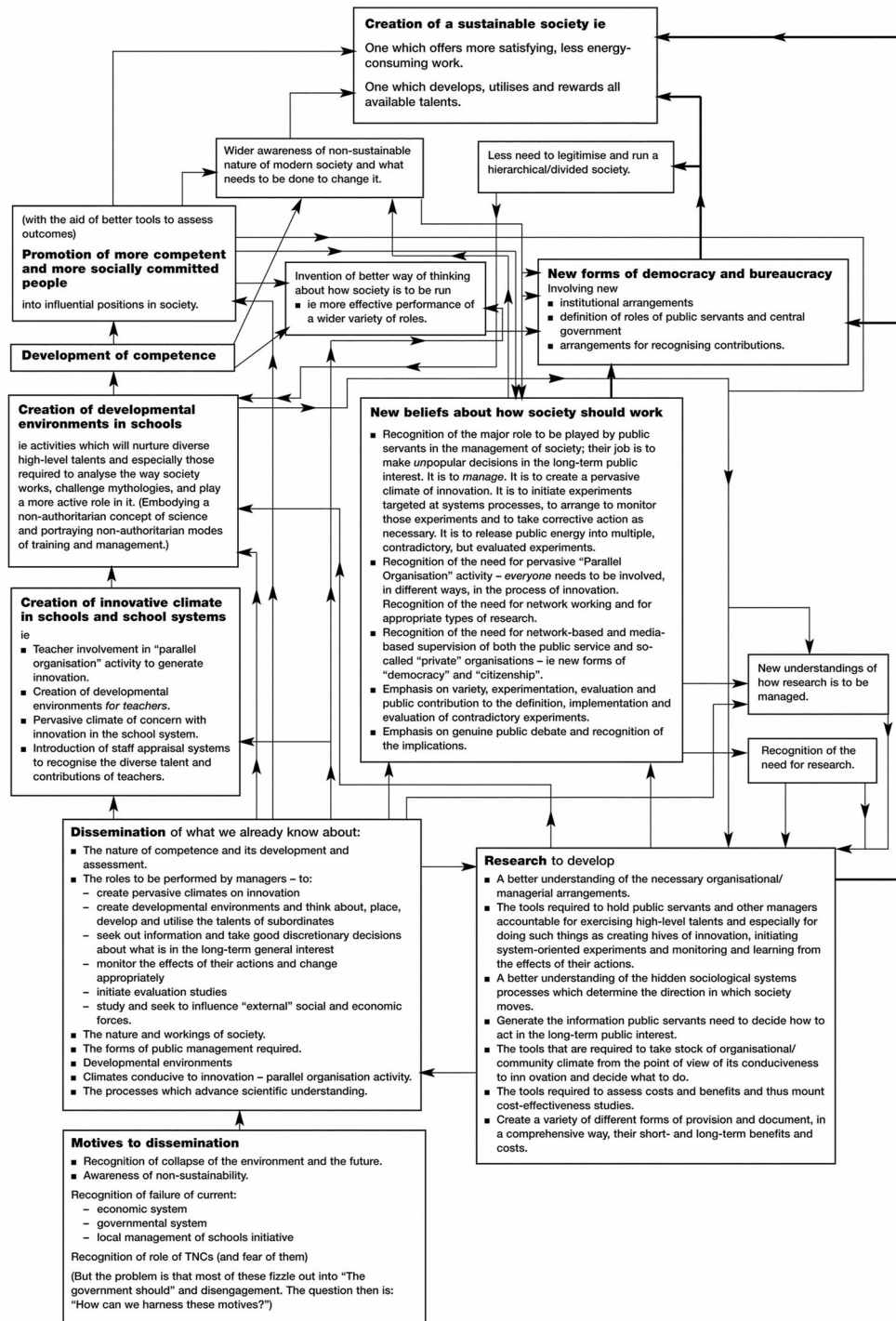Dissemination of what is already known about:
- The nature of competence and the ways in that the development of its components are to be assessed;
- The roles to be performed by effective managers, particularly public servants, and
- The nature and workings of society.
could impact:
- The climate for innovation in educational institutions;

Diagram 23.2

New societal management arrangements

Creation of a sustainable society ie

One which offers more satisfying, less energy-consuming work.

One which develops, utilises and rewards all available talents.

Wider awareness of non-sustainable nature of modern society and what needs to be done to change it.

Less need to legitimise and run a hierarchical/divided society.

(with the aid of better tools to assess outcomes)
Promotion of more competent and more socially committed people
into influential positions in society.

Invention of better way of thinking about how society is to be run
- ie more effective performance of a wider variety of roles.

New forms of democracy and bureaucracy
Involving new
- institutional arrangements
- definition of roles of public servants and central government
- arrangements for recognising contributions.

Development of competence

Creation of developmental environments in schools

ie activities which will nurture diverse high-level talents and especially those required to analyse the way society works, challenge mythologies, and play a more active role in it. (Embodying a non-authoritarian concept of science and portraying non-authoritarian modes of training and management.)

New beliefs about how society should work
- Recognition of the major role to be played by public servants in the management of society; their job is to make *un*popular decisions in the long-term public interest. It is to *manage*. It is to create a pervasive climate of innovation. It is to initiate experiments targeted at systems processes, to arrange to monitor those experiments and to take corrective action as necessary. It is to release public energy into multiple, contradictory, but evaluated experiments.
- Recognition of the need for pervasive "Parallel Organisation" activity – *everyone* needs to be involved, in different ways, in the process of innovation. Recognition of the need for network working and for appropriate types of research.
- Recognition of the need for network-based and media-based supervision of both the public service and so-called "private" organisations – ie new forms of "democracy" and "citizenship".
- Emphasis on variety, experimentation, evaluation and public contribution to the definition, implementation and evaluation of contradictory experiments.
- Emphasis on genuine public debate and recognition of the implications.

Creation of innovative climate in schools and school systems
ie
- Teacher involvement in "parallel organisation" activity to generate innovation.
- Creation of developmental environments *for teachers*.
- Pervasive climate of concern with innovation in the school system.
- Introduction of staff appraisal systems to recognise the diverse talent and contributions of teachers.

New understandings of how research is to be managed.

Recognition of the need for research.

Dissemination of what we already know about:
- The nature of competence and its development and assessment.
- The roles to be performed by managers – to:
  – create pervasive climates on innovation
  – create developmental environments and think about, place, develop and utilise the talents of subordinates
  – seek out information and take good discretionary decisions about what is in the long-term general interest
  – monitor the effects of their actions and change appropriately
  – initiate evaluation studies
  – study and seek to influence "external" social and economic forces.
- The nature and workings of society.
- The forms of public management required.
- Developmental environments
- Climates conducive to innovation – parallel organisation activity.
- The processes which advance scientific understanding.

Research to develop
- A better understanding of the necessary organisational/managerial arrangements.
- The tools required to hold public servants and other managers accountable for exercising high-level talents and especially for doing such things as creating hives of innovation, initiating system-oriented experiments and monitoring and learning from the effects of their actions.
- A better understanding of the hidden sociological systems processes which determine the direction in which society moves.
- Generate the information public servants need to decide how to act in the long-term public interest.
- The tools that are required to take stock of organisational/community climate from the point of view of its conduciveness to inn ovation and decide what to do.
- The tools required to assess costs and benefits and thus mount cost-effectiveness studies.
- Create a variety of different forms of provision and document, in a comprehensive way, their short- and long-term benefits and costs.

Motives to dissemination
- Recognition of collapse of the environment and the future.
- Awareness of non-sustainability.

Recognition of failure of current:
  – economic system
  – governmental system
  – local management of schools initiative

Recognition of role of TNCs (and fear of them)

(But the problem is that most of these fizzle out into "The government should" and disengagement. The question then is: "How can we harness these motives?")

- The quality of the developmental environments available to students;
- The level and diversity of talents that are nurtured and credentialed;
- The level of awareness about the non-sustainable nature of modern society and the developments needed to change it; and
- The extent to which the developments needed to run modern society more effectively are recognised.

These developments would be mutually supportive. What is more, the developments in education would flow round to reinforce changes in society and these, in turn, would facilitate - rather than inhibit - developments in the educational system.

The key developments that are needed are new forms of democracy and bureaucracy. But to get these we need changed beliefs about the topics covered in the central boxes in Diagrams 23.1 and 23.2. Changed beliefs in these areas - spelt out in *The New Wealth of Nations* - would lead directly to both new forms of bureaucracy and democracy and to the implementation of the research needed to develop the understandings and tools that are needed to run the educational system - and society more generally - effectively.

The heaviest feedback loops are those on the right-hand side of the diagram, and it is on producing the developments indicated by the contents of the boxes that precede them that attention needs to focus.

Most people could contribute in one way or another to intervention at these "leverage points": Everyone can do something to help to promote a wider debate in the media. Everyone can strive to influence local educational systems. Most people could form, or contribute to, groups to put pressure on politicians. They could press to have recruitment into teaching based on the ability to facilitate growth rather than on qualifications which primarily index the willingness to regurgitate what "authorities" want to hear. They could try to persuade employers to change their selection criteria. They could campaign to get test agencies to invest in the research and development required to broaden the range of their products. They could take legal action against test agencies for damaging people's lives and careers and society at large. They could press for social change so that there is less need for educational institutions to manufacture discriminations that compel participation in the useless activities of which modern society is so largely composed.

The most important single change they could try to bring into being would, however, involve getting national and local governments to change the philosophy which informs their current thinking about how the system is to be managed. The need, both within the educational system and outside it, is to create a climate which facilitates development, rather than one in which it is assumed that those in authority should prescribe the activities to be carried out by public servants, teachers, and lecturers and then check up to find out whether those instructions have been obeyed. The new arrangements would include a network-based structure to supervise the public service, tools to run the educational system (and the public service in general) more effectively, and a support structure to conduct the necessary research.

Technological change is also extremely important. Teachers and lecturers teach, and students work, toward the goals that are *assessed*. Teachers, lecturers, and administrators do those things for which they will be credited in staff appraisal systems, and teachers and lecturers attend only to those educational processes they can monitor. Teachers and lecturers need tools to help them administer individualised, competency-oriented, developmental programmes. Such tools would help them to identify and harness students' motives, create individualised programmes, monitor the results, and record the outcomes. The availability of easy-to-use tools in these areas

would transform education, regardless of whether or not steps were taken to overcome the other barriers to effective education that have been identified in this book.

However, the most difficult, but vitally important, task facing national, regional, and local government is to initiate the developments needed to create a society in which there would be no need for educational institutions to perform their latent sociological functions. Ironically, the development and dissemination of the understandings needed to divert the educational system away from these functions, and toward the real goals of education, is unmistakably a task for the educational system itself. Unfortunately, as we have seen, Robinson has shown that even a relatively innocuous attempt to address this agenda threatened vested interests to such an extent that a concerted campaign was established to crush the activity.[70] There is no reason to suppose that future activity in this area would not meet with a similar response. There are, however, a number of new features in the situation which might lead to a different outcome: (1) we can now anticipate, and prepare for, the reaction of those who have a major interest in the perpetuation of the system, (2) there is now much more widespread dissatisfaction with the educational system, (3) there is now a much wider awareness that the way our society is organised will have to change dramatically, and (4) it is now clear that major social reform is essential to even the relatively short-term interest of those who are most likely to resist change.[71]

It should now be apparent that one of the reasons why the reform of education has proved to be so difficult is that it involves the reform of government and society.

It follows from the observations made in this chapter that if we are to translate our social and educational values into effect, we will need, above all, to analyse the workings of our society with a view toward identifying leverage points at which it would be possible for us to intervene for the common good. To do this, each of us could do worse than begin by asking ourselves, as individuals: "What are my social and educational values?" "What prevents me from translating those values into effect?" "What can *I* do to influence the current situation?"[72].

Implications for the Organisation of Research[73]

This book has three main objectives: first, to problematise the concept of "competence" and highlight the high-level competencies that are required if the planet is to *have* a future in anything approaching its present form; second, to disseminate what is already known about the nature, development, and assessment of competence; and, third, to identify the barriers to change and the most important developments that are required if we are to move forward.

I have shown that the barriers to the introduction of educational programmes which would achieve the wider goals of general education - goals which have been stressed in report after report for more than a century - are deep-seated and non-obvious. However, what it is most important for anyone concerned with either the process of policy improvement or with policy research to note is that it has only been possible to clarify the nature of the qualities which are to be fostered, the strategies to be deployed to foster them, and the barriers to implementing educational programmes that would foster them in the course of skirmishes conducted in "spare time" on the sidelines of projects that were funded for other reasons - or which were, indeed, not funded at all. The research that was needed did not fit easily into the dominant framework of beliefs about how research should be organised, conducted, and funded. This will continue to be true in the future: The work that is required to overcome the barriers, for example, involves action which is *integrated with* a great deal of fundamental theoretical research - often into topics which

have not, in the past, been viewed as amenable to research. Neither the fundamental research nor the requisite action can be fitted into the current framework of beliefs about how either research or innovative action should be funded or conducted.

If work of the kind we have carried out in the past and need to carry out in the future is to be undertaken, it will be necessary to clarify and promote a set of beliefs about the nature of science, the research process, and the institutional framework needed to carry it out that is markedly at variance with the set which is most widely held by public servants and academics at the present time. If we are to do this we will first have to become a great deal clearer about what we want to say and then embark on a programme of adult education which will lead to resolution of the dilemmas that have, in the past, prevented policymakers from overtly supporting research of the kind which led to the conclusions and developments summarised above.

The barriers to public funding of the requisite research and development in the past have included:

(1) mistaken beliefs about the *nature* of outcomes that it is most important to aim for in, or satisfy from, a research project. The most useful outcomes of research typically consist of *insights developed in the course of the research* and *not* the previously formulated hypotheses "tested" within - or precise questions answered from - it.[74]

(2) the apparently "political" nature of many of the issues, questions, and processes that needed to be understood if the presenting problem was to be solved. These issues were not thought to be appropriate topics for scientific research in the first place, and our conclusions were branded as political statements rather than accepted as scientific findings when we arrived at them. (This problem has dogged the physical and biological sciences in the past - witness Galileo - but is now popularly associated primarily with the social sciences. What it really indicates is that the research is challenging previously unquestioned views of the world itself.)[75]

(3) the time-scales involved: The "research programme" which led to many of the insights summarised above has been intermittently sustained for more than 40 years.

(4) the non-obvious nature of many of the real causes of the presenting problem. One consequence of the distance between the symptoms (e.g., disenchantment of pupils) and their causes (e.g., beliefs of adults about how their society works and should work) - and thus remedial action - is that researchers who tackle them are accused of not having answered the questions they were asked to answer. Time after time we have found that issues we explored because they *seemed* somehow relevant - but which we were not asked to explore and the exploration of which even we ourselves would at the time have been hard-pressed to link to the presenting problem - have, in retrospect, turned out to be *central* to understanding the reasons for, and finding ways of solving, that problem. Unfortunately, they were often still far outside the perceived sphere of influence of those who commissioned the research - an observation that again contributes to our understanding of the problem because it tells us that the problem is in part due to the way society is organised and points to the need for new societal management structures and mechanisms.

While influencing widely held beliefs about the initiation, conduct, content, and management of social research would require a major campaign, it may be possible to tackle one subset of inappropriate beliefs more easily. Many of the fundamental new insights into the nature, development, and assessment of competence which were briefly mentioned above emerged in the course of attempting to grapple with "applied" problems.[76] Likewise, the *need* for much of the

fundamental research highlighted in this chapter emerged from an attempt to grapple with those same applied problems. To develop the tools which are required to orchestrate competency-oriented educational programmes, we need new theory. Yet the very idea that the requisite tools *might* be produced is dependent on already having developed a feel for the kind of theory on which they might be based. Understanding this close, cumulative, and cyclical relationship between research and action is of crucial importance. The fundamental research that is required to generate the necessary new understandings and tools can only be carried out in the context of action. One cannot, for example, test out a new theory about how high-level competencies might be assessed in contexts in which the relevant competencies are not exercised and developed - that is, in traditional educational programmes. But one cannot change educational processes in any important way without (1) a better understanding of pedagogic processes and (2) the means of giving students and lecturers credit for new kinds of achievements. But one cannot give students credit for these achievements without the tools that it would be the central objective of the exercise to develop. Not only is this a catch-22 situation, the teachers, lecturers, and researchers concerned need to have both the time required for, and the ability to tolerate, the frustrations involved in innovative work[77] and the time and the personal qualities required to gain the confidence of students, parents, and prospective employers.

The idea that fundamental research can usually be undertaken only in an action context will appear to many to be a contradiction in terms. But that is not the end of the confusion, because the need to do something about an applied problem is also the best stimulus to recognising the need for fundamental research. These two observations imply that the concept of a university as an institution that is not heavily involved in innovative action is misguided.

Unfortunately, it is not only the universities as they are currently organised that are unable to undertake the necessary research effectively. Policy research institutes, as currently envisaged and operated, are equally unsuited to the task. This is partly due to the assumptions on which contract research is based and the arrangements which are made for its execution. But it is also partly due to a desire to discourage policy evaluation units from engaging in either fundamental research or controversial - especially politically relevant - research.

This is not the place to embark on a discussion of the institutional framework - the relationships to be established between researchers and the users of research, the career structures which are required, the criteria to be applied to researchers' work, and the climate of expectations that are required if important social research is to be carried out effectively.[78] What it *is* appropriate to do is to encourage those who have persisted thus far to review this information and do what they can to ensure that it is taken on board by the university lecturers and college staff who currently disseminate inappropriate beliefs to students - students who will, in future, become the administrators, politicians, and citizens who control the organisation and funding of social research.[79]

Notes

1. Roisen & Jepson, 1985.
2. Flanagan, 1978.
3. Marris, 1964.
4. Winter, McClelland, & Stewart, 1981.
5. Roizen & Jepson, 1985; Association of Graduate Careers Advisory Services (1992).
6. Raven, 1994; HMI, 1980; Fraley, 1981; Winter, McClelland, & Stewart, 1981.
7. Schön, 1987; Fraley, 1981. The School of Independent Studies was disbanded after a review by HMI in

1994.
8.   Eraut, 1992.
9.   Boyatzis, et al., 1995.
10.   Cross, 1988.
11.   Adams, Robbins, & Stephenson, 1981.
12.   Robbins, 1988.
13.   It could have been argued that the development of the competence to plan one's own life and gain control of one's destiny was a super-ordinate competence which took precedence over the development of more specific and specifiable competencies, but, so far as I know, this was never argued, and the development of this competency was never considered in the assessment and validation process.
14.   See Raven (1991a) for a more detailed account of the work and problems of the School.
15.   Schön's (1983, 1987) work confirms how little is known about how such qualities are to be fostered.

However, I am often told that the relevant understandings are widely available in the voluminous writings on Progressive Education. Unfortunately, this is incorrect.

The chaotic activities perpetrated in the name of Progressive Education are well illustrated in the work of Barth (1972), Aikin (1942), Rathbone (1971), Rugg (1926), Rugg and Schumaker (1928), Wright (1950, 1958), ORACLE, Leith (1981) and Bennett (1976). Cremin (1961), Fraley (1981) and Ravitch (1974) have provided useful summaries of the Progressive Education movement in America.

By and large, "Progressive Education" has involved little more than a reaction *against* a single-valued concept of human quality and excellence - that is, against the equation of "ability" with "the ability to do well at school." Many teachers and other observers have noted that this "ability" does not correlate highly with performance at non-school tasks. Indeed, they have noted that, as part of a sociological system for allocating position and status, this way of thinking tends to lead, on the one hand, to the *wrong* (i.e., purely self-interested) people being placed in influential positions in society, and, on the other, to many people who do contribute in very worthwhile ways to society not getting the respect and financial rewards they deserve. The problem has been that this reaction against a dysfunctional system did not lead to a better one - but only to such things as teachers addressing themselves mainly to pupils of "average" ability and even, in some cases, to pouring scorn on those who sought to do "well" at traditional school tasks - and thus to the cult of uniformity and mediocrity. Few sought to implement "talents unlimited" (Taylor 1974, 1985) types of educational programme.

Several writers have tried to add new goals without seeking to basically change teachers' focus. Thus Dewey (1899, 1910, 1916) seems to have been preoccupied with, on the one hand, fostering the skills of the research scientist (the ability to conceptualise, analyse and experiment), and, on the other, with creating "democratic" classrooms. His writing does not encourage teachers to make use of multiple-talent concepts of ability (by, for example, encouraging them to think about the wide range of alternative talents which schools might foster). Still less does it encourage them to foster different competencies in different children. Kilpatrick (1918) indicates that, in translating a plan into a reality, pupils should practise purposing, planning, executing and judging. These are high-level competencies, but Kilpatrick does not analyse them and present them in a way that would encourage teachers to reflect on what it means to, e.g., plan and execute, or on the prerequisites to getting pupils to practise (and thereby develop) the qualities which are necessary if one is to make good plans or judgements.

Perhaps the largest group of Progressive Educators - the "child-centred" teachers who have suggested that the child should be left to do his or her own thing and thereby learn "instinctively" what it is important for him or her to learn - have been opposed to the very idea of stating objectives, believing that these should emerge from an evolving situation. However, they have nowhere discussed how teachers are to recognise, or facilitate the development of, children's unique talents.

The "bible" of the Progressive Education movement (the 1926 Handbook of the NSSE) nowhere identifies the competencies that are to be fostered, how they are to be fostered, or how they are to be assessed for either formative or summative purposes.

It is true that French et al. (1957), Stratemeyer et al. (1947), Caswell and Campbell (1935), Tyler (1936), and the Educational Policies Commission (1938) have attempted to identify goals. Unfortunately they have muddled together goals at a wide variety of levels, the frameworks are not multiple-talent, and the goals are only weakly linked to the recommended curriculum processes.

The extent to which the Progressive Education Movement has been discredited can be inferred from the paucity of references to it in the 13-volume *International Encyclopaedia of Education* (Husen & Postlethwaite, 1985). Here there is not a *single* reference to multiple-talent or competency oriented versions of Progressive Education.

16. See Raven (1977a, 1984a&b, 1988a) and Raven, Johnstone, & Varley (1985) for our contributions to resolving these difficulties.

17. See Hargreaves (1988) for a discussion of these movements.

18. I have discussed the inadequacy of the latter measures, as introduced by the government, as a mechanism for school improvement in Raven (1989a).

19. Dewey, 1902.

20. Aikin, 1942.

21. Caswell, 1942.

22. Whiting, 1972.

23. Fraley, 1981.

24. Raven, Johnstone, & Varley, 1985.

25. The development and provision of such tools is not as unrealistic as may at first sight appear because the computers that are required to run programmes designed to elicit the relevant information from pupils and suggest appropriate individualised experiences to both pupils and teachers are now widely available. Nevertheless the development of the necessary tools does remain dependent on the wider adoption and refinement of the framework for thinking about the nature and development of competence which has emerged in the course of our work and is summarised in Raven (1984a).

26. Raven, 1977.

27. Raven, 1977a, 1980a&b. Under the circumstances, the wonder is that any school pupils are willing to enrol in genuinely developmental activities. But, they are. However, as Schön noted, and as is widely reported, it becomes increasingly difficult to persuade students further up in the educational system to devote time to such activities. They know too well that advancement, whether in the educational system or outside, is not achieved by demonstrating occupational (let alone personal or civic) competence but by discerning and saying the right things to the right people (Sternberg, 1986, has included a knowledge of what to do to secure promotion in the academic world as one of his varieties of "intelligence" [Thus, incidentally, confounding values, problem-solving ability, and acquired information]).

28. Raven, 1977a; Dore, 1976; Broadfoot, 1979.

29. Raven, 1977a&b.

30. Morton-Williams et al., 1966.

31. Dore, 1976.

32. See Broadfoot, 1979, 1983, 1986; Stansbury, 1976, 1980; Burgess & Adams, 1980, 1986.

33. No one will, of course, announce that these movements have failed - any more than they announced that the Great Educational Reforms which have preceded them for the last 40 years have failed. They will simply be replaced by yet another well-intentioned but ill-researched "initiative" that will be promoted equally loudly as the solution to the educational system's problems.

34. Raven, 1980a; Raven, Johnstone, & Varley, 1985.

35. Schön, 1983, 1987. Schön does not, however, perhaps himself sufficiently acknowledge the sociological functions of the "educational" system or ask how to come to terms with them. Nor does he give his students sufficient credit for having correctly assessed the way the educational system works and discerned the sociological rather than educational functions it performs.

36. Morton-Williams et al., 1966.

37. Nuttgens, 1988.

38. McClelland, 1961.

39. Note that this comment applies with equal force to the competence areas that are currently embedded within the curriculum - the 3Rs. It is easy to see that - as is spelt out in Raven (1989b) - the teaching of reading and the ability to communicate is seriously hampered by teachers' failure to relate what they are doing to children's interests and pre-occupations. This is less obvious in the case of mathematics, but the comment actually applies with even greater force.

40. Raven, 1980a; Raven, Johnstone, & Varley, 1985.

41. Bachman et al., 1978; Jackson, 1986.
42. Price et al., 1971; Taylor, & Barron, 1963.
43. Raven, 1984a.
44. Raven, 1977a.
45. Raven, 1977a; Sigel, 1985; Pellegrini et al., 1985; Burns et al., 1984; Miller et al., 1985, 1986.
46. Hope, 1985.
47. Payne et al., 1979.
48. See Raven (1984a) for the evidence that high-level competencies are value-laden and involve social and political beliefs. See Raven (1980a&b) for a discussion of the importance of coming to terms with values.
49. See Raven (1989a) for a fuller discussion of this issue.
50. See Raven, 1980a&b.
51. See Raven, 1984a; Hope, 1985; Nuttgens, 1988.
52. Hogan (1990) has noted that the available evidence suggests that about half of those managers who appear to be competent, confident, intelligent, poised, and skilled in human relations, either: i. destroy the careers of competent subordinates in order to minimise challenge and competition, ii. destroy the developmental potential of their sections (i.e., get rid of the time and the personnel required for the "parallel organisation activity" which is required for innovation and to provide for the future) in order to seem able to reduce costs and appear "efficient," or iii. refuse to take important decisions that affect the future of the organisation because these would result in their becoming unpopular and thus jeopardise their future.
53. Robinson, 1983.
54. I have the impression that more people in the UK than the US have observed that the educational system is not what it seems to be and generalised this observation to other aspects of society and chosen to resist. In the US more students have simply accepted the mythology, and, as a result, failed to question market mythology, religious mythology, and democratic mythology.
55. Actually, having more people involved in the useless tasks of education, insurance, defence, transportation, etc. *constitutes* economic development. Thus growth of education does not *lead* to GNP; educational employment is *part of* GNP.
56. Robinson, 1983.
57. Bellini, 1980.
58. Chomsky, 1987.
59. The director of SCISP was run out of the country.
60. See Raven, 1986, 1995 for a fuller discussion of these issues.
61. Kanter, 1985.
62. Toffler, 1980.
63. Schön, 1971/1973.
64. Ferguson, 1980.
65. Howard, 1980, 1982a&b.
66. Raven, 1983b, 1984a, 1988b, 1989a.
67. The downtrodden and rather ineffectual images which teachers have of themselves are documented in Raven (1977a) and the fact that these are communicated to pupils is documented by Raven and Varley (1984).
68. Morgan, 1986.
69. In fact, further reflection on the nature of this network of forces suggests that it is disconcertingly coherent - and this in turn suggests that it may have a single organising principle.

    We have seen that schools are increasingly required to operate as if there was only one type of ability which people possess to a greater or lesser extent. That is, they are required to organise themselves as if a single-factor model of ability accounted for most the variance in human abilities (although this variance is sometimes expressed as three 'types' of ability - namely 'academic', 'technical' and 'manual'). Yet both common observation and the material reviewed earlier in this book clearly shows that people possess a wide variety of different talents. The single-factor model of ability that informs schools' practice mirrors, and feeds into, myths about the efficiency and inevitability of hierarchical organisation in which "the more able rise to the top." In this way, a system is created in which the gullible, the devious, the manipulative, and those most concerned with their own advancement rise to the top without their

particular "talents" being noted.

This monocultural concept of mind is paralleled by the monocultures of mind that are selected and promoted in reductionist, authoritarian, science: it is not acceptable to think in ways which do not accord with the received wisdom. Worse, as Vandana Shiva (1998) in particular has noted, these monocultures of mind in science embrace and support the perspectives of reductionist science. In the quest for "accuracy" - expressed, for example, as a quest for objectivity and comparability in the assessments made in schools - it is typically only acceptable to conduct "scientific" studies in terms of one 'variable' at a time. In this way, any dawning realisation that it is vital to look at *all* the potential outcomes of a "scientifically-based" practice - such as an agricultural, educational, or economic intervention - is rendered "unrealistic and absurd," worse, "unthinkable," literally "unimaginable." How *could* one examine, simultaneously, *all* the short- and long-term, personal, ecological, and societal outcomes of an experimental variation? How *could* one examine *all* the short- and long term-effects on all plants, animals, and the biosphere of applying a particular pesticide? That is to say, how *could* one treat the examination of effects as a *cultural* question? How, in short, could one enact *comprehensive* evaluation, holistic science? The proposal is clearly preposterous. But such work is "absurd" and "unrealistic" *precisely **because*** reductionist science embraces a monoculture of mind in which the encouragement of alternative ways of thinking through public discussion with people who are not steeped in the "relevant" traditions of the "science" is deemed illegitimate.

But into exactly what do these monocultures in education, in agriculture, in economics, indeed in culture itself, feed?

They feed into:

- Hierarchical structures of dominance: hierarchical structures in which men dominate women, in which Western "scientific" cultures dominate and exterminate traditional cultures of knowledge such as those possessed by traditional farmers and Dowist scientists. They feed into cultures in which people who are most concerned to dominate over others rule over those who would behave in more culturally appropriate (i.e., sustainable) ways offering higher quality of life to all. They feed into legitimising dominance mythology in which it is argued that evolution (and therefore the current direction of society) is associated with the "survival of the fittest" (instead of the "survival of the fitting") and in which mankind is therefore viewed as having both a divine and a scientific duty to dominate over ("hold dominion over") all other species of plants and animals.

- They feed into the worldwide elimination of cultural diversity through economic imperialism and the subterfuge (GATT, MAI) of domineering and destructive business arrangements.

- They feed, through the hegemony of - that is, the preoccupation with—the economic determinism that is embedded in market theory (once again expressed in terms of single-variable concepts of wealth and the reduction of diversity to single-variable expressions of costs and "quality" [thereby rendering invisible other costs and potential criteria of wealth, development, and well-being]) into the hegemony of materialism - viz into a monocultural concept of what makes for the good life. Then, by only counting only those variables that can be commoditiesed and reduced to financial terms, .they lead into calculations of efficiency which exclude consideration of most important inputs and outcomes.

- They feed into the worldwide acceptance of a "1984 culture" in which nothing is what it seems or is said to be - and is usually its opposite. Examples include the worldwide political correctness of applauding the "celebration of diversity" in schools and the promotion of "Multiculturalsm" - but actually implementing policies that either eliminate the very thing being discussed or in such a way as to individualise it and thus destroy any genuinely *cultural* (i.e., group connectedness) components having the potential for growth and, in this way, promote its opposite - that is, a global *monoculture*.

- They feed into the worldwide portrayal, through the media, of a monocultural (materialistic) image of the good life that presents the most destructive and unsatisfying culture the world has ever known (namely mainstream American society) as hugely desirable. This effect is largely achieved through the reductionist process we have mentioned by eliminating portrayal of - or, paradoxically, seeming to applaud (as in fictional portrayals of police brutality in the course of eradicating crime) - negative features. This arises through the hegemony of cultural concerns which make it very difficult to discuss, and certainly almost impossible to organise a programme of scientific studies to develop

measures of, that culture's less desirable features. People who articulate these wider concerns are somehow made to appear "crazy" and "outlandish."

It would seem from these reflections that the forces that are driving us at an ever increasing rate toward our own destruction as a species are, like the wind that drives our sailing boats against the rocks, simultaneously turbulent and coherent. Unless we come to better understand them we are doomed.

If I am right, the emergence of hierarchy, the mythology promoting the supposed efficiency of hierarchy, the mythology of the efficiency and effectiveness of the marketplace, the obscurantism of economic theory which renders invisible non-materialistic components of wealth, the emergence of capitalism, the antics of elites and capitalists and capitalist governments, and, paradoxically, the writings of Marx that attribute all ills to capitalism, are all *expressions* of a single underlying process. They are all symptoms, not causes. It is not plotting capitalists or elites who who perpetuate the system: the elites, the views they express, and the actions they take are all somehow chosen and selected because of the functions they play in a deeper and hidden system.

What are the forces that drive these interlinked processes? How are we to intervene in them? If they are symptoms rather than causes of the problem, how far can we get by advocating comprehensiveness in science, seeking to encourage the funding of mavericks in the scientific process, by making explicit other criteria of wealth, by changing our societal and institutional organisational arrangements, by insisting on the right to experiment along different lines and to determine the criteria against which those experiments are to be evaluated? If these are not appropriate strategies, what else to do? How, other than experimenting with these tools on the basis of what we know, are we to gain insights into the processes we have not so far observed?

70. Robinson, 1983.
71. We are committed to producing another book that will spell these out in greater detail.
72. Jack Whitehead suggested these questions.
73. The *topics* rquiring research and development - including the development of such things as tools to help teachers to orchestrate numerous individualised competency-oriented educational programmes and those required to hold public servants accountable for exercising high-level competencies are listed in a later chapter of my *New Wealth of Nations.* However, since that book was written it has become clear (as was argued in Note 69 above) that there is perhaps more of a coherence in these disparate social forces than was apparent when the relevant chapter in *The New Wealth of Nations* was written. In this book we have encountered the enormous pressures pushing teachers and others toward singe-factor concepts of ability in schools and looked at the way these feed into concepts of "ability" in "hierarchy" that in turn legitimise "authority": We have also seen the need to insist on *comprehensive* evaluations of educational programmes and individual people - to document *all* the personal and social, short- and long-term, consequences of any course of action. This challenges reductionist science and the way in which science is organised - for how is one to move toward anything approaching *comprehensiveness* without allowing mavericks to obtain the resources they need to substantiate their position? It therefore emerges that reductionist science itself represents one of the central problems. Finding ways of organising research in such a way as to be able to invest in the generation of multiple perspectives on "unresearchable" topics turns out to be fundamental. Furthermore, as emphasised in Note 69, one of the most vital research topics is to develop a better understanding of the hidden social forces which drive the constellation of mutually reinforcing processes depicted in Diagram 1.
74. See Donnison, 1972; Nisbet & Broadfoot, 1980; Raven, 1985.
75. See Raven 1984b for a discussion of the dilemmas that our work posed for our sponsors.
76. See Raven (1984a) for more detail.
77. See Raven (1982b, 1984c) for discussions of the problems created by current beliefs and expectations.
78. Donnison (1972), Cherns (1970) and I (Raven, 1975, 1982a&b, 1985, 1987, 1995) have discussed some these questions.

What emerges is that, at an absolute minimum, we need to press for the establishment of a number of policy-research units. Unless the universities change dramatically in character (and not in the direction in which our present governments would have them change), these units should not even be university-based because the criteria to be applied to the researchers' work are so very different to those appropriate in academe. Academic time scales are also inappropriate. Teams of researchers need to be

able to devote their full time to the work and they need to be provided with an assured career structure that does not require them to conform either to traditional bureaucratic or academic criteria. While researchers need sufficient contact with policy makers to become thoroughly familiar with the problems which need to be tackled, they also need considerable scope to determine the way in that they will tackle them and to follow up on new issues which come to light. There also needs to be some mechanism whereby people who are "peripheral" to main stream decision making can initiate studies and ensure that they are carried out from their own perspective. Thus, instead of being employed on short term contracts to solve problems posed by administrators, and instead of being accountable to administrators, researchers need to have secure employment and to be accountable to a Director who is him or herself be accountable for creating a climate of innovation and dedication concerned with developing new understandings and ideas and tools to be used to run the public service more effectively.

Because the 'string and sealing-wax' grants provided by the SSRC/ESRC have led many to adopt quite inappropriate expectations, it is important to underline the scale of funding that should be envisaged. Ironically, more appropriate standards for funding are to be found in within-civil-service research units. It is not uncommon to find £250,000 being devoted to projects with very limited objectives. The extent of the underfunding of policy research can also be judged from the fact that two years *losses* of the British Steel Corporation would have funded the Scottish Council for Research in Education since Stonehenge was built. Yet far more of our national resources are devoted to - even misapplied in - education than steel.

It is also important to emphasise the need to challenge the grossly inefficient US contract research model, where, owing to widely held views about what constitutes good research, and acceptance of "sponsors" right to redirect research as those who control the purse strings change, it is not uncommon to find that several million dollars have been spent on evaluation programmes which neither advance understanding nor improve the programmes one iota.

79.   Of course, the potential value of this exercise will be subverted if it is viewed by those involved, not as a means of accomplishing anything useful but as an opportunity to bandy about the "correct" phrases (in this case "usefulness"!) in order to secure personal advancement. As Nuttgens (1988) has observed, and as our research (Raven, 1984a) has confirmed, one of our central problems in the UK stems from our interest in saying a lot that amounts to nothing in order to look good and secure advancement. This is combined with a disinterest in finding new things to do, better ways of thinking about things, or better ways of doing them. This process results in the interesting statistic that out of every 1,000 articles published in American Educational Research Association journals only 20 contain any new empirical data - and only 2 contain substantive amounts of data. The so-called "knowledge explosion" is, therefore, an explosion of non-knowledge. These observations suggest that our first step might best be, not to establish a working party, but to undertake a collective value-clarification and prioritisation exercise. As Rothschild (1982) observed, we will, in the end, destroy the very foundation on which our existence depends if we continue to mount trivial "academic" researches, the results of which contribute to our personal advancement but do not help society to tackle the huge and pressing problems that beset it. It is precisely for this reason that the Universities have found themselves beset by cries for "accountability" . . . even though the criterion which is proposed will only exacerbate the problem. But whose fault is it that we are unable to offer alternative, and more appropriate, criteria for use in staff appraisal and accountability exercises?

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