

BEYOND THE 3RS: ACHIEVING AND EVALUATING THE WIDER GOALS OF EDUCATION

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Overview

The main purposes of this paper are to: (i) re-emphasise the wider goals of education; (ii) highlight some the problems which effective work in the area pose for assessment; (iii) identify some of the key features of the educational processes that are required to achieve the goals; (iv) indicate ways in which some of the assessment problems can be ameliorated; and (v) illustrate some of the other barriers to effective work in this area. The paper summarises material which has been published in more detail in elsewhere².

The Importance of the Wider Goals of Education

The wider goals of education, often signalled by such phrases as "the development of the whole child", have been emphasised in curriculum documents from many countries³ (although, significantly, not in *The Condition of Education*⁴, *A Nation at Risk*⁵ or the *National Curriculum*⁶). The importance of fostering qualities like initiative, responsibility, the ability to work with others, problem-solving ability and the ability to understand how organisations and society work and the willingness to play an active role in them has also been emphasised in documents on vocational education⁷ and stressed for almost a century in the most widely cited books in teacher education - such as those by Parker, Dewey and Kilpatrick. And some American school systems have, over the past 60 years, poured vast amounts of time and money into educational programmes which sought to foster such qualities⁸.

These wider goals have not only been emphasised by educational philosophers and those responsible for educational policy documents. Parents, teachers, pupils, ex-pupils, and employers also stress them. When their opinions are canvassed it emerges that the vast majority of each of these groups think that the main goals of education include fostering such qualities as initiative, the ability to make one's own observations, the ability to communicate, leadership, and the ability to understand and influence society⁹.

As if this evidence were not enough to underline the importance of fostering such qualities, there is now abundant research which demonstrates the importance of such competencies in the workplace and society. Studies have been made of the qualities which distinguish more from less effective machine operatives, bus drivers, construction site workers, naval officers, doctors, managers, teachers and scientists¹⁰ and of those which distinguish those employed in more successful and innovative firms from those employed in less innovative firms¹¹. The concerns and competencies which characterise the general populations, employees and managers of more versus less rapidly developing economies have also been studied¹². And there have been investigations of the competencies possessed by more (versus less) effective citizens and of those which characterise the members of more (versus less) successful political systems¹³. A fairly consistent picture emerges: the qualities which make for effectiveness in life - both at work and outside - and those which result in economic, social, and personal development, are indeed those emphasised by many writers

on education for over 100 years and those emphasised by most parents, pupils, teachers, employees, and employers.

Additional insights do, however, emerge from this work. One is that, at the level of the team, organisation and society, the need is for a balance of people who have *different* preoccupations and patterns of competence. (The implication is that it is essential for the educational system to produce people with a wide variety of *different* concerns and patterns of competence - a goal which has serious implications for common curricula and preoccupations with equality.) The other is that the ability to develop one's own understanding of how society works, the ability to influence it, and, especially, the ability to improve its operation (i.e. civic and political competence) all turn out to be much more important aspects of competence in modern society than the previously mentioned research suggests.

These Goals are Neglected

Despite the emphasis which has been placed on, and the demonstrated importance of, fostering qualities of this kind, surveys¹⁴ have consistently shown that the vast majority of teachers (i.e. about 95%) neglect to do so. Given this neglect, it is not surprising that, when outcomes of education in these areas are assessed, the results are dismal¹⁵. There are several important and non-obvious reasons why teachers generally fail to foster these qualities, but, in the interests of brevity, only three will be touched on here¹⁶. The first two involve the failure of curriculum specialists to (a) highlight competencies like those mentioned and distinguish them from the knowledge-of-content goals which dominate "subject"-based curricula, textbooks, and teaching, and (b) articulate the educational processes to be used to foster these competencies and either (i) link them to subject-based teaching, or (ii) highlight the tensions between the two. The third concerns the absence of appropriate, formative and summative, procedures to assess progress toward these goals.

Background to the Research

Although this paper deals mainly with the nature of high-level competencies and how they are to be fostered, particular attention will be paid to assessment for two reasons: firstly because teachers and pupils mainly attend to that which is assessed; secondly because becoming clearer about the barriers to assessing high-level competencies and the procedures which are needed to surmount them leads one to become clearer about the nature of the competencies themselves and thus (i) how their development is likely to be promoted and (ii) some of the other barriers to fostering them in schools. The discussion will be cyclical: we will start by looking at some aspects of the work of one teacher who effectively fostered high-level competencies and examine the problems it poses for assessment. Then we will move on to look at other aspects of her work and the problems which they pose. Finally, other features of the processes which promote the development of such competencies will be highlighted from the work of other teachers. A number of important barriers to wider dissemination of the kind of work that is described will come to light in the course of the discussion, but a few additional barriers will be mentioned toward the end of the paper.

The material comes from a study which was initiated because research undertaken by Her Majesty's Inspectors of Schools (HMIs)¹⁷ in Scotland had shown that, despite repeated exhortations by governments - over a period of 40 years - to encourage teachers to foster qualities like those mentioned, and despite considerable rhetoric, there had been little change in Scottish primary education - nor, as Bennett¹⁸ had shown, in England or, as Fraley¹⁹ and Goodlad²⁰ had shown, in the US. We were therefore asked to find some teachers who successfully fostered some of the qualities mentioned, portray their work in such a way that others could and would do likewise, document the benefits (so that more parents, teachers, administrators and politicians would recognise its value), and identify the barriers which had prevented wider diffusion of such work. The detailed results have been published in Raven, Johnstone and Varley (1985)²¹.

Previous Work in the Area and Its Limitations

Mainly to discourage readers from viewing the material presented as advocating an approach which has been tried and shown to be a failure it is important to set our material in the context of the American literature on *Progressive Education* and *Core Curriculum*. Despite the fact that it would be easier to distinguish the activities to be described from those which have been undertaken in the name of

"Progressive Education" after we have summarised our own material, this approach would not deter readers from identifying what is being said with the writings of these other authors

Many of the educational philosophers and policy makers who have advocated Progressive Education or Core Curriculum have specified the goals which are to be achieved only vaguely. This has been particularly true of what are perhaps the two largest groups of "Progressive Educators", namely: (1) the "romanticists" who have advocated that form of "child-centred education" in which the child is to be left free to identify and develop his or her own potential, and (2) those who have been so appalled by either or both the personal and social consequences of the competitiveness bred in many schools and the criteria of "academic merit" used to allocate position and status that they have reacted against all explicit objectives and standards. These groups have laid themselves open to the accusation - which Bernstein²² rightly levelled at the "progressive" British Plowden Report - that they were urging teachers to pursue multiple but implicit (or intangible) goals.

The statement that few writers on Progressive Education have made either the goals which are to be achieved or the methods to be used to reach them explicit remains true despite a welter of accounts of classroom practice. Most of these read as if the object of the exercise were to have children discover a mass of low-level everyday knowledge - when the objective could have been to develop a range of high-level competencies. Indeed most of the accounts of the most prestigious work in the area - that occurring at the Lincoln School²³ - come across in precisely this negative way despite the fact a close reading of the accounts of those who organised a few of the projects shows that they had other objectives in mind.

What is almost entirely missing is both a theoretically-based account of the motivational dispositions, or *competencies*, which were to be fostered through the activities described, and an account of the developmental *process* itself. For example, it is often emphasised that pupils are to choose the project they will undertake "democratically". However the competencies to be developed in the course of either that "democratic" decision-taking process or in the course of the project itself are rarely spelt out²⁴.

Progressive Education has rarely been portrayed as having distinctive educational *goals*. Still less has it been characterised as a highly demanding and structured set of activities designed to foster more important competencies than those which dominate traditional classrooms. It is usually presented as a different *method* of achieving the same goals as other teachers strive to attain and, perhaps, equalising achievement of those goals²⁵. Furthermore, none of the great men who have written on Progressive Education have followed through into the crucial business of assessment²⁶ - yet no one - teacher or pupil - can pursue multiple, intangible, and unassessable goals very effectively.

A fundamental problem in making what will be said later stems from the hegemony of the view that education is neither more nor less than the inculcation of knowledge. Schon²⁷ terms this view the technico-rational model of education. Unexamined acceptance of this position makes it very difficult for most people to hear what is being said by those who are not invested in the technico-rational paradigm. I labour the point because, unless readers understand that we will not be talking about mastering content, they will not hear what *is* being said. The teacher on whose work we will focus on was not primarily concerned with conveying knowledge of subject matter to her pupils (although she did encourage them to master, and contribute to the development of, high-level specialist knowledge). She was concerned with fostering high-level motivational dispositions or *competencies*.

Just how unusual this approach is may be underlined by noting, first that there is no reference to such work in the 10 volume *International Encyclopaedia of Education*²⁸ nor in the later editions of the *Handbook of Research on Teaching*²⁹. And, secondly, by noting that Taylor³⁰ is almost the only American psychologist or educationist to use the word "learning" to refer to anything other than mastery of content. Yet there is no reason why it should not be used to refer to learning to do such things as persuade, muster arguments, judge, make good decisions, initiate hunch-based action and use one's feelings to monitor its effects, put others at ease, lead, invent, make one's own observations, develop better ways of thinking about things, or build up one's own understanding of how society works and the willingness and the ability to influence it. The focus of this paper is on how children learn to do precisely these things - that is on how the

development of competence to do such things can be fostered - and on how these kinds of learning and development can be assessed³¹.

Competency-Oriented Education and the Problems it Poses for Assessment

The teacher whose work we will mainly discuss made use of interdisciplinary, project-based, enquiry-oriented, methods in almost all of her teaching³². This in itself was extremely unusual: even if project work existed in other classrooms it tended to be viewed as a kind of time-filler or reward, available to those who had "finished their work", at the end of the day.

The project work which this teacher's (8 to 11 year old) pupils undertook within their classroom was an integral part of original enquiries carried out in the environment around the school. These enquiries were organised around a topic, or theme. One such theme covered "The local area and its surroundings". This "project" involved a re-examination of a local archaeological excavation, a study of butterflies and their habitats, a study of population movements over time, a study of the history of each house and the occupations of its changing occupants, changes in patterns of agriculture, and a study of the current social structure of the area - who was related to whom and what they talked about. All projects involved original research. However some involved the initiation of social action - such as getting something done about pollution in the local river. A project might be used both as a tool of social research and as a means of promoting the development of the understandings and competencies required to initiate effective social action. Within each project, pupils had personal projects, distinctive areas of specialisation, and distinctive roles. The project-work which was carried out did not consist - as it so often does - of merely looking material up in reference books - although carrying out an original enquiry or initiating and monitoring some social action might involve tracing and using *specialist* books, research reports, or original accounts of scientific investigations.

But all of this, although extremely unusual, was not what was *most* distinctive about the work of this particular teacher. Most striking were her unusual concerns. Like Barnes³³ and Curtis³⁴, she was not pre-occupied, as were most teachers, with course work; with covering a syllabus. But neither was she absorbed with a particular process - such as creating a "democratic" classroom or encouraging an interest in architecture. Instead she focused *on the high-level competencies which the pupils were to develop in the course of their work*. These competencies included reading, writing, spelling and counting. But they also included communicating, observing, finding the information which was needed to achieve goals (which often had to be collected by observation or by talking to people rather than reading books), inventing, persuading, and leading. In this context even the 3RS took on a different complexion. Reading, for example, came to include such things as using structure to locate a section which might contain desired information, using what was read to stimulate lateral thinking, and the ability to discard the irrelevant. Writing came to involve such things as the use of allusion and innuendo to influence the reader.

Since the objective of this paper is to help readers become clearer about how such competencies - and the other high-level competencies mentioned in the introduction - are to be both fostered and assessed, and since achieving and assessing educational goals are two sides of the same coin (with the result that debate of the one illuminates the other) discussion of the educational and assessment issues will be intertwined³⁵. Our route forward will take the form of a spiral in which the initial discussion of both sets of issues will provide a basis for the next round of discussions.

First-level Problems

It is easiest to begin our discussion of the benefits conferred on her pupils by the work organised by this teacher by reviewing those which are closest to the more widely discussed and assessed outcomes of education. However, apparently familiar though these benefits are, they pose almost insuperable problems for conventional tests and forms of assessment.

Consider the following: As has been indicated, in the course of his environmentally-based project work, one pupil had become an expert on the distribution of different species of butterfly in the locality and the dependence of various stages in their life cycles on local habitats. Another had become an expert on the history of the hay-rake: how it had changed over time and how those changes related to developments in

steel making and patterns of land use. A third had become an expert on the social structure of the area: who was related to whom, who knew whom, and what the various groups talked about. The more carefully we examined the class's work the more we noticed that each pupil had developed an idiosyncratic area of specialist knowledge - even though his or her area of expertise could not always be indicated by reference to an academic discipline.

The problems which these accomplishments pose for conventional measurement procedures are almost insurmountable. Separate tests would be required to do justice to each pupil's accomplishments. In one sense this is not important - because not only was the teacher aware of each pupil's achievements, so, too, were many of the other pupils. But problems arose when the school had to deal with external agencies: parents, heads of secondary schools, and inspectorial (accountability) agencies. These problems would have been acute had the school been a secondary school which had to deal with colleges and employers.

Second-level Problems

But these are the least of the measurement problems posed by the achievements of these pupils. More important than the unique store of specialist knowledge built up by the first pupil mentioned was the fact that he had developed a selection of the *competencies* required to be a scientist. Among other things, he had learned to be sensitive to the cues which told him that he had an unresolved problem; he had developed the tendency to try to make glimmering insights on the fringe of consciousness explicit; he had experienced the satisfactions which come from noticing, and beginning to understand, something which no one had noticed or understood before; he had contacted university lecturers who were interested in related problems and spoken to them as equals; he had learned not only that he had a right to ask questions and that his questions were as good as those posed by others, but also that he had a right to expect others to help him to answer his questions; he had learned to tolerate the frustrations which are involved in trying to find better ways of thinking about things; he had learned to find ways of summarising his insights, not only in words but also in diagrams and mathematical formulae - indeed he had even come to see mathematics as a set of languages.

These competencies are a sub-set of those which are required to pursue any valued goal effectively - competencies which can, to a degree, be substituted one for another³⁶. We have come upon them here in connection with discipline-based studies, but we could equally well have encountered them as a result of examining other activities which people might value and be motivated to undertake effectively. But, pursuing the academic-discipline-oriented line of enquiry on which we have embarked, it is important now to note that the second pupil mentioned had developed a different sub-set of these self-motivated preoccupations, sensitivities, thoughtways and perceptions in the course of undertaking an original historical study. The third had developed a similar - but by no means identical - selection of the competencies needed to be an excellent sociologist. And so on for the other pupils.

It follows from these observations that, even more important than our traditional assessment procedures' inability to identify and credential the possession of idiosyncratic, specialist, high-level, new, knowledge, is their inability to document the growth of the subtle skills, motivated habits, thoughtways and pre-occupations which go to make up the repertoire of the competent scientist, historian or sociologist. And the same is true of the competencies required to be for example a competent photographer, reporter, cook, or mother.

Third-level Problems

But even this does not exhaust the problems which the educational process orchestrated by this teacher pose for assessment. The pupils had worked as a group and had developed specialised roles and competencies within that group. One pupil had become good at co-ordinating the activities of others, another at putting others at ease and smoothing over interpersonal difficulties. Another had become an expert at presenting the results of other people's work to external visitors - a communicator rather than an original researcher. In the course of undertaking these activities all pupils learned to communicate, to invent, to make their own observations, to work with others, to lead, and to follow. Conventional

assessment procedures are utterly unable to testify to, or contribute to the development of, high-level competencies.

One particularly important benefit of the approach adopted by this teacher was that the pupils came to view each other as having both specialist areas of knowledge and particular types of competence. Instead of learning to think of each other - as do pupils in most other classrooms - as "smart" or "dumb", they, aided by concepts supplied by their teacher, learned to identify each other's strengths and talents. To the extent that this is not negated by their experience in secondary and higher education, such a way of thinking would seem likely to provide an important basis on which to build one of the most important managerial competencies identified in the studies summarised in *Competence in Modern Society*³⁷ - namely the tendency to think about the talents of subordinates and colleagues and how best to place, develop and utilise them.

General Observations on Assessment

The sets of measurement problems identified above are of the greatest importance. The absence of means of assessing these three sets of outcomes of education helps to explain why these educational processes have not been more widely disseminated. Teachers like the one whose work prompted this discussion establish their programmes as a result of persistent, demanding, painstaking and inventive work over many years. They develop special skills and sensitivities. It is too much to expect most teachers to do this. If other teachers are to run similar programmes they will need tools to help them to identify each pupil's incipient interests and competencies, to help them to invent appropriate developmental experiences which can be offered to each pupil to help them to develop competencies, and to monitor pupils' subsequent development in these terms. They will need tools to help them to identify the competencies which their pupils have developed so that these can be recognised when the time comes for entry to courses of further or higher education or a job. And the teachers themselves need some means of getting recognition - from parents, colleagues and superiors - for having fostered these competencies³⁸.

What is more, without the necessary developments in measurement methodology, it is impossible for pupils (or their teachers) to monitor progress toward their goals or point to what they have learnt. If they cannot compare themselves either with themselves at some previous time or with other pupils - perhaps in another school or class - they cannot be certain that they have learnt anything. Under such circumstances they are unlikely to feel that their time has been well spent. And hence, also, the hegemony of the paradigm that education equals knowledge-of-content which becomes so important.

Key features of the Developmental Process

Having highlighted some of the problems which this teacher's educational activities pose for assessment, we may now draw together some of the distinctive features of the educational processes she employed. What she did is best captured by saying that she created *developmental environments* in which pupils were helped to identify their motives and incipient talents and then encouraged to practice, and thereby develop, a number of high-level competencies (including reading, summarising, and communicating competencies) whilst undertaking activities they cared about. What they did was often important to others as well as to themselves. It contributed in important ways to the overall performance of the group and, in some cases, provided important information to outsiders - such as university researchers or local authority personnel. However, the teacher strengthened her pupils' tendency to display difficult and demanding, self motivated, competencies by arranging things so that pupils would experience the satisfactions which came from so doing.

To orchestrate these activities the teacher tried to make explicit each child's motives and incipient talents and to invent experiences which would tap those motives and harness those talents. She then monitored each child's reactions, and intervened again when necessary. She recruited the other pupils to assist in this process, thus both sharing with them the concepts which are required to think about multiple talents and engaging them in the patterns of thinking and feeling which are required to develop and utilise them.

Other Features of the Educational Process

We may now move beyond the work of this teacher and the problems it poses for assessment to discussion of how effective teachers promote the development of multiple high-level competencies and mention some of the other things which effective teachers do. The teachers' *own behaviour* is often a striking source of stimulation and growth for their pupils. These effective teachers share their own thoughts and feelings with their pupils. They share their planning and anticipations, their concern with excellence, innovation and efficiency, their disdain for petty regulations, their anticipation of obstacles and their search for ways round them, their concern with aesthetics, their feeling of being in control of their destiny. They demonstrate how to capitalise upon whatever resources are available - indeed how to select their purposes in the light of available resources and achieve these purposes with these resources instead of, as is characteristic of many other teachers, complaining about a lack of resources. They communicate their values to their pupils and portray effective, competent, behaviour in a form that the pupils can emulate. Not only explicit behaviour is portrayed, but the entire pattern of thinking and feeling which lies behind it. By eschewing the role of expert and provider of wisdom - by regularly (and successfully) trying to do things which they did not know how to do and tackling questions which they did not know how to answer - they show their pupils how to be learners, adventurers, and innovators. By demonstrating how thoughts, feelings, and persistence lead to satisfactions they powerfully strengthen pupils' tendency to engage in the relevant behaviours. By accepting pupils' suggestions, they show them that authorities are not only sources of information and organisation, but also people who, at best, help others to articulate and share what they know, acknowledge what others have contributed, and lead others to feel capable of achieving, and motivated to achieve, their own goals.

In a similar way their pupils learned a great deal from, and came to rely extensively on, their fellow-pupils. They developed a partnership in learning. Aided by the vocabulary supplied by their teacher, they became able to think about, and value, the contributions of others who had not "done as they were told". The teachers would enlist the help of their pupils in trying to find ways of tapping the energies of other - perhaps in some ways disruptive - pupils. In this way they both made explicit the fact that not everyone contributes in the same way to a group process and also demonstrated the thought processes which contribute to effective leadership and management. By involving their pupils in this process they helped them to develop leadership and managerial skills.

Some of the teachers encouraged their pupils to read stories whose heroes or heroines shared their own particular concerns and portrayed some of the psychological and physical components of the competencies they were predisposed to exercise and illustrated their personal and social consequences. In this way they helped their pupils to clarify their values and exposed them to role models who translated their own values into effect. Some also got their pupils to write stories into which they wrote characters who shared their concerns. As they wrote about the activities undertaken by these characters, they would mentally rehearse some of the components of the competencies which they themselves were predisposed to display. Some of the teachers brought adults into the school to do things which made them enthusiastic and engage some of the children in the process or placed pupils with particular adults outside the school so that the pupils would see adults doing things they themselves liked, exercising high-level competencies in the process, and contributing to the community. In this way, these teachers exposed their pupils to a much wider range of potentially significant role models than they themselves could possibly have provided.

Related Work in Other Educational Settings

While these examples come from primary school practice, Winter, McClelland and Stewart³⁹, in an outstanding study of Ivy League and other colleges in the US, have shown that the same processes operate at this level. The course content does not of itself contribute to the development of such competencies. Neither does residential experience. What is important is (i) participating in challenging activities which demand high levels of initiative, self-reliance, leadership and specialist knowledge, (ii) experiencing the satisfactions which come from having undertaken such difficult and demanding activities successfully, and (iii) exposure to mentors who portray the thoughts, feelings and behaviours which are characteristic of competent people. Jackson⁴⁰ noted the importance of many of the activities mentioned above in his study of

the maximally developmental and transformational experiences which people had had in the course of their education, broadly defined. Something which he noticed, but which was, in retrospect, also true of the effective teachers, was that they were unusually likely to read parable-like stories to their pupils.

It may be useful to underline the urgency of creating more educational environments which promote the development of multiple talents by reminding the reader that the research which was briefly summarised earlier showed that it is precisely these self-motivated competencies, combined with unique specialist knowledge and combinations of knowledge, which distinguish (i) more from less effective workers - at all levels from managing directors to shop floor workers, (ii) more from less effective citizens, (iii) more from less fulfilled members of society, and (iv) the members of more from less rapidly developing organisations and societies.

Toward Assessments of Competence

So far in this paper we have moved some way toward making more explicit: (i) the competencies that are to be fostered in education; (ii) the nature of these competencies; (iii) the ways in which these qualities are to be fostered in schools; (iv) the problems which these competencies pose for traditional assessment paradigms; and (v) that one of the most important barriers to the wider adoption of the necessary educational activities is the "intangibility" of the qualities which are to be fostered. Their "intangibility" makes it: (i) difficult for teachers to manage, simultaneously, some 30 individualised, competency-oriented, educational programmes in which pupils develop some of these wider competencies in the course of undertaking activities which they care about, (ii) difficult for students to monitor their own development and to recognise either their own accomplishments or those of their peers, and (iii) impossible for students to get recognition for possessing high-level competencies when the time comes to look for a job or place on a course of higher education. (The last of these is of particular importance because other research we have undertaken⁴¹ has shown that it is what counts in the certification and placement process - and not the wishes of parents, teachers, or ministers of education - which primarily controls what happens in schools.)

Finding ways of assessing generic competencies is therefore crucial if programmes which will foster them are to be introduced more widely into schools. Ways of doing so have been described in some detail elsewhere⁴². Here we will make only three observations.

The first is that, since taking initiative, solving problems, communicating effectively, and exercising other high-level competencies, are all difficult and demanding activities, no one is going to display them unless they care about the activity they are undertaking. Teachers therefore cannot make meaningful assessments of these qualities unless those concerned are working at tasks which they personally care about. However, having once created "developmental environments" in which pupils *can* pursue their own interests and in which they are sensitively coached so as to foster the requisite competencies, it *is* possible for teachers to observe pupils exercising such competencies and, as a result, to make meaningful assessments of them.

The second is that, if one sets oneself the task of documenting *what* pupils have learned whilst they have been in school (as distinct from finding out whether they have learned something that one thinks they ought to have learned), one finds oneself looking at the effects of educational programmes on what pupils think it is important to do, on their self-images and priorities, and on what they think would happen if they were to undertake activities they care about. When one does this, one finds that one *can* document their growth - or, as is more often the case in schools as they are currently organised - the lack of it. One then finds that teachers, far from "making no difference", have dramatically different effects on pupils' values, priorities and patterns of competence.

Thirdly, and more generally, the assessment of high-level competencies requires a value-based rather than a value-free measurement model. As we have seen, it does not make sense to attempt to assess people's competence to undertake high-level activities unless they are doing things they care about. Having established what people care about it is possible - by both observation and questioning - to find out whether they do the things which it would be necessary for them to do to undertake those tasks effectively. In relation to these tasks, do they try to analyse and conceptualise? Do they seek other people's help? Do they

turn their emotions into what they are doing? Do they persist in the face of difficulties? And so on. These competencies contribute cumulatively and substitutively to effective performance. It is the number of these different things which they do which is important. The measurement model we need is therefore one which is value-based rather than value free and one which is primarily concerned with identifying the range of relevant competencies which the individual brings to bear. For these reasons, it is impossible to index these qualities using the conventional value-free, internally-consistent, paradigm.

It is important to underline two conclusions which follow from what has been said. Firstly, pupils' opportunity to develop and display high-level competencies is dependent on what their teachers do. It is therefore dependent on their teachers' ability to manage independent, thoughtful, people who make their own observations and take initiative - individually or collectively - to do something about those problems. Secondly, it further follows that what teachers, as observers, see when they evaluate their pupils is very much a product of their own creation. Nevertheless it *is* still possible, in a sense, to look inside pupils' heads and find out what they value, how they think, what their priorities are, and what strategies they would deploy to tackle problems they care about. If one frees oneself from traditional concepts of measurement it *is* therefore possible to obtain assessments which are at least no more dependent on the concerns and thoughtways of whoever constructed the test than are traditional measures⁴³.

Other Barriers to Achieving the Wider Goals of General Education

It would be misleading to give the impression that the absence of an appropriate understanding of the nature of high-level competence and the ways in which the development of its components is to be promoted, the absence of tools to help teachers to orchestrate multiple competency-oriented educational programmes, and the absence of appropriate summative assessment procedures are the only barriers to wider implementation of competency-oriented, multiple-talent, programmes of education. Other barriers stem from the dilemmas which the value-laden nature of these qualities pose for teachers who wish to foster them, from the difficulties which teachers have in managing independent, thoughtful, pupils who decide for themselves when they will work and what they will work at, and from the problems which the requisitely diversified educational programmes pose for quality control in education. Interested readers will find accounts of some of the other barriers in Raven (1984b; 1990b).

There are two more points which need to be drawn out of the present discussion. One is that barriers to educational progress like those discussed here have not been obvious in the past and that adventurous, fundamental, research of a kind not generally favoured by funding agencies is required to identify and overcome them. The other is that, given that research, and only given that research, progress *is* possible.

Summary

This paper has:

1. Identified some elements of the educational/developmental processes that are required if multiple-talent versions of Progressive Education are to be more widely implemented. One of these is that they should allow young people to practice (and thereby develop) high-level competencies whilst they are undertaking tasks which they personally care about and experience the satisfactions which come from doing so successfully. Another is that they should expose young people to mentors who share their values and who portray the effective deployment of high-level competencies to achieve goals the young people care about.
2. Shown that, if teachers are to foster high-level competencies, they need to identify what each pupil cares about, create personalised developmental programmes for each student, and monitor the results, taking corrective action when necessary. This is a difficult, demanding, inventive, creative, and sensitive process which is just too difficult for most teachers without tools to help them to identify individual student's incipient motives and talents, to harness the former to promote the development of the latter, to monitor the results, and to invent appropriate corrective action when necessary.
3. Shown that one important reason why broadly based educational programmes have failed to establish themselves in more schools is that the assessment procedures which are most widely accepted neither facilitate the development of the kind of tools just mentioned nor enable pupils to get credit in the

certification and placement process for possessing high-level competencies. (This in turn means that teachers cannot get credit for having fostered them).

4. Identified some of the parameters of the measurement paradigm which is needed to provide a basis on which to develop both the tools which teachers need as aids to their work and the summative assessment procedures the need for which was emphasised above. This paradigm will be value-based (rather than value free) and will involve examining and recording the multiple, cumulative and substitutable, competencies which people display whilst undertaking activities they care about. It therefore conflicts sharply with the value-free, internally consistent, measurement paradigm which dominates both psychological and educational assessment.

Notes

1. 30 Great King St., Edinburgh EH3 6QH, Scotland; Telephone: 44 (31) 556 2912; E-mail jraven@ednet.co.uk
2. Research which helps to clarify the wider goals of general education is summarised in Raven (1977a, 1984/1997). The educational processes to be used to reach these goals are discussed in Raven (1977a, 1984/1997) and Raven, Johnstone and Varley (1985). Ways in which progress toward these goals are to be assessed are discussed in Raven (1984/1997, 1988b, 1990a). Barriers to achieving these goals are discussed in Raven (1984/1997, 1987, 1990b) and Raven, Johnstone and Varley (1985).
3. Passow et al (1976); Munn (1977)
4. United States Department of Education (1981)
5. Goodlad (1983)
6. Department of Education and Science (1989); National Curriculum Council (1990)
7. The Manpower Services Commission (now the Training Agency) in Great Britain, in direct conflict with the more recent National Curriculum, in 1984 embarked on a vast *Technical and Vocational Education Initiative*. This has now been extended to *The Higher Education Initiative*. Both aim to foster "initiative, problem solving ... creativity, ... the qualities which make for enterprise ... understanding of how society works".
8. Fraley (1981)
9. Johnston and Bachman (1976); Flanagan (1978); De Landsheere (1977); Bill et al (1974); MacBeath et al (1981); Raven (1977a)
10. Much of this work is summarised in Raven (1984/1997) and Spencer (1983).
11. Earlier work has again been summarised in Raven (1984/1997), but particular reference may be made to the work of McClelland (1961); McClelland and Winter (1969); Rogers (1962); Kanter (1985).
12. See Raven (1984/1997); McClelland (1961); Graham, Raven and Smith (1987).
13. It is actually truer to say that the economic and social consequences of alternative systems have been studied - see Almond and Verba (1963); Inkeles and Smith (1974); Flanagan and Russ-Eft (1975). Particular attention may be drawn to the fact that the Japanese miracle is built on social, rather than technological, innovation. Their two most important inventions have been their information-technology-based mechanism for debating the future and gaining consensus on how a desirable future is to be created, and their capacity to analyse and find ways of penetrating every known type of political economy.
14. Goodlad (1983); Flanagan (1978); Bachman et al (1971); Johnston (1973)
15. Wright (1950, 1958); Goodlad (1983); Goodlad, Klein et al (1974); CES (1977); ORACLE; De Landsheere (1977); Fraley (1981); HMI (Scotland) (1980).
16. The reasons for their neglect are discussed in Raven (1984b, 1986, 1987, 1990b); Raven et al (1985).
17. HMI (Scotland) (1980).
18. Bennett (1976)
19. Fraley (1981)
20. Goodlad et al (1974)
21. The project was small-scale and a "case study", "illuminative" (Hamilton 1977), or "educational connoisseurship" (Eisner 1985) approach was adopted.
22. Bernstein (1975). There is, of course, a deeper version of his argument. The objective was to create a mechanism which would select and advance those who were both able to work out what one needed to do to obtain the preferment of one's superiors and willing to do whatever was necessary. This ability, crucially important to both advancement in, and the operation of, modern society, includes the ability to justify one's behaviour by mouthing the right words whilst actually engaging in the activity for other reasons. We may note that in learning to do these things pupils would be learning to labour in a much more important way than those pupils described by Willis (1977).

23. See e.g. Aikin (1942).

24. Cremin (1961); Fraley (1981) and Ravitch (1974) have provided useful summaries of the *Progressive Education movement*. Dewey (1899, 1910, 1916) seems to have been preoccupied with fostering the skills of the research scientist (the ability to conceptualise, analyse and experiment) on the one hand and with creating democratic classrooms on the other. His writing does not encourage teachers to make use of multiple-talent concepts of ability, still less encourage them to foster different competencies in different children. Most of Kilpatrick's writing (e.g., 1926) is obscure in the extreme, but in his 1918 text on *The Project Method* he indicates that, in translating a plan into a reality, pupils should practise proposing, planning, executing and judging. These are high-level competencies, but he does not analyse them or present them in a way which would encourage teachers to reflect on what it means to plan and execute, or on the counselling which is necessary if pupils are to practice (and develop) these competencies in the course of undertaking activities they care about.

Counts (1932) and Rugg (1926) seem to have set out to introduce *particular* understandings of socio-politico-economic processes. The majority of "Progressive Educators" have been even less specific about the knowledge they have been trying to inculcate or the qualities which should be fostered in pupils. Indeed most have been explicitly opposed to any attempt to specify objectives. However this majority is made up of two very different groups of people. One group may be termed the "romanticists". They believe that children should be left to their own devices and thereby learn "instinctively" what is important to them. A larger group is clearer about what it is opposed to than what it is for. These teachers have been so appalled by either or both (i) the effects on most children, and thence on society, of the competitive and self-advancement-centred climate which permeates most classrooms and (ii) the selection of a small number of pupils who possess a very limited range of not particularly valuable "academic" competencies (which do not in fact deserve to be so described) for advancement into the most prestigious and influential positions in society that they have been more concerned with destroying the competitive climate and the limited "standards" than with putting something else in their place. (It is this group which is responsible for the cult of mediocrity which is widely associated with Progressive Education.)

Most attempts to *implement* "Progressive Education" seem to have been an appalling mess: Barth (1972); Aikin (1942); Rugg (1926); Rugg and Schumaker (1928); Wright (1950, 1958). The "bible" of the Progressive Education Movement (the 1926 Handbook of the 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. French et al (1957); Stratemeyer et al (1947); Caswell and Campbell (1935); Tyler (1936) and the Educational Policies Commission (1938) did attempt to identify goals, but have muddled together goals at a wide variety of levels, the frameworks are not multiple-talent frameworks, and the goals are only weakly linked to curriculum processes. Most accounts of classroom processes focus on encouraging students to take "democratic" decisions within the compulsory attendance framework of schools (one which deprives pupils of citizenship rights and most of the sources of power and influence which are open to people in capitalist "democracies") and in which teachers could not allow students to implement many decisions which would command majority support from pupils, on "discovering" low-level everyday facts which have nothing to do with each other, little bearing on any area of organised endeavour, which the pupils are unlikely to need in the future, which the teacher already knows, and which are mostly "discovered" from books, sometimes from highly directed field trips, and sometimes from "discussions" which involve guessing what the teacher has in mind. Among the few partial exceptions to the rather damning picture are the writings of Barnes and her colleagues at the Lincoln School [Barnes and Young (1932); Tippet et al (1927)], although, even here, Bestor (1953), an ex-pupil of the school, has taken the school to task for offering courses which focused on teaching non-generalisable everyday knowledge instead of encouraging pupils to make contact with academic disciplines (or developing high-level competencies). Modern students of education are, however, unlikely even to come into contact with the more widely-oriented

writing in the areas since it is not referenced in, or embedded in, many writings [e.g. Barth (1972); Ravitch (1974) and the *International Encyclopaedia of Education*].

25. None of the teachers Bennett (1976) asked to define Progressive Education did so in terms of distinctive goals and he subsequently concluded from his classroom observations that most "open" classrooms were a mess. The failure to articulate non-knowledge-of-content goals is well illustrated in Curtis's *Boats* project [Tippett et al (1927); Cremin (1961)]. This would appear to have remained heavily content- and skill- oriented, with a hint of *introducing* pupils to new interests. It contains little suggestion of using interests to *foster* competencies. Dewey seems to have been content to evaluate projects designed to encourage experimentation in terms of their contribution to knowledge rather than in terms of the competencies developed in the process. Likewise, he seems to have been content if "democratic" processes were enacted in classrooms. He does not seem to have set down the competencies and understandings required for democratic functioning.
26. The *Eight Year Study* [Aikin (1942)] made a pioneering attempt to tackle some of the assessment issues. However its work was not followed through and the crucial importance of assessment from the point of view of (a) enabling teachers to achieve their goals, (b) enabling students to identify the benefits and (c) harnessing the sociological forces which determine what happens in schools through the certification process was not recognised.
27. Schon (1987)
28. Husen and Postlethwaite (1985)
29. Travers (1973); Wittrock (1986)
30. Taylor (1971, 1976)
31. In the course of presenting the work in America which follows, I have repeatedly been accused of re-inventing the wheel. Up to now, only some of its parts, often distorted or embellished beyond use, have been available. Thus, spokes, of varying size and suited to different types of wheel - i.e. capable of fostering one or other of the competencies mentioned in the course of one type of educational activity or another - can be found in Aikin (1942) and Progressive Education Association (1942). There are a couple of rims - general discussions of educational goals and processes - which might have been used to bind appropriate spokes - educational activities which would have fostered different kinds of competence - into a wheel [French et al 1957]; Educational Policies Commission (1938); Caswell and Campbell (1935); Stratemeyer et al (1947) but they have been embroidered in such a way that, if an attempt had been made to use them, they would have impeded the desired movement. Consequently, they been used as ornaments to embellish teacher-education courses rather than as integral parts of functional educational activities. There is nowhere a hub containing the tools which teachers need to identify and harness individual pupils' motives and values in such a way as to create educational programmes which would lead all pupils to practise, and thereby develop, a selection of important competencies and or to monitor the development of all these different competencies in different children. The third volume of the *Eight Year Study* [Smith et al (1942)] contains sketches of a number of cogs (assessment procedures) which might have been developed to couple the curriculum wheel to a power unit which would move the competency-oriented educational process forward - but the rest of the cogs and the drive shaft are missing. As a result the assessment procedures that were developed were never used to couple the educational activities to a speedometer - or formative assessment and feedback process - never mind to couple an assembled wheel to a source of energy or motor. Dewey (1910, 1916) and Counts (1932) allude in passing to sources of power which might have been harnessed to drive the activity, but they never explicitly discuss the sociological forces which drive the educational system still less describe the pistons or governors which are required to harness and control those sociological forces so that they would drive the whole educational system in the direction in which everyone wants it to go.

Nowhere is there even a sketch of the requisite wheel, let alone of its attachment to an axle and thence to a cart never mind a sketch of an automobile. The result is that, in place of the vision of Parker, or

Barnes, we now have a vista strewn with the remains of hugely expensive failed educational reform projects [Wright (1950, 1958); Newton Public Schools - see, e.g., Whiting (1972); Fraley (1981)]. It is notable that, although educators' preoccupations have, over time, oscillated between the "needs of the child", "the structure and datedness of the content to be conveyed", and "the needs of society", they have never focused squarely on the one issue which would have brought these three competing concerns together. This resolution could have been achieved by focusing on the competencies which are to be fostered in the course of education, the ways in which the competencies to be fostered need to vary between children, the processes to be used to foster the components of competence and to generate the necessary variety, and the ways in which these competencies are to be assessed.

32. Mathematics was not fully integrated into this scheme. However the problems which this teacher had in trying to combine mathematics into her interdisciplinary teaching actually highlight neither deficiencies in the philosophy of interdisciplinary education, nor deficiencies in this teacher's competence, but the need to radically re-think mathematics education.
33. Barnes and Young (1932)
34. Curtis, see Cremin (1961).
35. Separate discussions of how these competencies are to be fostered and assessed are available in Raven (1984/1997, 1988a,b&c, 1990a).
36. Raven (1984/1997)
37. Raven (1984/1997)
38. The implications of this discussion for the criteria and process of programme evaluation should not be overlooked. The need to index these wider outcomes makes nonsense of the Joint Committee's *Standards for the Evaluation of Educational Programmes and Projects*. See Raven (1984c).
39. Winter et al (1981)
40. Jackson (1968)
41. Raven (1977)
42. Raven (1984/1997, 1988b, 1990a)
43. In clarifying the value of such assessments one must bear in mind the lack of objectivity inherent in the forms of assessment most commonly used in schools - for these regularly consign pupils to degrading lives by recording that they perform poorly on traditional tests without recording that they do other things well. There is no meaningful sense in which such assessments can be said to be "objective". What is more, these assessments also lack construct and predictive validity. For a fuller discussion see Raven (1988c; 1989, 1990a).

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