The Barriers to Achieving the Wider Goals of General Education and their Implications for the British Educational Research Association

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Introduction

For more than 100 years educators have been urged to foster qualities like initiative, problem-solving ability, the ability to work with others, articulateness, leadership, and the ability to understand, and play an active role in, society [2]. The Training Agency (previously the Manpower Services Commission (MSC)) is thus only the latest in a long line of groups that have championed educational activities in this area. The concerns of these groups have also been repeatedly voiced and echoed by parents, pupils, teachers and employers [3], and their opinions have repeatedly been shown to be correct—these *are* the qualities required by navvies [4], bus drivers [5], small businessmen [6], civil servants [7], doctors [8], scientists [9], engineers [10], politicians [11], machine operatives [12], managers [13], teachers [14], school principals [15], architects [16] and town planners [17]. They are also the qualities required to lead one's life effectively in the home and the community [18]. Yet few teachers actually organise their classrooms in ways that are likely to lead to their development [19].

The purpose of this article is first, to summarise the—often surprising—barriers to work in this area that have come to light in the course of our studies, and second, to discuss the implications for research.

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

One major problem is that, despite the advocacy of goals in this area, there is little formal, explicit, understanding of the nature of qualities like those mentioned above, how they are to be fostered and how their development is to be monitored for formative or summative purposes [20].

In the course of our research [21] we have tried to fill some of the more obvious gaps in understanding, again with unexpected results. Although it is not the purpose of this article to review this material, some of the barriers to implementing the requisite educational programmes cannot be discerned unless one understands the processes which are actually required to foster and assess high-level competencies. Accordingly, some of our more specifically psychological and pedagogical findings will now be briefly introduced.

For the sake of clarity, I will repeat that our concern in this article will be with high level competencies like the ability to make one's own observations, communicate effectively and understand and influence the workings of the organisations in which one works and the society in which one lives. In the course of our work it has emerged that such competencies are best viewed as *motivational dispositions*. This means that they are both value-based and psychologically complex. They therefore do not fit the psychometric models which lie behind most operational definitions of abilities.

Two corollaries of these observations are of particular importance. The first is that the words which are used to describe high-level competencies have no meaning —i.e. those competencies cannot be observed—*except in relation to activities which the individual concerned values.* (Their absence typically means that the person being assessed does not value the activities which someone else thinks s/he should value.) Put the other way round, this implies that statements about people's problem solving and other abilities only have meaning in the context of a particular situation. To be meaningful such statements must therefore include information on whether the person being observed valued the activity which s/he either was undertaking or was expected to undertake. Thus meaningful statements about abilities *must necessarily include statements about the assessee's values, the context in which the observations were made, and whether that situation tapped the assessee's values.* A second corollary of our initial observation that these qualities are motivational dispositions is that all such competencies involve a wide range of inter-penetrating, cumulative and substitutable, cognitive, affective and conative [22] components of competence. Cognitive components include the ability to analyse and find better ways of thinking about things. But the ability to find better ways of thinking about things itself involves such things as sensitivity to one's feelings (affective components), determination and persistence (conative components), the ability to prise information out of people's heads and persuade them to help and the ability to deploy experimental strategies which involve such things as initiating (hunch-based) action and using one's feelings to monitor the effects of that action in order to learn more about the problem and the nature and effectiveness of the strategies one is using in one's attempts to solve it.

These characteristics of high level competencies have profound implications for the way in which they are to be fostered and assessed [23]. I will say a little more about the knock-on effects of their implications for assessment in a later section of this article. Here I mention a few of their implications for pedagogy.

It follows from the previous observations that, if teachers are to foster high-level competencies, it will be necessary for them to create situations in which their pupils practise and perfect the complex components of competence mentioned above (and others like them) in the course of undertaking activities which they themselves care about. In the course of our work we have studied the way in which effective

parents, teachers and managers do this. In essence, all three groups *facilitate growth* by creating *developmental environments* [24].

Effective mentors study the values of their children, pupils, or subordinates and then create situations in which those concerned undertake activities which are important to them. In the course of carrying out these activities, the trainees practise—and thereby develop—the cognitive, affective and conative components of competence mentioned above (and others too). They do not need external rewards to encourage them because they experience the satisfaction which effective behaviour itself confers. Effective mentors also make overt many of the (normally private) thoughts and feelings which contribute to their own effectiveness and do so in ways which enable their trainees to see these behaviours leading to satisfactions which the trainee wants. In this way they portray the *psychological* components of competence in ways which induce their students to copy them. They also try to place their pupils, trainees or subordinates with others who share their values so that they in turn will portray components of competence which it is important for the trainee to develop in the context of joint activities which both care about. Finally, effective mentors tell pertinent stories (Jackson [25] notes the parable-like nature of many of these), and introduce their pupils to relevant literature (or the case histories of management education programmes), which portray effective behaviour in action and illustrate the consequences of pursuing alternative values and deploying (or not) significant competencies. In these ways they both demonstrate the overt and the psychological components of relevant competencies and help their children or trainees to clarify what they are good at and what motivates them and to resolve value-conflicts [26].

It may be thought that this amounts to nothing more than effective progressive or student-centred education. There is a sense in which this may be true, for this is indeed how about 5% of teachers—many of whom would describe themselves as progressive—do behave. But far more teachers describe themselves as progressive than orchestrate activities like those described above. In fact, as can be seen from the references cited in note 20, the progressive education movement is made up of a number of very different strands, and includes many teachers whose work can only be described as chaotic. It therefore cannot be emphasised too strongly that what we are talking about here is a carefully organised and demanding set of activities which are explicitly oriented toward fostering high level competencies.

In practice, the establishment of developmental environments involves teachers:

- changing from a concept of teaching as telling to a concept of teaching as facilitating growth;
- focussing on the competencies which are to be fostered instead of on the information (content) which is to be conveyed [27];
- thinking about the abilities and the areas of giftedness of each child—instead of about children's level of ability or about the distinctive needs of gifted (or able) children;
- searching out each pupils' incipient interests and competencies, inventing individualised, competency-oriented, developmental experiences to harness those interests and promote the development of those competencies, and monitoring each pupils' reactions to those experiences and taking corrective action when necessary;
- becoming specialists in human development and education—as distinct from subject specialists.

Barriers to the Introduction of the Requisite Educational Activities

It may be thought that the lack of clarity about the goals which are to be achieved and how they are to be achieved, the difficulties involved in fostering the desired qualities and the dearth of ways of monitoring their development are, in themselves, sufficient to explain the lack of progress in this area [28]. However, other processes are also at work, and it is on these that we will now focus.

Is the Problem a lack of Time, Money, Resources or Teacher Training?

Before moving on it is important to note that the significant barriers to educational reform do not include lack of time, money, resources, traditional support staff, or teacher training. In the UK, 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 fostering talents which are in many ways more important than those which pass for academic ability in most schools); some of the curriculum development projects of the sixties and seventies (e.g. Nuffield Science and The Schools Council Integrated Science and Humanities Projects) which 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) [29]. None of these initiatives met with notable success. They are now being joined by the equally well funded Technical and Vocational Education Initiative (TVEI) (the programmes for which, as currently implemented, 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 which make for enterprise] laid down in the *TVEI Guidelines*); the MSC's (1988) Higher Education Initiative (intended to foster similar qualities); the Scottish Consultative Council on the Curriculum's (1989) *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 [30].

Progressive education has a still longer history of well-funded and resourced attempts to tackle the problems which confront the educational system. These include those of Dewey [31], Aikin [32], Caswell [33] and the Newton School System [34]. 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 US school systems. Yet, in all these experiments, only about 5% of the teachers ended up doing what it was hoped they would do [35].

Lack of resources and time for conventional development are, therefore, not among the main barriers to the introduction of effective education. The other contributory factors which have emerged in the course of our work will be discussed under eight headings.

music and psycho-analysis into other—even nominally applied—areas like management education.

This identity between education and telling on the one hand, and knowing the right things to say on the other, has resulted in a vicious circle: teaching as a profession recruits a disproportionate number of people who want to be the centre of attention and the source of wisdom [48]—and these are exactly the sort of teachers that many pupils and students think they want. Those who have the skills and sensitivities which are required to facilitate growth tend not to become teachers in the first place—and are often rejected by pupils and students if they do find their way into teaching. The conflict between the satisfactions which most teachers want from teaching and those available to those who facilitate development—even in language laboratories—results in many teachers finding such activities so distressing that they corrupt them back into telling. Nuttgens [49] has developed the 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 to do so. The students who remain are those who are 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, we also set those who remain on tracks which lead to influential positions in society. They continue to earn promotion in the world in the same way, scorning management development programmes which would actually help them to do their jobs more effectively but do not provide them with words to show off to their superiors. McClelland [50] 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 drop-outs from school.

These observations suggest that, if progress is to occur, it will be necessary to get this conflict between the role required of teachers if they are to facilitate the development of competence on the one hand, and (i) parents', pupils', and students' accurate observation 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 by saying the right thing and, (ii) the satisfactions which teachers want from their jobs on the other out into the open and ensure that it is carefully addressed.

If more emphasis is to be placed on facilitating the growth of competence it will also be necessary to challenge another assumption which derives even more directly from the pervasive control of thoughts and behaviour that is exerted by the knowledge-oriented, 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 which, in the end, lead to something worthwhile and thus enable those concerned to experience the benefits and satisfactions which come from having engaged in those activities. What this means is that it is essential to organise modularised material around the on-going developmental process—and not to try to organise competency-oriented educational programmes around, or through, modules [51].

(4) The Problems which 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 pupils' motives and incipient talents. One then tries to invent individualised developmental experiences which will test one's initial hypotheses about incipient interests and talents and the processes which will lead them to flower [52]. One cannot know the outcome of this process in advance. One may end up doing things which are quite different to those one initially envisaged. Unexpected talents surface and develop. In this way pupils are *transformed* [53]. All of this is fine from an educational point of view. But it conflicts with widely held beliefs about the ways in which it is appropriate to spend public money. It is generally believed that one should not take risks with public money and that contractors (teachers or researchers) should be able to specify in advance what the results of the expenditure will be. Funding an *adventure* which may (or may not) transform people or existing understandings is viewed as not merely risky: it is illegitimate. The resolution of this problem has not only to do with legitimising venturesome activity in the public sector. It also involves finding ways of identifying the sorts of people (teachers or researchers) who are able to capitalise on what they stumble across in the course of an adventure—i.e. people who are able to recognise the value of something they have come upon by chance and turn it to advantage. It is dependent on developing tools for staff appraisal which make it possible to identify, recognise, reward and encourage the very competencies that we have been concerned with in this article.

(5) The Dilemmas Associated with Catering for Diversity

We have seen that high-level competencies can only be fostered when people are doing things they care about, and that this means tailoring developmental tasks to pupils' personal values, priorities and motives. It is sometimes impossible for pupils to pursue goals which they care about in the same classroom as that in which other pupils undertake tasks which *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 which form the germ of nearly all creative new insights and slowly bring them to the centre of attention so that they become usable, and subsequently reflect on, find ways of expressing, and then reformulate, such insights.

This need for variety and choice conflicts with the widely accepted emphasis on equality and uniformity in public provision (cf. the National Curriculum). 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 which 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 be necessary to

(1) The Absence of Tools to Help Teachers to Manage Multiple, Individualised, Competency-Oriented Programmes of Education

Running competency-oriented educational programmes is a difficult, frustrating, demanding, creative and inventive job. As indicated earlier, teachers have to find out what each pupil cares about and is good at, invent a personalised developmental programme which will enable the pupil to practise (and thereby develop) some of the wide range of competencies which it is possible for pupils to develop and which are needed in society (and only a few of which were mentioned above [36]) in the course of pursuing activities which he or she cares about, monitor the pupil's reactions to that experience, and take corrective action when necessary. When there are 30 or more children 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 [37]. If more teachers are to do what these outstanding teachers appear to do instinctively it will be necessary for them to have some tools which will help them to do explicitly what their colleagues do intuitively. Those tools will have to both enable them to identify each pupils motives or values and familiarise them (the teachers) with the concepts they need to think about multiple talents and their development [38].

(2) The Absence of Means of Giving Pupils or Teachers 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 pupils and parents now know that the main benefit offered by the educational system is not education at all. It is certificates which will buy entry to courses of further and higher education and thence entry to protected occupations—i.e. occupations which afford access to a disproportionate share of the good things in life [39]. They are therefore faced with a dilemma if they are offered programmes which are genuinely developmental but which do not lead to tradeable certificates [40].

Next, it must be noted that our data show that it is what is assessed in the certification and placement process—and not the educational aspirations of parents, pupils, teachers, curriculum councils, ministers of education or anyone else—which primarily determines what happens in school [41]. Teachers would generally prefer not to recognise this sociological reality and address the dilemmas it poses [42]. Many of them come into teaching because they want to help people and do a worthwhile job in the community [43]. They resent—and are demeaned by—the child-minding and social-allocative roles which society thrusts upon them. Rather than think about how the sociological imperative that schools allocate position and status might be grasped and satisfied in a way which would push them in the direction in which they wish to go, they want someone else (such as employers or the universities) to perform these tasks and leave them free to get on with education. Unfortunately the evidence is that this is sociologically naive. Teachers' behaviour continues to be determined by what is assessed—regardless of who does the assessing. But it is not only overt pressure from parents and pupils which results in teachers teaching to the tests. Teachers' own reputations depend on the number of pupils they get through examinations. As a result, so long as their pupils are unable to get credit in the certification and placement process for

achieving the wider goals of general education, so long will teachers themselves be unable to do so. Actually, ways of assessing these qualities are not only needed for certification purposes. They are also needed if teachers and pupils 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 activities concerned. 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 which largely determines the educational policy-making agenda. So long as this is known only intuitively—in the way it is currently known to parents, teachers, pupils 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 current educational-improvement-through-testing movement).

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 [44]. 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 which have preceded them, are about to fail because they do not sufficiently recognise either (a) that changed classroom processes and 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 which are, as we have seen, *by nature* permeated by values [45].

(3) The Conflict between the Procedures which are Required to Foster High-level Competencies and the Widely held View that Teaching Means Telling

The activities which are required to foster the development of high-level competencies are best captured by the term facilitating growth [46]. 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—with transmitting *information* from teachers to pupils. Schon [47] 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 produce graduates who are incompetent. 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 which they had observed in architecture,

introduce much more effective quality control mechanisms to (i) document the personal and social consequences of each of a number of demonstrably different options and (ii) 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 to do very different things and who possess different patterns of competence. For example, Taylor and his colleagues [54] have shown that there are 20 different types of outstanding physician and 12 different types of outstandingly creative scientist. Secondly, no one person could possibly develop all the concerns and patterns of competence we have identified in the course of our work [55]. Thirdly, pupils have very different preoccupations, concerns and talents: they want very different things from their education and very different satisfactions from their work [56]. Fourthly, 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 [57]. Fifthly, there is, in our society, a great deal more inter-generational social mobility—both upward and downward—than people believe. Thus Hope [58] found that there is as much social mobility in Scotland as there is in the USA and Payne [59] 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 pupils' 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 children 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 [60].

The first is that any teacher who attempts to foster them is invariably confronted by parents and pupils who either do not value (i) the competencies (such as the tendency to ask questions or the ability to find information for oneself) which it is hoped to foster or (ii) the activities the teacher hopes to initiate to allow her pupils to practise them. (A teacher might, for example, plan to foster a range of high-level competencies by encouraging her class to try to stop a factory polluting a local river—an activity which could generate immediate resistance from some parents [61].)

There are two reasons why this problem cannot be simply resolved by offering the public a variety of programmes which are tailored to different values and which aim to foster alternative talents. The first is that, as we have noted, the idea that teachers should treat different children in different ways conflicts with the current emphasis on equality in public provision. The second is that it is not mainly a question of parents being wholeheartedly *for* or *against* educational programmes directed towards these goals: most suffer from serious value conflicts. For example,

many parents want their children to enjoy the economic and social benefits which are associated with high status managerial jobs. Yet many do not want their children to do some of the things which it would be necessary for them to do in order to develop the competencies which are required to be good managers. Take the ability to ask pertinent questions, for example. Many parents do not want their children to do this—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 anxieties which arise when children undertake tasks which are on the verge of their capabilities [62]. 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.

As if these dilemmas were not enough to invalidate a solution to the values problem based simply on providing multiple options, there is the added complication that it is not only that many parents, on balance, do not want schools to foster these qualities in their own children, they also 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 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 which 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 pupils and parents a variety of demonstrably different educational programmes, the provision of variety is not sufficient in itself. It will also be necessary, at the same time, to surface and challenge many social and civic beliefs and resolve some of the dilemmas we have identified. To resolve those dilemmas it will be necessary to both accumulate much better research data on the differential consequences of each of the alternatives for the pupils concerned and for the societies in which they live, and to develop the tools and structures needed to administer variety equitably. 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. The role of the public bureaucracy will have to come to be viewed as being: (i) to invent, and provide in each community, a variety of options and (ii) to collect, and provide people with the information they need to choose between those options. The task of the public service must be to feed information *outwards* (rather than upwards). In such a situation 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. In other words, we require a much more transparent public bureaucracy, changed roles for elected representatives and changed citizenship activities. We require new, network-based, participative rather than representative, democratic arrangements to monitor and influence the public service. It appears, therefore, that both fundamental (if applied) research and development activities and programmes of adult civic education to promote the evolution of new means of managing society are unexpected pre-requisites to

effective schooling. It follows that one of the first steps to be undertaken by schools is, somewhat surprisingly, to change the beliefs they lead their pupils to adopt about the procedures which are required to promote social development.

A second problem posed by the value-laden nature of competence is that fostering important competencies means influencing pupils' values and political, economic and civic beliefs. This raises the spectre of brain-washing. Once again, the dilemmas which this poses are most likely to be resolved by providing better information on the long-term personal and social consequences of alternatives and providing more options with demonstrably different consequences.

But there is a still more thorny issue to be addressed. We have not only argued 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 teachers, indifferent non-pupils 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 which are unrelated to occupational or social performance. The second is that failure to address the issue does not mean that it will go away: it only drives it underground: people will still try to assess these qualities—but continue to do so by selecting ex-public school pupils or seeking assessments over the telephone—in the course of which they will get information based on chance (and highly unreliable) observations and interpretations of the behaviour of those being assessed—and without those concerned 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—i.e. highly self-interested people who destroy their organisations in their quest for personal advancement or people whose only competence is, like priests in a church, the ability to earn prestige and advancement by demonstrating a facility with words which have little connection with current economic and social realities—into senior management positions in society [63]. Once again, therefore, the way forward seems to involve programmes of adult civic education which are designed to lead people to think through these issues.

Throughout this section of this article 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 on the personal and social consequences which follow from people possessing alternative competencies and beliefs in the context of different social structures. 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 anyway. 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) Dysfunctional Beliefs about the Role of the Public Servant

We have seen that competency-oriented education requires teachers to pay attention to the needs of individual pupils and to invent individualised developmental programmes which will lead them to blossom. It also requires them to get together with other teachers to invent better ways of meeting pupils' needs, to find ways of influencing the tests which are available from test publishers (so that these 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 re-think our beliefs about how the public service should operate and to create structures (see Kanter [64]) which 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 can get credit for engaging in the difficult, demanding, frustrating and time-consuming activities which are required if they are to do their jobs more effectively.

Several things emerge from this brief discussion. What we are saying is that teachers, 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 pupil to pupil. If these observations are correct, it follows that new procedures are required to hold teachers 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 [65], Schon [66], Ferguson [67], Howard [68] and Raven [69] have all argued that the structures which 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. Also indicated by this discussion is 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.

(8) The Absence of an Innovative Educational System

One of the barriers to the evolution and diffusion of educational innovations arises from 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—and that the teachers' job is to carry out the activities they prescribe. These beliefs and expectations discourage teachers from studying the needs of their pupils and trying to invent better ways of meeting them. However,

the beliefs which have been mentioned are only part of a much wider problem. In Britain, innovation is thought to be the prerogative of management. The result is that the educational system does not have a structure—and a climate of beliefs and expectations—which stimulate and facilitate innovation. This is dysfunctional in itself, but the consequences go far beyond the failure of the educational system to innovate—because teachers powerfully communicate their beliefs about what it is important to attend to and how things should be done to their pupils [70] and this has a knock-on effect on society as a whole.

This is a convenient point at which to introduce the observation that it is a classical entrepreneurial task to take a vague—and often incorrectly formulated—felt need, define it more appropriately, invent an effective means of satisfying it, and then offer the solution that has been invented to prospective customers or clients so that they can purchase it if they want the benefits. One cannot normally expect most people—whether they are parents, teachers, politicians or administrators—to identify the solution to barely discerned problems until they have had some experience of the solution. Innovation therefore poses major problems for a public sector which implicitly assumes that it is the task of some non-specialist, committee-based, central authority—whether composed of politicians or administrators—to identify the changes which are needed and then impose them (without the messy, inventive, step-wise, trial-based, developmental process which is crucial to success [71]) on a system-wide basis.

If we are to find a more effective way of stimulating innovation in the educational system we will therefore have to cast teachers (and many other public servants) in new roles. To generate a climate of innovation it will, among other things, be necessary to create within the educational system (and other policy areas) the kind of parallel organisation concerned with innovation which has been described by Kanter [72]. It will also be necessary to create the kind of structures for, and process of, innovation described by Rogers [73] and Roberts [74]. All of these call for different relationships between researchers and practitioners and different structures to permit and encourage the trial and development of new ways of doing things. These in turn call for different expectations of, and job descriptions for, teachers, the development of different competencies on the part of teachers, for different staff appraisal systems, and for different patterns of relationship both between teachers on the one hand and administrators, outside bodies like the universities, and parents and other members of the community on the other.

What we are saying is, therefore, that the areas in which research and innovation are *most* badly needed in our society do *not* have to do with the production of widgets but with the ways we run society itself.

Implications for the Organisation of Research

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 which would foster them, in the course of skirmishes conducted

in spare time on the sidelines of projects which were funded for other reasons—or which were, indeed, not funded at all. The research which 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 we, as the British Educational Research Association (BERA), will have 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 which 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 which have, in the past, prevented policy-makers 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: (a) 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 [75]; (b) the apparently political nature of many of the issues, questions, and processes which needed to be understood if the presenting problem was to be solved. These were not thought to be appropriate topics for scientific research in the first place, and our conclusions were branded as political statements rather than scientific findings when we arrived at them. (This problem has bugged the physical and biological sciences in the past [witness Galileo] but is now primarily associated in the popular mind with the social sciences. What it really indicates is that the research is challenging previously unquestioned views of the world itself) [76]; (c) the time-scales involved (the research programme which led to many of the insights summarised above has been intermittently sustained for 30 years); and (d) the non-obvious nature of many of the real causes of the presenting problem. One consequence of the distance between the symptoms (e.g. pupil disenchantment) and their causes (e.g. adult beliefs about how their society works and should work)—and thus remedial action—is that researchers are typically 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 solving, that problem. Unfortunately they were often still far outside the perceived sphere of influence of those who commissioned the research—an observation which 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 sub-set of inappropriate beliefs more easily. Many of the fundamental new insights into the nature, development and assessment of competence which were briefly mentioned above [77] emerged in the course of attempting to grapple with applied problems. Likewise, the *need* for much of the fundamental research the need for which has been highlighted in this article, 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 which 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 classrooms in which the relevant competencies are not exercised and developed—i.e. in traditional classrooms. But one cannot change classrooms in any important way without either a better understanding of pedagogic processes or a means of giving pupils and teachers credit for new kinds of achievements. But one cannot give pupils credit for these achievements without the tools which it would be the central objective of the exercise to develop. Not only is this a Catch 22 situation, the teachers and researchers concerned need to have (i) the time required for, and be able to tolerate the frustrations involved in, innovative work [78] and (ii) both the time. and the personal qualities, required to gain the confidence of pupils, parents and prospective employers.

The idea that fundamental research can usually only be undertaken 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 which 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—which are required if important social research is to be carried out effectively [79]. What it *is* appropriate to do is to urge BERA to establish a working party to review these questions and subsequently to ensure that the results are 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 and who control the organisation and funding of social research [80].

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NOTES

[1] I am deeply indebted to my wife for her assistance in preparing this article.

[2] Parker, 1894; Dewey, 1899, 1902, 1910, 1916; Kilpatrick, 1918; Scottish Education Department, 1965; Plowden Report, 1966; HMI England, 1978; MSC 1984; 1985a, 1985b, 1988; Training Agency, 1989; Council for Management Education and Development, 1989.

[3] Morton-Williams *et al.* 1968, 1971; Bill *et al.* 1974; Johnton & Bachman 1976; Raven 1977a; De Landsheere, 1977; Centre for Educational Sociology, 1977; MacBeath *et al.* 1981.

[4] Sykes, 1969.

[5] Van Beinum, 1965.

[6] McClelland, 1961; Burgess & Pratt, 1970; Schwartz, 1987.

[7] McClelland & Daily, 1973, 1974.

[8] Price, *et al.*, 1971.

[9] McClelland, 1962; Taylor & Barron 1963.

[10] Beuret & Webb, 1983.

[11] Raven, 1984a.

[12] Flanagan & Burns, 1955; ITRU 1979.

[13] Klemp *et al.*, 1977; Raven, 1984a; Schon, 1983.

[14] Schneider *et al.*, 1981, Raven, 1987a.

[15] Klemp *et al.*, 1980; Huff *et al.*, 1982.

[16] Schon, 1983.

[17] Schon, 1983.

[18] Flanagan & Russ-Eft, 1975; Raven, 1980b, 1984a; Flanagan, 1978; Bachman *et al.*, 1978.

[19] ORACLE; Wright, 1950, 1958; Goodland, 1970, 1983; Bennett, 1976; Raven, 1977a; HMI (England), 1978; HMI (Scotland), 1980; Fraley, 1981; Raven *et al.*, 1985.

[20] Schon'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 correct.

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 & 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—i.e. 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 a wide range of alternative talents which schools might foster). Still less does it encourage them to foster different cocmpetencies in different children. Kilpatrick (1918) indicates that, in translating a plan into a reality, pupils should

practise purposing, planning, execution and judging. These are high level competencies, but Kilpatrick does not analyse them and present them in a way which would encourage teachers to reflect on what it means to, e.g. plan and execute, or on the pre-requisites 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 National Society for the Study of Education [NSSE]) nowhere identifies the competencies which 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 (1957), Stratemeyer *et al.* (1947), Caswell & 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 10-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.

[21] Raven, 1977a, 1980b, 1984a, 1986, 1988a, 1989; Raven *et al.*, 1985. See also McClelland, 1965; Jackson, 1986.

[22] The conative components—those which have to do with will, persistence and determination—have sadly been neglected in psychology, although it is of interest that Dockrell & Broadfoot (1977) and Hope (1985) found that a factor composed of ratings of these qualities was one of the main ways in which teachers discriminated between their pupils. Much earlier, MacArthur (1951) labelled such a cluster of variables as Factor X.

[23] These are spelt out in the references cited in footnote 21, above.

[24] Klemp, Munger & Spencer, 1977; Raven & Dolphin 1978; Raven 1980a,b, 1989a,b; Winter *et al.*, 1981; Schon, 1983, 1987; Sigel & McGillicuddy-DeLisi 1984; Jackson 1986.

[25] Jackson, 1986.

[26] See Jackson (1986); McClelland (1965); Winter *et al.* (1981) and Raven (1977a, 1984a, 1989a,b) for a discussion of the importance of the value-clarification component.

[27] This does not mean that information is unimportant. On the contrary, new, high-level, specialist, knowledge—and unique combinations of that knowledge—is fundamentally important. See also Schon (1983) for a discussion of the hegemony of the technical–rational (information-based) concept of competence.

[28] See Raven (1977a); Raven (1984a,b); Raven *et al.* (1985) and Raven (1988a) for our contributions to resolving these difficulties.

[29] See Hargreaves (1988) for a discussion of these movements.

[30] I have discussed the inadequacy of the latter measures, as introduced by the Government, as a mechanism for school improvement in Raven (1989a).

[31] Dewey, 1902.

[32] Aikin, 1942.

[33] Caswell, 1942.

[34] Whiting, 1972.

[35] Fraley, 1981.

[36] See Raven (1977a, 1984a) for more complete lists of these competencies.

[37] Raven *et al.*, 1985.

[38] The development and provision of such tools is not as unrealistic as may at first sight appear because the computers which 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,b).

[39] Raven, 1977a.

[40] 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 Schon 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]).

[41] Dore, 1976; Raven, 1977a; Broadfoot, 1979.

[42] Raven, 1977a,b.

[43] Morton-Williams *et al.*, 1966.

[44] See Stansbury (1976, 1980); Broadfoot (1979, 1983, 1986); Burgess & Adams (1980, 1986).

[45] 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 which will be promoted equally loudly as the solution to the educational system's problems.

[46] Raven, 1980a; Raven *et al.*, 1985.

[47] Schon, 1983, 1987. Schon does not, perhaps, 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 in which the educational system works and discerned the sociological rather than educational functions it performs.

[48] Morton-Williams *et al.*, 1966.

[49] Nuttgens, 1988.

[50] McClelland, 1961.

[51] Note that this comment applies with equal force to the competence areas which 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.

[52] Raven, 1980b; Raven *et al.*, 1985.

[53] Bachman *et al.*, 1978; Jackson, 1986.

[54] Taylor & Barron, 1963; Price *et al.*, 1971.

[55] Raven, 1984a.

[56] Raven, 1977a.

[57] Raven, 1977a; Burns *et al.*, 1984; Sigel 1985; Pellegrini *et al.*, 1985; Miller *et al.*, 1985, 1986.

[58] Hope, 1985.

[59] Payne *et al.*, 1979.

[60] 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.

[61] See Raven (1989a) for a fuller discussion of this issue.

[62] See Raven (1980a,b).

[63] See Raven (1984a); Hope (1985); Nuttgens (1988).

[64] Kanter,1985.

[65] Toffler, 1980.

[66] Schon, 1971/73.

[67] Ferguson, 1980.

[68] Howard, 1980, 1982a, 1982b.

[69] Raven, 1983b, 1984a, 1988b, 1989a.

[70] 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 in Raven & Varley (1984).

[71] Rogers, 1962/83.

[72] Kanter, 1985.

[73] Rogers, 1962/83.

[74] Roberts, 1969.

[75] See Donnison (1972); Nisbet & Broadfoot (1980); Raven (1985).

[76] See Raven (1984b) for a discussion of the dilemmas which our work posed for our sponsors.

[77] See Raven (1984a) for more detail.

[78] See Raven (1982b, 1984c) for a discussion of the problems created by current beliefs and expectations.

[79] Donnison (1972), Cherns (1970) and Raven (1975, 1982a,b, 1985, 1987b) have discussed some of 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 the present Government 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 which 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 which 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 mainstream 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 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 which 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.

[80] Of course, the potential value of this exercise will be subverted if it is viewed by those involved, not as a means of accomplishisng 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 an interesting statistic which I picked up at a recent AERA meeting: out of every 1000 journal articles that are published only 20 contain any new empirical data—and only two 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 which 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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