

We Know How, What's Stopping Us: Generating Effective Teaching and Learning

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This discussion paper considers how effective teaching can be generated in schools. Firstly, a focus is directed towards the non-intellectual aspects of schooling that impact on student and teacher performance to argue that effective teaching involves the development of personal growth as well as intellect. Besides good pedagogical skills that sets them apart from less successful teachers, effective teachers possess a range of personal attributes in terms of human relationship skills, self esteem, respect for and unconditional acceptance of all students, empathy, and appropriate humor. Teaching is more than just technical competence or a sound theory of instruction. It is a personal relationship with each member of the class.

Secondly, there is an exploration of some of the issues concerning effective teaching in the learning/understanding context, since a certain of our contemporary class room practices, advocated as means of providing excellent or effective teaching of content, may in fact impede student learning. It proposes that some older concepts and models may provide a guide to this and need revisiting, particularly those that focus on cognitive approaches. It is not that educators do not know what effective teaching is or how to do it, but that conditions are often inimical to its development and operation.

Introduction

Socrates: I will try and explain what excellent teaching is. What do you say to this answer? Excellent teaching is that which produces learning and understanding. Will you be satisfied with it?

Meno: It is such a simple answer.

Socrates: You have my answer and if I am wrong, your business is to take up the argument and refute me.

(adapted from Murray, 1994, p. 380)

This paper is not an attempt to refute Socrates but to enlarge upon his assertion. Socrates' explanation is a surface explanation, failing to delve deeply enough into the issue of what is the essential essence in excellent teaching that makes it so. This paper develops two lines of approach to elaborate the statement. Firstly, a focus is directed towards the non-intellectual aspects of schooling that impact on student and teacher performance to argue that effective teaching must involve the balanced development of personal growth as well as intellect. Secondly, there is an exploration of some of the issues concerning effective teaching in the learning/understanding context, since certain of our contemporary classroom practices advocated as means of providing excellent or effective teaching of content may in fact impede student learning. Moreover, current political and rationalist considerations tend to prevent what is known about effective teachers being put into operation within schools. What is interesting is that many of the references, theories concepts included in this paper are deliberately "old." Yet these pointed the way to effective teaching several decades ago but were relatively ignored. A re-visit is a salutary event! This explains the subtitle of the article.

What constitutes effective teaching for any individual or group is obviously affected by their conception of learning, which from an arm chair analysis can be conceptualized in (at least) five different ways. Conceptions include:

- learning as a quantitative increase in knowledge
- learning as memorization
- learning as a change in human behavior
- learning as understanding and abstraction of meaning
- learning as changing as a person; a developmental and interpretative process aimed at an understanding of self and environment.

In the list above the first two are reproductive approaches to the learning task in a behaviorist mode i.e., transmission of information. The third is a fairly omnibus general statement, while the latter two conceptions are concerned with meaningful learning and understanding i.e., learning

facilitation. This paper takes as its stance that effective teaching involves the latter two conceptions that include all aspects of human behavior not just the intellectual.

1. Creating a Balance Between Intellectual and Non-intellectual Factors in Educational Endeavors

For many decades years educators have written tomes on teaching. Most are dreary and pessimistic. For example, there are *Nobody Can Teach Anyone Anything* (Wees, 1971); *Why Teachers Fail* (Lembo, 1971); *Teaching is Tough* (Cruikshank, 1980); *Teaching as a Subversive Activity* (Postman & Weingartner, 1971); and *Daring to Be a Teacher* (Richardson, 1990). Enthusing about teaching and its satisfactions is rare. Even research on teaching trying to answer the question: "what makes a good, or effective or successful teacher" has had a long but to some extent unproductive history. To paraphrase the Scarlet Pimpernel, "they seek it here; they seek it there; the experts seek it everywhere. Is it a fact, or is it a hypothesis, that damned elusive effectiveness." The source of the trouble perhaps lies in the lack of reliable, objective and universal criteria of teacher effectiveness. The impossibility of discovering such criteria is inherent in the diverse nature of the teacher's role, in the many and varied contexts in which teaching is undertaken, and in the variety of socio-cultural and professional perspectives from which effectiveness is judged. Politicians, employers, religious leaders and educators to name but a few often have differing views on what constitutes effective teaching, as do whole nations in their vision of what ends education should be serving

The conceptualization and measurement of teacher effectiveness has tended to rely on quasi-mechanistic models. Thus for example, investigators plan studies in the areas of micro-teaching, systems analysis, behavior modification, interaction analysis and the well known process-product model. There is a kind of primitive simplicity in all this; a refusal to face up to the complexity of human behavior. It is important to accept that any analysis of surface behavior and products remain superficial if no account is taken of (inter alia), intentionality, subjective interpretations of what is going on, expectations, and self feelings of both teachers and students. All teaching has at its heart a set of values, both explicit and implicit which influence the processes and procedures in known and undetermined ways as teachers and students interact reciprocally as active agents.

Research on Effective Teaching from the Product-process Perspective

Most of the evidence is derived from studies which employed direct observation in classrooms. Blow by blow actions and reactions of students and teachers are observed. This data has then been correlated with student outcome behavior such as examination results to determine what it was that the teacher had done to make a difference in what the students had learned (Batten, Marland, & Khamis, 1993). There is no doubt that teacher behavior is positively related to student achievement (see reviews by Kindsvatter, Wilen, & Ishler, 1992; Creemers, 1994)

Studies of exemplary teachers (Tobin & Fraser, 1991) have shown that although expert teachers do differ in their style of teaching, they tend to maximize student time on task, encourage active participation, check that students understand the work and that they can perform successfully. In collating research findings, effective teachers from the process-product account appear to be those who:

- maintain an academic focus
- are business like and work oriented
- convey high expectations of individual and group performance
- present new material in a step by step manner
- adjust instruction to individual needs and re-teach when required
- use high rates of questioning and check for understanding
- use clear instructions
- use strategies to keep students on task
- impose structure on content
- monitor students closely
- provide frequent feedback
- employ flexible teaching styles
- control the class well
- have mastery of the subject matter.

This list is dominated by items focussing on the teaching of material in a clinical manner, reflecting the behaviorist position of the product-process model where the teacher performs in a particular way leading to a student response which is rewarded and learning occurs. However this implies a very narrow, dehumanized and inaccurate interpretation of what goes on and what should go on in an effective classroom. Learning and teaching involve a dynamic and reciprocal interplay between learner and teacher conducted in a milieu of caring, support and acceptance which is affected

by the subtleties of individual personalities, subjective interpretations of what is occurring, and individual needs and motivations particularly those involving personal self esteem, expectations and attributions for behavior.

Any mechanical behaviorist analysis of teaching that fails to take into account the fundamental human nature of classroom life is at best an incomplete one. Yet educators have been aware of this fact for some time. When research extends beyond efficient clinical practices of a teacher presenting material in a structured manner and evaluating performance in a controlled context, it has demonstrated that effective teachers are warm, concerned, caring and empathic, and have positive self concepts as well as possessing pedagogical skills (e.g., Combs, 1965; Burns, 1987, 1990; Kindsvatter, Wilen, & Ishler, 1992; Batten, Marland, & Khamis, 1993). The general theme that has been relatively ignored is that: *Effective teaching measured in terms of student performance or ratings by students of teachers appears to require teachers who not only have command of and enthusiasm for their subject but who are also able to form satisfactory human relationships and create a warm supportive accepting classroom ethos.* Effective teachers are differentiated from ineffective ones by augmenting their technical pedagogic skills with:

- an ability to be more flexible in teaching style
- an empathic ability
- sensitivity to the needs of the individual student
- an appreciative reinforcing attitude
- an easy informal conversational teaching style
- emotional adjustment and confidence
- a warm genuine acceptance of others
- a preference for child centered teaching
- an ability to identify with others rather than be alienated from others
- a belief they are able to cope with most contingencies
- reliability and dependability
- a belief they are likable, wanted and of worth rather than ignored rejected and unworthy
- a sense of humor, and fairness
- a willingness to listen
- care about pupils.

An effective teacher then is not one who restricts their teaching to an intellectual exercise but one who also attempts to promote socio-emotional growth. On its own, an intellectual education may well create mental and

technical virtuosos out of pupils but has the potential to leave them with a life long residue of socio-emotional immaturity and personal problems. Current educational endeavors with their quality assurance, standardized attainment testing and government appraisal processes appear more and more a preparation for the development of intellectual robots who can pass examinations than the development of critically aware balanced persons prepared to cope with requirements of citizenship and adulthood in a rapidly changing world.

While there are many facets of socio-emotional development that have relevance to the school context (and later the post-school world) such as control of anger, stress management, relationship formation, the development of cooperativeness, reliability and responsibility, the one central issue that impacts not only on most of these other socio-emotional facets but on academic achievement too is that of the development of a positive self concept or self esteem. Negative self beliefs are self defeating. As Dumas wrote,

A person who doubts himself is like a man who would enlist in the ranks of the enemy and bear arms against himself. He makes his failure certain by himself being the first to be convinced of it.

Shakespeare had several centuries earlier expressed similar sentiments.

our doubts are like traitors making us lose the good we might win by fearing to attempt.

Research reveals that how a student (or anyone else for that matter) performs depends on how they think about themselves and weigh up their possibilities of success, e.g., Hansford and Hattie (1982) on a meta-analysis of the self concept-achievement relationship; Bandura (1986) on self efficacy. Burns (1992) has summarized much of the research and arguments for including affective development in the education process. There is a fund of evidence indicating that low academic performance, misdirected motivation, lack of academic interest and involvement, disabling anxiety, behavior problems and poor social relationships are largely due to negative perceptions of the self. Most of the academic and behavioral problems teachers meet in school are reflecting something about how students feel about themselves. Thus to get the best out of pupils, teachers need to operate in ways that will enhance rather than demean the self concepts of their charges. Self concept growth should be a

deliberate by-product of whatever teachers do in their educational interactions with students.

Although evaluative interactions in the classroom are unavoidable, these should be positive in tone, encouraging and supportive even where students have not performed as teacher would wish. As Purkey (1978) suggested two decades ago, teachers need to be "inviters," providing messages (invitations), verbally and non-verbally, to pupils that convey information telling them that they are accepted, valuable and able, and providing expectations of personal improvement measured against their previous best performance not against others. Any deterrents/punishments required should be directed against the behavior not the person, and firm consistent control is certainly needed to assist students develop confidence, a sense of security and decision making skills to operate responsibly within the boundaries of the known rules. With their aura of expertise, authority and evaluation, teachers are significant others who feed the pupils' self concepts with a diet of feedback and create an ethos in the pupil-teacher relations that can enhance or debase academic performance. The story of the Wizard of Oz is about the power of positive feedback and affirmation, witnessed as an example by the change brought about in a cowardly lion by awarding him a medal for bravery. Teachers too must be powerful wizards using a magic wand of positive expectations to affirm pupils' confidence and worth.

However to do all this the teacher must also possess a positive self concept, since their self beliefs about themselves as both a person and a teacher influence their teaching style, interpersonal relationships and adjustment (Burns, 1990). This has implications for how we should prepare the future teacher if they are to function as effective teachers and create effective learning environments. Burns (1992) argues that prospective teachers must be given an opportunity to develop more positive self perceptions as part of their training since this is likely to make them more flexible in their teaching approaches, able to meet a wider variety of demands, be supportive and empathic, able to relate naturally and easily to others, and not feel threatened since threats lead to inappropriate and impulsive reactions to classroom events/issues. As Jourard once said, "*the more a person accepts himself, the less is he threatened by the experience of being known by others.*" Teachers live their professional roles in a human network, exposed for persons they are, often required to self disclose and personally threatened by demand on their knowledge, skills and emotions.

If we wish to develop educational systems that bring about effective teaching and teachers capable of that, then we must produce teachers who possess both a strong knowledge base and reasonably positive self concepts who are thereby enabled to employ a teaching style and personal philosophy of education that facilitates the students' total personal development. Effective teachers must above all else be effective people, secure in themselves. Results from workshops that deliberately set out to assist serving and trainee teachers develop positive selves appear to provide good returns, with course members reporting improved relationships with students, more confidence, more warmth and openness, less stress, utilizing effective coping skills, and gaining more personal satisfaction from teaching (Woodhouse, Hall, & Wooster, 1985a, 1985b; Burns, 1992).

2. Impeding Effective Learning and Understanding — Concern Over Methods

Schools Fail Students

While there is a plethora of physical, psychological, economic and sociological factors which account for each student's performance, the basic cause of failure is often the schooling process itself.

Educational failure has been crudely attributed to two causes; either students fail schools or schools fail students. The "students-fail-schools" perspective blames the student for factors beyond the teachers' control. This is the well known deficit model with failure laid at the victim's door for daring to present themselves at school with low intelligence, low motivation levels, deficient basic skills, social disadvantage, low parental expectations etc.

The "schools-failing-students" perspective poses an alternative scenario with factors such as irrelevant curricula, inappropriate teaching methods, large classes, lack of resources, inadequate diagnosis of individual needs, low teacher expectations, a focus on examination competition and inconsistent or inequitable treatment of misbehavior as major contributing factors to failure.

Stradling (1991), and Van Kraayenoord and Elkins (1994) particularly identify the lack of recognition of individual learning needs, lack of short term goals, irrelevant curriculum content and teacher expectations as major causal factors in learning difficulty. None of these are matters that cannot be remedied given the will and the knowledge of teachers and administrators. In fact they are readily modifiable in a way the background

characteristics of learners and teachers are not. Changing teachers' strategies and behaviors is relatively easy through training, workshops, follow-up support and the like and results in more effective teaching and consequent student achievement (Needels & Gage, 1991)

Most students do not enter school as failures or with low motivation to investigate their expanding world. Observation of young children reveals that they have high levels of intrinsic motivation. They play, solve problems, involve themselves in all sorts of enjoyable activities just for the sake of curiosity, personal pleasure, and a sense of mastery that even suppress the basic physiological needs for food and sleep at times. However, as their school days progress, such motivation is lost, and behavior has to be directed by reinforcement (and punishment) strategies that lead to working only for what is in it at the end. Such a carrot and stick approach inevitably leads to a sense of failure and loss of self esteem as the reward is missed or the deterrent applied. When students fail it is often the practices that teachers and administrators individually and collectively employ that are at fault. Unless classroom teachers' policies and practices are viewed as the most significant conditions in determining learning and unless attempts at improving classroom learning focus on the formulation of more effective teaching policies and practices there will be no significant reduction in the number of students who become alienated from the educational process.

Kohn (1993) provides a thought provoking criticism of classroom rewards and their effects on performance, particularly the "do this and you'll get that" strategy which leads to a "what will I get if" student bribe mentality. Promising goodies produces little more than temporary performance/obedience — token reinforcement evokes token learning — as the reward rather than challenge, a sense of achievement, intrinsic interest, curiosity, or a sense of self esteem becomes the goal. Eventually if extrinsic reward is not on offer there is minimal performance generated only by the prospect of avoiding punishment.

Back to the Future — Into the Zone

Even accepting first and foremost that we need strong knowledge based teachers who also possess personal qualities that enable them to present themselves in classrooms as confident, warm and supportive, there are additional important teaching behaviors which need to be embodied within an effective teacher model, many of which have been around for some

time, but relatively ignored. In education courses, whether pre- or in-service, and in text books on pedagogy, there is currently less emphasis on reception teaching, practice or revision. These are unfashionable in a classroom world obsessed with creativity, discovery learning and pupil inquiry. We are thereby placing responsibility on the learner to teach themselves rather than provide effective but frequently derided explicit instruction. As teachers and educators we may be abrogating our responsibilities and placing them on the shoulders of naïve children, leaving them to swim or drown in the sea of knowledge with only a flimsy life jacket of hot air for support and encouragement.

Many preschool and primary teachers are realizing at last that a large number of entrants lack even the most basic skills, those essential pre-academic skills such as attending behavior, following instructions, self management and self direction. Such children are ill served by schools providing only immersion type early education. They become marginalized, cannot profit from education, and suffer diminution of self esteem and motivation. There is a real need to teach many children how to learn. Some educators object to the very notion of conveying information to learners by "telling" them. "Real" learning they claim is learning the truth for oneself. But for a student to tackle this is immensely difficult whereas direct teaching in a warm, supportive ethos will provide a sound and substantial knowledge base, the use of which will enable some measure of creativity and discovery to take place in the future. In basic academic subjects we have "whole language method" and "process maths" as if one size fits all. This places at risk those students who require a well structured program, direct teaching and a differentiated approach.

Thus despite the knowledge that pedagogical skills, involving the structuring of material allied with personal qualities, provide the most effective form of teaching, there is a considerable body of support for a belief that students particularly at primary level can and must learn for themselves. This translates within some education circles and courses into inferring that all we need do is create a stimulating and supportive environment and immerse the pupils into it. While we do recognize that children learn through exploration, discovery, talking to and observing others, the role of the teacher is not a passive one.

A valuable corrective to this constructivist approach is the renewed interest in Vygotsky's (1962) concept of "Zone Theory." He suggested that learning proceeds most efficiently when children are exposed to teaching within their "zone of proximal (potential) development." This zone

represents the range of knowledge and skills that the students are not quite able to master on their own but are potentially capable of learning if the teacher provides some explicit assistance and teaching. Well structured, clear and supportive teaching provided in a flexible manner by a knowledgeable teacher who communicates high expectations of student success contributes significantly to the learning and understanding that occurs within each student's zone of proximal development.

This sort of explicit teaching role is insufficiently emphasized to trainee teachers who have been in the last decade pressured towards less traditional approaches. Not only Vigotsky, but Piaget (1958), Bruner (1966), Ausubel (1968) and Hunt (1969) strongly merit a revisit to enhance the teachers' understanding of the links between such diverse concepts and processes as reception (expository) teaching, intrinsic motivation, meaningful learning, advance organizers, the assimilation/accommodation paradigm, and the spiral curriculum. Their writings may have the appearance of being *passé*, like last year's internet stock, but their insights, concepts, research and theories take on new relevance and importance as an exciting basis on which to develop teaching approaches that facilitate effective learning and understanding at all age and ability levels. Learning is constructed not absorbed — just what Bruner was saying in the early 1960's but few were listening. In a return to nurturing learning through more intrinsic cognitive meaningful learning and strategies in a supportive milieu rather than on decontextualized facts, Meichenbaum and Biemiller (1998) focus on a three factor model of learning involving self directionality, skill complexity and transfer complexity. We need to operate a cognitively oriented teaching approach in a Rogerian "therapeutic" classroom context.

All the psychologists referred to in the preceding paragraph are each saying in their own way that the child's intellectual curiosity and motivation to make sense of the environment and move forward in their understanding derives from a structured presentation of new material that is just a little different and a little more challenging from that which the child has been able to deal successfully with previously. The child is intrinsically motivated in such a context of potential success to meet the challenge of the mismatch and remove the incongruity in knowledge, understanding or skills by accommodating it to an existing schema, building on concepts already mastered or through teacher provided advance organizers presented at the onset of the lesson. These processes increase a schema's potential range of application for the future. This approach to meaningful

reception learning is not to be confused with rote learning which simply involves ingesting and memorizing isolated bits of information. Meaningful learning links new learning with existing cognitive structures in an ongoing developmental process, in which success, mastery, curiosity, self efficacy and self esteem enhancement are promoted seamlessly as an integral part of the intellectual exercise.

It is interesting to note that professionals other than those in education have invoked some of the concepts and strategies outlined above. For example, advance organizers have been used by media communicators as part of their explaining to a general audience. Radio and television programs often begin with an intriguing opener such as: "tonight in our packed program we will find out how you can save thousands on your mortgage, we'll meet the Malaysian underwater world snooker champion, and we'll be showing you how to make fuel for your car from cattle droppings." It is known as a "tease" because it not only sets the scene but arouses curiosity/intrinsic motivation. In our terms it is the use of advance organizers, however primitive.

Explaining and Presenting

As part of effective meaningful reception learning, the teacher must also engage in explanation and demonstration. Wragg and Brown (1993, p. 3) define successful explaining as "giving understanding to another." Their emphasis on "successful" is important as there has often been built up in the classroom a refuse dump of "unsuccessful" explanation to obfuscate and frustrate. Young children have a pretty good idea which adults can explain things to them in a way they understand and head straight for Grandad or Auntie, just as certain teachers are in demand more than others. Wragg and Brown (op cit) report studies revealing that the greatest source of confusion met by children in the classroom is lack of precision in teacher explanations. Effective teaching implies clarity, not garbled explanations, erroneous presentations, complex terminology and an overburden of material; it implies the provision of analogies and examples to which the learner can relate. Poor explanation and presentation results in subsequent learning problems.

The language of explanation is crucial. Consider doctors. They have to explain a variety of complex information to everyday patients. They must choose their words carefully. They use "waterworks" rather than "urinary tract," a "common cold" rather than "upper respiratory infection," and

suggest “cutting down on fatty foods” rather than “ingest a low cholesterol diet.” Similarly, teachers may have to explain the term “inversely proportional” in maths or science. This phrase in Boyle’s Law may convince some secondary pupils that science is too mind blowing and operating way up in the linguistic stratosphere. Yet the notion that “the more you have of this, the less you have of that” is not too hard to grasp by most secondary pupils. It is the language not the concepts that kill the fainthearted. Analogies are also helpful. An insect’s eye can be described as “like a lot of marbles packed together in a plastic bag” or “like a lot of TV screens placed side by side.” Equally valuable are not-analogies such as “Is a bird an insect?” which raises questions about number of legs, body shape, communication patterns, etc. enabling distinctions to be made.

One of the most revealing activities in which a teacher can engage is to listen to a tape of themselves teaching and evaluate the clarity and quality of their own communication. Bush and Kincer (1993) report consistently high student performance from teachers who:

- make efficient initial presentations of new work
- give clear and precise instructions
- utilize a variety of ways and examples to explain
- provide frequent reviews and revision of new work.

A detailed observation schedule for rating teacher effectiveness that permits a range of dimensions of presentation and explanation to be revealed is the International Classroom Observation Schedule (Schaffer, Nesselrodt, & Stringfield, 1994)

Teachers can also encourage peer teaching in which child to child explanations are given. High quality explanations at the appropriate level are not limited to the teacher. Children can often do this effectively as they can empathize with a fellow learner at a similar stage of development and possess just the right language and examples to make the point clear. Slavin (1990), Cohen (1994) and Wood et al. (1995) provide evidence that acknowledges the cognitive, social and self esteem gains possible when students are permitted to study interactively in dyads using elaborative interrogation, a strategic behavior that allows students to ask “why?” to each other and provide explanations. Explaining a concept to another child enables the explainer to practice clear communication and think about the audience. Secondly, explaining to someone else can increase one’s own understanding of the concept. Thus well planned collaborative and cooperative work in classrooms is an essential part of effective teaching as

Meichenbaum and Beimiller (1998) advocate with peer tutoring as an exemplary method for acquiring, consolidating and developing "consultancy" aspects of learning. A survey of educational research on peer assisted learning can be found in Topping and Ehly (1998). Not only does peer assisted learning work in improving learning and understanding, other benefits include increased social competency, feelings of self efficacy and zero implementation costs.

Questioning

Explaining and presenting is not a one way street; a good explanation also involves questions to ensure the listener is following, and that what is being said makes sense. An effective teacher never puts off a student who asks questions by providing a diet of criticism and ridicule for not having listened. Students who need help must be in a context where they know that they will receive it, magnanimously and willingly. Questioning is perhaps the most widely used strategy in the classroom. But posing the right question is the hallmark of the effective teacher. Clopton (1992) suggests that teachers should ask questions that build confidence. Research indicates that there is a correlation between higher levels of achievement and the types of questions asked (Brophy & Good, 1986). Teachers in classes with the highest achievement asked more questions but fewer questions that yielded incorrect answers than other teachers. Moreover, children with poor learning skills benefit from instruction that involves a high number of simple direct questions on the core content of the lesson which help to firm up the students grasp of the main essentials. These core or lower order questions should form around 80% of questions particularly if students are struggling to assimilate basic facts.

Effective teachers also provide more "wait time" after asking a question and after receiving a response (Rowe, 1986). This, inter alia, decreases impulsive responses and incorrect responses while increasing the length of response and the number of correct responses

Teaching Task Approach Strategies

Perhaps the most important discovery since research advanced beyond the product-process model is that effective teachers can help students develop efficient strategies for approaching the tasks they are set by modeling such strategies. This particularly is of considerable value to students who do

poorly through inefficient learning styles (Cole & Chan, 1990; Graham, Harris, & Reid, 1992; Westwood, 1993).

"See if you can work it out for yourself" is often an invitation to failure. *"Watch me carefully and listen to what I say to myself as I work out this problem step by step"* is more likely to promote successful first attempts. In this way students are taught explicitly by modeling, demonstration and thinking aloud precisely how to go about tasks such as identifying a printed word not previously known, making a summary, solving a mathematics word problem etc. Meta-cognitive training is also involved as effective teachers encourage students to develop self monitoring and self correcting skills. Most students are capable of demonstrating verbal self direction on academic tasks as Biemiller et al. (1998) demonstrate where pupils with low levels of task directive speech reached high levels of task directive speech when placed in peer tutoring roles with younger children. Engaging in such consultative roles result in low achieving pupils significantly increasing their mathematics skills and problem solving (Inglis & Biemiller, 1998) Effective teaching involves thinking about the actual processes involved as well as applying them to produce a quality product. Students are then along the route towards becoming confident and independent learners. Less effective teachers simply assume students will learn these skills incidentally by undertaking the work. But this places students for the most part in a potential failure situation and potential for developing a low self concept as a learner.

Adaptive Teaching/Individualized Instruction

Adaptive instruction is geared to the characteristics and needs of individual students (Cremer, 1994). This is often reflected in moves towards individualized instruction. For many years this has been seen as the ideal model (although Rousseau and John Locke independently were probably the first to give expression to this several centuries back). Recently computer aided instruction has been harnessed for this ideal. However, such individual programming needs questioning particularly on the grounds of feasibility, discrimination and current notions of "inclusive education." Proponents of social justice and equality of opportunity would claim that all students have the right to be exposed to the mainstream broad balanced curriculum in a reasonably unadulterated form. The flaw in individualization is that students get further and further apart in their performances, not closer. Differences become exaggerated. Children being allowed "to progress at their

own rate" is a nonsense if the child is progressing much more slowly and inefficiently than they need do given a more effective teacher who has higher expectations. Leaving a child to wallow is inexcusable. Intervention with explicit, structured teaching in a supportive ethos will move a child on further and faster with increased feelings of success and self esteem (Good & Brophy, 1994). There may of course be sound reasons for individualized programs for very high ability students or those with multiple disabilities, but for others, sensitive and flexible grouping practices combined with effective whole class teaching will generally meet most pupils needs.

In the UK the term "differentiation" is now used to convey the concept of adapting teaching where the same curriculum content is taught to pupils but tailored in ways to meet the different learning needs of pupils. "Differentiation" can be effected in many ways, such as:

- Modifying curriculum content by reducing or simplifying it without going so far as to create an inferior version. In this way students with learning difficulties can receive the mainstream program in a form that is real and relevant to their needs.
- Drawing on students' interests often improves motivation. This harder to implement in the secondary school than in the primary school since external examinations prescribe the content in the former.
- Pace variations allow some student more time to complete core work while providing time for extension work for others.
- Level variations involve the teacher setting tasks of different degrees of complexity (vide McGrath and Noble 1993 in their chapter titled 12 ways for children to work on the same topic at different levels).
- Access variations permit students a variety of self chosen pathways into the topic such as using a computer, text materials, pictorial resources etc.
- Response mode variations involve different students using, inter alia, multiple choice tests, work sheets, project write up for the same topic etc.
- Structural differences can be effected by teacher providing step by step instruction for some while others work more independently.
- Flexible grouping allows for variations in performances between subjects or different aspects of the same subject.
- Teaching style can be varied using one's knowledge of student needs and characteristics.
- Rewarding different students in different ways is effective since not

all children respond similarly to the same reinforcers (Burns, 1990) nor do they necessarily perceive the same relative effective of certain reinforcers the way teachers do. In fact students globally appear to judge as effective those which teachers believe are ineffective while those teachers believe effective are not judged so by students (Burns, 1998). Effective teachers are therefore sensitive to what works with which child.

It is implied of course that the strategies above are used in various combinations for maximum effect. For example, grouping is an obvious strategy but only effective if differentiated curriculum materials are available. None of this is easy and creating effective teaching that is responsive to the diverse intellectual, emotional and social needs of students is the major and continuing challenge in school reform today.

Finale

We have got well away from Socrates' bland statement but it is apparent that in order to give birth to effective teaching and pupil understanding, teaching requires knowledgeable and well adjusted teachers who are sensitive communicators and able to provide for the socio-emotional needs of the students as well as an education system that attempts a balance between the delivery of well structured material supplemented with peer tutoring and metacognitive skills while responding to diverse needs without gross individualization of programs of a discovery nature.

The principles of effective teaching, learning and understanding are reasonably known to professional educators and have been for some time, and it is unlikely that researchers will ever uncover some unexpected finding revolutionary in its application and results. At best research leads to modest improvements in practice at the margins but this is not to be derided as such small incremental improvements are important. The problems are that most classroom teachers are unaware of much of this knowledge, appropriate resources are not regularly available, and extraneous conditions limit what can be done. These latter issues are raised in *Horace's Compromise* (Sizer, 1984) in which the life of a high school teacher who works part time to make ends meet is described. He knows how to teach well, but he is human:

"Most jobs in the real world have a gap between what is nice and what is possible. One adjusts. The tragedy for many high school teachers is that the

gap is a chasm, not crossed by reasonable and judicious adjustments. Even after adroit and devastating compromises — only five minutes per week of attention to the written work of each student and an average of ten minutes of planning each 50 minute lesson — the task is already a 60 hour work week. For this Horace is paid a wage enjoyed by age mates in semi skilled blue collar jobs and furthermore none of this 60+ hours is spent on replenishing his own academic capital.”

The point being made is that effective teaching will only come about when better systems and structures are put in place that will provide contexts in which teachers and students can work together in a nurturing supportive environment, applying the best of what is known about how learning and understanding are promoted. Despite the impact of Toffler's (1980) “third wave” which is washing over us now, teachers are generally operating in the same way, in the same context and with similar resources as they did when the chalk board and duplicator were at the leading edge of educational technology but with the additional burdens of technicist appraisals of pupils, themselves and their schools.

During the writing of this paper, a current UK government Green Paper proposes performance related pay rises for UK teachers including in the assessment the dress standard of the teacher, their attendance record, punctuality and demeanor (code words for “be a good little bunny and don't rock the boat — the Confucian consensus and submissiveness that was thought to be the prerogative of Asian education!); whatever do the ability to instill curiosity and a love of learning, to stimulate through appropriate novelty and verbal skills, passion, commitment, talent, humor, idiosyncrasy, iconoclasm, human warmth and support for children count for in this? If a supposedly open society like the UK is battering its teachers into submission with prescriptive curricula, political correctness, and bureaucracy focussed on a limited view of education, it holds little hope for creating effective teaching as a way of developing the human potential in most parts of the world. As a profession we do not suffer from a deficit of research knowledge about what has to be done to produce effective teaching and understanding. We are not failing to be excellent because of our ignorance. We fail because we do not have the kind of conditions, systems and philosophy supported by the appropriate training in our educational institutions that are conducive to putting into place those things we do know about challenging and stimulating schooling. We need “political” action to promote change. We need to stand up and be counted.

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