Denial and Distortion of Instrumental and Intrinsic Value in the Teaching of Science and English: its impact upon fifteen Year 10 teachers

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ABSTRACT This article focuses on the impact of schooling on teachers through an exploration of the teaching of Science and English to Year 10 pupils in a metropolitan area in the north of England. Data was collected from 15 case studies through semi-structured interviews with the teacher, a lesson observation, and a post-observation interview with a sample of pupils. The analysis revealed a denial of intrinsic value, and the distortion of instrumental value contributing to the mortification of the teachers' substantial self. Denial, distortion and mortification are not found in all the case studies, but to a significant extent in 11 of these. The four exceptions were all teachers of English. If teaching is to be an attractive occupation and retention of staff is to be improved, particularly for science teachers, then issues of intrinsic and instrumental value need to be addressed along with the debilitating effects of mortification.

Pupils and students are not the only people who spend their working days in school. There are 206,000 teachers in the secondary phase in England (Department for Education and Skills [DfES], 2004). This research focuses unashamedly on secondary school teachers – more particularly on teachers of English and science to Year 10 pupils – and how teaching their subject affects their engagement with values – and the impact this has on them. Smithers & Robinson (2004) reported that 14.9% of English teachers left in 2003, and 13.8% of science teachers left, as opposed to 5.4% for design and technology, 2.0% for business education and 4.3% for geography. They also argued (2000) that teaching needs to be 'more intrinsically satisfying' for teachers. The Organisation for Economic Cooperation and Development (OECD) (2003) questions the efficacy of traditional organisational models and school ethos,

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arguing that economic, technical and cultural developments could not sustain the traditional model of schooling (Giroux, 1983) into the next century. Wrigley (2003) argues that the creation of creative and enthusiastic learners should be a focus for school improvement. To do this schooling has to change (Wrigley, 2005). Some of the debilitating effects of schooling on teachers are described by Smithers & Robinson but the processes and purposes that lie at the heart of this are not. This work addresses these issues. The study had two general aims. The first aim was to explore the nature of the teachers' experience of teaching their subject. The second aim was to investigate the relationship between values and disengagement. Using Dewey's ([1916] 1966) concepts of instrumental and intrinsic values, this work identifies a problem at the heart of our schools: the denial and distortion of values in subject teaching. This leads to the mortification (Woods, 1979) of teachers, attacking their substantial self (Nias, 1989) and contributing to their disengagement.

Sample

A pilot of five teachers from separate secondary schools was followed by a first phase involving semi-structured interviews with 19 secondary school teachers in two secondary schools. A second phase involved case studies of eight teachers of secondary school English (Year 10) and seven science teachers (Year 10), and selected focus groups with their pupils (Year 10). Science teachers were selected because of a positivist tradition (Giroux, 1997) and a reputation for ignoring ethical debates (Wellcome Trust, 2000). Teachers of English were selected because of a widespread recognition of the presence of values in the teaching of English (Hollindale, 1986; Snow, 1991; Marshall, 2000). The case studies were drawn from five schools. Each case study drew on data collected during pre- and post-observation semi-structured interviews with the teacher, a lesson observation, and a post-observation interview with a sample of pupils. All interviews were audio recorded and transcribed. Observation notes were taken of the lessons. A dissemination event attended by 11 of the 15 key informants was held where the informants had the opportunity to explore and refine the findings.

Analysis

The findings evolved over two phases of data collection. Somekh's progressive focusing (1995), Cicourel's (1964) indefinite triangulation and Spradley's (1979) three stages were used in the analysis. In the first and second stages thematic induction and theoretical exemplification were used. The first stage identified the values contexts of 'Self', 'Subject', 'Schooling' and 'Pupils' as relevant parts of the culture. Stage two identified the research values of respect, teacher (as valued identity), exploration and curiosity, as values that linked these contexts. The third stage, using dilemma analysis (Winter, 1982) explored the relationship between these parts. Mason's (1996) procedure of identifying a

puzzle was used, working backwards and forwards from the dilemma through the transcripts looking for further evidence and meaning. The selection of analysis from the case studies illustrates the nature and impact of the denial and distortion of intrinsic and instrumental values in subject teaching. Indicative quotes from the informants are included to add feeling to the analysis and are not provided as proof of the validity of analysis.

Analysis from the Fifteen Case Studies

Engirl

The Science department at *Engirl* declined to take part in the research. The head of department explained that as a science department they did not teach values, they 'just taught the National Curriculum'.

English

> I am really bothered about having the language to express your values, and to be independent, and my job is to give students that independence, but improving their language skills ... Where I have a problem is with the way it is assessed ... we make the tiering decision as late as possible. [Respect is] valuing other people's opinions ... it is a mutual process ... it is based on trust. (Jenny)

> I was attracted to this particular department because there was freedom. There is a specific ethos ... we were studying a film ... domestic violence ... they really had an awareness ... respecting yourself ... I don't expect them all to love it [English], but I would hope for it to be exciting learning and using the imagination and so on ... professional behaviour could be seen as quite rigid ... it should be flexible behaviour ... [What does respect mean?] I think trusted ... not in a trite way, but trusted in terms of their [teachers'] professional judgement ... if the teacher is respected by the pupils then how the teacher treats other students in the classroom sets the foundation for how they should treat others in the classroom. (June)

Jenny was head of English, and June had been in the department three years. It was her first appointment. The data from *Engirl* did not reflect the same deep-seated discontent that was to be found in other schools. They were at ease with themselves as teachers, and were able to implement a pragmatic/liberal (Marshall, 2000) form of pedagogy that allowed them to generate respect amongst and between pupils and teachers. June and Jenny subscribed to an engagement image (Huberman, 1992) of the teacher, characterised by experimentation, collaboration and a desire to be more of the 'person' (Woods, 1979) in the classroom. They had mixed-ability classes, the only such classes in the sample, and organised the classrooms to facilitate discussion amongst the

class. Both teachers initiated and practised engagement. The authoritarian image, characterised by the imperative of control (Giroux, 1983; Apple, 1995), and a bureaucratic approach which distances the teacher from the 'person' (Woods, 1979) did not raise itself as an issue with teachers or pupils. There needs to be a word of caution here. The limitations of the methodology may not have searched as deeply amongst their pupils as subsequent interviews did. The interviews with June and Jenny, and their pupils, were the first to be conducted, and the pupil interview technique was not as developed as it was for later interviews. However, the pupils did not make an issue of the way that the school treated them. There was not the undercurrent of resentment that was to be found in *Boyscomp* and *Churchcomp*.

Boyscomp

English

English is totally unique ... where else can you find yourself? Where else can you discover the inner person ... For me it is all about communication, how to develop relationships with people in order to develop ourselves fully. We have to be able to mix with any one, whether it ability, class, race or whatever, to me that is the ideal way to formulate groups but it does not work in here ... I felt it would be a joke because it would not be truly mixed ability, because of our boys' lack of attainment ... I do not have much respect for teachers. What I see, what I hear around the school. A lot of defensiveness. (Mary)

The teacher is the person present who has most seniority ... who has experience of dealing with other learning groups ... there should be a certain deference from the students ... I would worry if a child went right through from five to sixteen knowing nothing about Shakespeare ... I hate the National Curriculum ... in that class the boy who initiated [the hee-hawing] was trying to ... re-establish his position in the pecking order ... so I think he thought ... then that is extra kudos. (Sandy)

Mary was head of department and Sandy had been teaching at *Boyscomp* for nine years. Mary was to have a long-term absence in the dissemination phase due to stress, and Sandy was to die in tragic circumstances in the same year. Both teachers felt the tension between their role as a teacher and the authority demanded of school and as such reflect the teachers' problematic (Sachs & Smith, 1988). Mary and Sandy embarked upon a strategy of accommodation (Woods, 1979), justifying a dependence upon setting of classes in terms of the limited ability range of their pupils which denied a 'critical mass' of motivated pupils. Mary practised pragmatic/liberal pedagogy (Marshall, 2000) whilst Sandy practised a cultural heritage/adult needs model (Snow, 1991).

Mary subscribed to an engagement image and Sandy to an authoritarian image of the teacher. Mary encouraged engagement with the values of the subject amongst her top set but setting created problems for Sandy who taught a lower ability, pre-General Certificate of Secondary Education (GCSE) certificate set. Sandy's pupils would play lip service to their role as pupils, but frequently undermined the teaching exchange. Sandy wanted deference and this did not facilitate engagement with the values of the subject when the pupils rejected the value of certification. Both Mary and Sandy found themselves in opposition to the legitimate curriculum but ambiguous about certification: Mary thought education undermined critical thinking and Sandy's pupils were demotivated by the pre-certificate. This put them both under pressure as they attempted to provide pupils with the best certification opportunities. Mary linked the instrumental with the intrinsic, but Sandy failed to do this as her pupils saw little instrumental or intrinsic value in the study of 'Macbeth'. Mary hated being seen as a teacher and did not like what she saw of other teachers. Sandy thought that ineffective school rules led to chaos, and fatigue amongst teachers. Sandy was isolated and disengaged from the values of her school, national inspection systems, and her pupils.

Science

From the kids' point of view ... it dilutes you, the abject tedium of just bookwork ... most experiments by the way don't really work the way they work in the book ... the bell jar ... I don't do that now ... I actually explain why it's a rubbish experiment ... The really ideal way would be without the pressures of other things ... an extremely well equipped but not ostentatious laboratory where I haven't got to think about dividing equipment which is only suitable for eight people ... where there is back-up equipment, where I've got laboratory assistance ... God ... I'm going to say it anyway, there's nothing really new in science ... I'm not particularly sure that on that day that they actually learnt any science. (Derek)

Everything that goes wrong with kids is sometimes blamed on teachers ... I think of the traditional profession, there is an element of self-serving in it ... they are trying to maintain their own sort of elite status. You have to go through a long and rigorous training in education – not always particularly intellectually demanding ... so then they can call themselves something and charge a lot of money for doing it ... not all teachers respect other teachers anyway ... attitudes in staff rooms. People do not always respect other people ... I don't think that we have enough time for consultation with colleagues ... you want to ask people what has worked well with these pupils in this school ... Some experiments people might not do

because they've found it is dangerous. Kids tend to do silly things. (Gordon)

Derek was head of department and was to leave for a job as deputy head in the south of England at the end of the dissemination year. Gordon had taught briefly in the school during the early 1990s before teaching in Africa for six years. He had returned to the school to teach biology and had been teaching there for half a term before the research began. He left suddenly, before the academic year had ended, after the data had been collected, to become a paramedic.

Gordon was not able to accommodate the disappointment he felt on his return to teach in England. His science was value-free and he paid service to positivism, and science as the active pursuit of curiosity, but the reality was constrained by his isolation from other teachers and the behaviour of uninterested and disruptive pupils. He failed to come to terms with the teacher problematic as his desire for a culture-based (Osborne, 2000), open-minded science was, in practice, pedagogy which attempted Turner & DiMarco's (1998) 'education through science' tinged with Osborne's utilitarianism.

Derek accommodated the failure to engage pupils in Turner & DiMarco's (1998) 'education for science' through recognition of schooling objectives associated with pupils' ability to 'deal with authority'. Derek, like Gordon, framed his pedagogy as 'education through science' tinged with the 'economic'.

Gordon subscribed to an engagement image of the teacher, and Derek to an authoritarian image. Gordon acknowledged the link between instrumental and intrinsic values, but a combination of ennui and fear of disruptive behaviour from pupils prevented realisation. Derek pursued instrumental value, and this was concerned with developing appropriate attitudes, literacy skills and the handling of scientific apparatus. The evidence suggests that his lessons were in effect similar to Gordon's. The daily business of school life had reduced the value of science to an arid form of instrumentalism, with no intrinsic value. There are similarities here with Sandy's English lesson where, despite Sandy's desire for her pupils to appreciate the value of Shakespeare, the lessons were concerned with the role-play of passive, obedient pupil and authoritarian teacher. The lessons were instrumental, the purpose of which was somehow lost in the busyness of schooling. There was no indication that Derek and Gordon collaborated or explored values with pupils or teachers. The data confirmed tension between pupils, between informants, and between both groups. However, there were similarities in behaviour. Firstly, both disrupted scientific learning for the benefit of extraneous value systems. An example of this was an alternative pupil value system concerned with status amongst the peer group, and teacher recourse to authoritarianism, the legitimate curriculum, and classification of pupils: the characteristics of schooling. Secondly, both absented themselves from lessons. Pupils did this through truancy and teachers did it by leaving classroom teaching.

Churchcomp

English and Drama

> Sometimes it seems a small world – the teaching world ... I wish that I'd bummed around a bit more ... Shakespeare Key Stage III ... is totally useless and silly ... I would like to free myself of the National Curriculum GCSE obligations as quickly as possible. What does respect mean? It means fear ... I think we are coming into a situation where business methods ... are in danger of preventing normal, critical examination ... I would be under strain to try to delete expletives. ... we bought the wrong edition of 'A Day in the Life of Ivan Denizovich' and it had fuck in it. And it it was in the 'Mirror' the following day ... I really cannot consider myself a proper teacher. ... I'm still in the same frame of mind as when I was 23 ... What is a proper teacher? Somebody who has got the rhetoric and the solemnity that you expect. (Barry)

> If you respect someone, in my knowledge, you cooperate with them, listen to them, even if you don't agree with them, take on board what they are saying and have two-way communication basically ... I think you have to look at the bigger picture and see that they need to get more out of it beyond just exam pressure ... Making the pupils enthusiastic, getting them to understand, communicate effectively, having a good time ... I'm quite happy with the school rules ... The major ones like uniform I stick to ... I suppose you have just caught me out there ... I don't know whether I would bother about it as much. I would pick them up on it verbally, but in terms of taking it any further and giving them a detention ... not really, don't tell the HEAD this ... (Millicent)

Barry had been teaching for 30 years and was acting head of department. Millicent was in her second year and taught English and drama. Data from *Churchcomp* offers substantial evidence that an authoritarian school culture causes pupils to bring cynical attitudes and disruptive behaviour into the classrooms of teachers who desire a more engaging form of relationship. Barry showed affinity with a cultural heritage/personal growth view of English teaching (Snow, 1991) and Millicent had affinity with a liberal (Marshall, 2000)/personal growth (Snow, 1991) pedagogical approach. Both teachers had strategies for avoiding the teacher problematic, based upon the primacy of the work over other schooling characteristics, although the effects of schooling on pupils was to play a significant part in the classroom experiences of both teachers.

Barry recognised that there was a drive for consensus that damaged truth. He thought that truth was fashioned by disagreement, and the combat of ideas. He rejected the concept that teaching was about the values of obedience and

passivity. Business language played a central role in closing down critical scrutiny of ideas and created a false consciousness. Certification was used to check that the teachers were 'all right', further limiting the scope for risk taking and creativity. Both teachers valued the primacy of 'the work' and in this they necessarily invoked the instrumental–intrinsic continuum. Barry did this through a teacher-centred approach dependent upon close relationships with pupils that were soured by the pupils' perception of schooling. Millicent did this through the more pupil-centred pedagogy of drama, which involved pupils researching ideas and values for themselves. Barry overtly rejected the 'rhetoric and solemnity' of being a 'teacher' whilst Millicent was torn between engagement and authority. There was a degree of resistance in Barry's exploration of the values of schooling. Millicent attempted accommodation of the teachers' problematic: the constraints of a legitimate curriculum that excluded most of her favoured authors, and limited her pedagogical approach against her desire to maintain the value of the subject.

Science

> In some classes it is more instruct: this is what you will do and these are the facts ... Topics that are not in the National Curriculum have gone ... it prevents the class following lines that they are interested in ... Maybe friendship between children and adults is frowned on ... The course is exam driven totally. Every few minutes we will be saying: syllabus says this, syllabus says that ... They are encouraged to highlight the syllabus as we go along. (Keith)

> I'd like to think that every lesson fosters some sort of curiosity ... In an ideal world that is the way I would like it to go. I do that to a certain extent, but just the sheer amount that is in the syllabus means that every now and then you have to say: notes; or you know: here's a list of questions; do them ... the information on the syllabus is not what I would consider the most important bits of chemistry. It is very dry ... to do ... experiment work ... would take 3 to 4 weeks and we find that we are doing it in two weeks maximum ... simply because there are exams coming along and there is theory to be got through. (Susan)

Keith was head of biology and second in science. He had been teaching for 22 years. Keith yearned for warmer relationships with pupils but appeared resigned to more distant and less satisfying relationships. Susan had been teaching for three years and had no responsibility points. She was more relaxed in her approach than Keith and encouraged more discussion amongst her pupils. Keith's pedagogy was bound by education for science (Turner & DiMarco, 1998), and the drive for examination success. This alignment with the syllabus prevented exploration of pupil interests and pupil and teacher engagement with

their own natural curiosity in the same way that Derek's class (and as we will see later, Dennis's) were denied curiosity. Susan rejected the 'education for science' argument because she thought that training to be a scientist was inappropriate for most pupils. She had an affinity with the democratic argument (Osborne, 2000), despite pupil resistance to engagement. This resistance was due in part to the limits of a pedagogy designed for legitimate knowledge and the satisfaction of exam requirements. It was also in part due to pupil antipathy to what they saw as intrusive and disrespectful schooling.

Keith distanced himself from engagement with subject values and from warmer relationships with pupils as a coping strategy. He justified science in terms of 'education for science'. Susan tried to embrace the demanding pedagogy of discovery and discussion typical of the democratic argument. She later left for a sixth form college where she was pleased that she was in a classroom where '[I] Don't have to talk about chewing gum or tucking shirts in', an obsession with appearance and personal habits that can dominate school life. Schooling's institutional denial of pupil interest and essential features of the self, such as denial of self-respect embodied in their treatment through school rules, jeopardised approaches to pupil engagement. In an atmosphere of mortification, pupils viewed individual attempts at friendship, trust, and the pursuit of curiosity suspiciously, cynically, or as signs of weakness. This contributed to a self-imposed mortification of teachers, mirroring the imposed mortification of pupils. Both teachers taught science as a purely technical matter, rather than one of human curiosity, reason and explanation – values that they thought underpinned their subject. As with Sandy, Gordon and Derek at *Boyscomp*, practice was dominated by a form of instrumental value limited and constrained by the examination imperative.

Co-edcomp

English

> If a kid goes out of my Year 11 set with a U or a G but has some understanding and tolerance ... I think I've achieved a lot ... if you expect them to be in the classroom on time I think you've got to be in the classroom on time ... if you expect them to do their homework then I think they're right to expect you to mark it for them ... I think too many teachers expect automatically to be given respect because they've got a DfEE number ... I think we are ... insular ... we are also a little bit paranoid. (Roger)

> I set them a target as well in every piece of work ... it's important that they understand that I am organised ... they also have to be organised and when I ask for a piece of work to come in on a set date it's got to come in on that date ... respect for individuals ... worth ... tolerance of individuals, equality of opportunity ... stressing

> the importance of learning for its own sake ... I object to the idea of
> teachers being told how to teach, but not what to teach ... what I
> have to teach doesn't concern me. (Gerry)

Roger was the head of English and had been teaching for 24 years, 23 of them
at *Co-edcomp*. Gerry was the curriculum coordinator and had been teaching for
26 years, 25 of them at *Co-edcomp*. Roger taught a 'lower' ability set, and Gerry
a 'top' ability set. Roger practised an engagement style, where respect was
earned every day. Gerry articulated an authoritarian style of teaching. Both were
at ease with their chosen styles. There was not the same degree of tension in
their data as was found in *Boyscomp* and *Churchcomp*. In terms of the apparent
lack of tension in the teachers' problematic, there were similarities between
English informants in *Engirl* and *Co-edcomp*. Whilst there was some tension
between the pupils and the school, this did not dominate the experiences of
teacher or pupils in the English classrooms. Roger exhibited characteristics of
the old grammarian model (Marshall, 2000) and Gerry the characteristics of the
pragmatist (Marshall, 2000).

Their pupils liked Roger and Gerry, and there was little of the cynicism
and resentment of *Boyscomp* and *Churchcomp*. Both teachers attempted to involve
pupils in the issues raised by the texts and they were partially successful in
satisfying intrinsic values such as independence of thought and exploration of
the human condition. Both teachers valued different images of the teacher, and
different arguments for English. Both shared self-confidence and belief in the
value of their work, and the importance of moving between the instrumental
value of the subject (examination success, power of expression) and intrinsic
values such as understanding their feelings and independence of thought. Values
were organic, moving from the instrumental to the intrinsically satisfying and
back again to the purposefully instrumental. For example, the development of
the power of language did not simply help to pass an examination but brought
pleasure and satisfaction in itself, before offering further satisfaction requiring
further development. They allowed pupils to engage in the work, and to
consider their own perspectives on the issues arising from the texts, even if
Gerry's top-ability pupils were a little cooler towards his 'technical' approach as
a teacher than Roger's low-ability group were towards his more engaging,
personable style. Pupil and teacher attitudes in this respect were a reflection of
the engagement and authoritarian styles. Schooling in *Co-edcomp* did not
significantly undermine the respect that pupils and teachers had for each other.

Science

> ... the curriculum is more crowded ... we used to go off at little
> tangents when something particularly catches the children's interest
> ... anything that captured their imagination ... don't have time to do
> that now ... Constantly meeting deadlines as to where you've got to
> be in that syllabus ... It can be very demoralising ... some of the

subject matter you have got to teach is very, very dry ... I don't question it any more now ... It is on the syllabus so I just do it ... If I don't cover the syllabus then I don't get the results. (Betty)

... it is time for a career change for me ... I would take a drop in salary to go into something else, anything really ... We are filling pieces of paper saying we have done this and that ... QCA [the Qualifications and Curriculum Authority] ... seem to be stuck in the mud ... We teach the blast furnace ... it is just not relevant ... I hardly ever get chance to speak to my colleagues ... class sizes have gone up ... it's not their curiosity as such. I suppose it is me telling them [pupils] how to find something out ... I get moaned at ... teachers are born moaners ... Go in there [staff room] and find out. [laughter] (Dennis)

Betty had been at *Co-edcomp* for 12 years, and was in her fifteenth year of teaching. Dennis had been teaching for five years, four of them at *Co-edcomp*. Both teachers were ill at ease with teaching science in *Co-edcomp*, indicating frustration with the imposed legitimate curriculum and their relative powerlessness to influence the nature of school science or, as in Dennis's case, teachers' attitudes. It is difficult to summarise the pedagogical underpinning of these informants. Betty admitted that she did not question the nature of her teaching any more, 'I just do it'. However, she did talk about how values could be taught through science, and when she referred to how she used to teach and how she would like to teach there was resonance with the democratic argument (Osborne, 2000). Dennis's pedagogy was also difficult to summarise, mainly because his views developed during the course of the research project. He moved through descriptions of the 'utilitarian', 'economic' and 'cultural' to a desire for the 'democratic' (Osborne, 2000). Similarly, he moved from 'education for science' to 'education through science' (Turner & DiMarco, 1998). The distortion and denial of values in *Co-edcomp* was more evident in science than in English. After 12 years of full-time teaching Betty wanted to take up a part-time post in the next academic year to spend more time at home. Dennis, after five years' teaching, wanted to leave teaching at the end of the year and do 'anything really'. Both achieved these aims.

Scigirl

Farouk at *Scigirl* was one of the last teachers to be recruited to the research project. He volunteered to replace the sample at *Engirl* (see earlier comments of the science departments at *Engirl*).

Science

> Science now ... it is the investigative approach, discover for yourself
> ... I only practise this when time allows ... it will take such a long
> time and so much effort and so much resources ... you can only do a
> few experiments ... the girls ... without any prior knowledge say 'I
> hate physics' ... Physics is part of so many careers ... engineering,
> medicine ... children cannot be responsible for their behaviour ...
> they cannot think sensibly ... Sympathy for the deprived one now
> but I feel angry about those who do not value their education ... they
> do not have a chance to explore ... I would be concerned of a sharp
> instrument ... about their behaviour ... being silly. (Farouk)

Farouk had been teaching for six years, all of these at *Scigirl*. Farouk had previously been a research assistant for a number of years at a university and had a PhD in physics. The laboratory was laid out formally, with benches facing a raised platform at the front where Farouk could demonstrate experiments. Farouk expressed a strong sense of frustration at the failure of his pupils and wider society to share his passion for physics. He was 'educating for science', using the economic/utilitarian argument (Osborne, 2000) to justify his pedagogy. Farouk operated within an environment where teachers rarely talked about science, and pupils were resentful of schooling. Consequently, Farouk concentrated on a form of instrumentalism that was driven by a desire to control disruptive pupils. Pupils saw little instrumental value in the subject at all.

There is pretence that experiments are about finding things out, about curiosity, and the pursuit of knowledge. Farouk admits that to do experiments in this manner would require time and resources that the school does not have. Therefore, in common with other teachers in this case study, he communicates the knowledge required by the syllabus strategically; through demonstrations at the front of the class. There is an attempt to manipulate pupils, but Farouk's pupils, like so many in the case studies, are not happy to be manipulated.

Farouk responded with a narrow, risk-free pedagogy. However, this did little to control low-level, and less frequently, high-level disruption. This compounded disengagement for teacher and pupils as they were denied intrinsic values of exploration and curiosity.

Reflections

Distortion of Instrumental Value

In order to understand the nature of the social relationship within the subject classroom the teacher exchange of Willis (1977) is adapted. Willis talked of an exchange of teacher knowledge for pupil control. This exchange is examined in the different cultures of English and science.

Instrumental Exchange in English

The issues surrounding instrumental exchanges were brought into sharpest focus in Sandy's data at *Boyscomp*. Instrumental exchange takes place in the English classes in the sample, with the exception of Sandy's, where the exchange was similar to that found in the science classes. In Sandy's class her pupils reacted to the pre-GCSE certificate in a way that suggested that there was little exchange value in the qualification. In addition, the study of Shakespeare, despite Sandy's reliance upon the cultural capital argument, was not seen by pupils to have use value for them. They therefore were reluctant to offer control to Sandy. This, compounded by a lack of intrinsic value, led to frustration and disengagement for both teacher and pupils. In the other English classrooms the use of language was seen to offer use value (a form of instrumental value), and the possibility of the 'C' grade at GCSE was thought to be a possibility for a 'critical mass' of students.

Instrumental Exchange in Science

In science, an overcrowded curriculum that ignores issues such as genetics, psychology, and the effects of vaccines is not seen to have use value, and many students feel that they are not going to gain worthwhile exchange value (a second form of instrumental value) through examination.

The dominant exchange, driven by the examination imperative, gets in the way of a deeper, more satisfying engagement with education. Communication between teachers and with pupils is strategic. Both groups have been found to disengage: teachers withdraw and become defensive, not unlike pupils (Butroyd, 2005), resorting to a distorted instrumental value, focused on classroom control and the avoidance of disruption. Teachers and pupils who are 'successful' often pursue results alone, like Dennis. Others disrupt lessons, like Keith, and his constant reference to the syllabus, or absent themselves from the classroom, like Gordon and Betty, and ultimately Dennis.

Denial of Intrinsic Value

Hargreaves (1967) described a situation of pupil failure, teacher incompetence and low expectations. He explained this in terms of an inappropriate intellectual/cognitive curriculum (1982) and adherence to examination success as an imperative. It is argued here that pupils and teachers prefer a more satisfying educational exchange which, whilst addressing the needs of pupils, does not preclude the intellectual/cognitive domain. The development of strategic communication and self-mortification amongst teachers are features of a teaching exchange that denies intrinsic value.

Intrinsic Exchange in English

Evidence indicates that current expectations and practices prevent deeper, more challenging, more meaningful exchanges, except in the more communicative English classrooms of *Engirl*, and through the personality and pedagogical skill of Roger in *Co-edcomp*. The engagement of teachers and pupils in intrinsic values is not simply prevented by the intensification of the working day (Hargreaves, 1994) and an overcrowded curriculum driven by the examination imperative. Intrusive rules and conventions of the roles of teacher and pupil demanded by schooling, exemplified in manipulative (strategic) communication and mortification have a tendency to leave teachers and pupils exhausted and disengaged.

The model of intrinsic exchange implies the engagement of a diversity of ideas, as both pupils and teachers contribute to those values that offer intrinsic value, not the imposition of 'shared values' onto a 'captured mind' (Schostak, 1984). To quote Barry:

> truth is arrived at by combat, not by ' here is the way you must
> express yourself'.

In English, values combine to allow partial engagement with intrinsic value, despite the constant struggle with the intrusive and disruptive influences of schooling. In science the combination of values does not combat the effects of schooling. In the science sample intrinsic exchange is not implemented.

Intrinsic Exchange in Science

The practice of deferred gratification underpins the school experience. This is particularly the case in science. Intrinsic value for the large part lay somewhere in the future, after the achievement of examination success and the assumed rewards that this will bring. Teacher experience is centred on the production of this examination success. Pleasure and purpose are delayed for teachers and pupils. Satisfaction, pleasure, and enjoyment are unacceptable pursuits in the context of an externally imposed, administered and evaluated curriculum and public examination system.

The distortion of instrumental value, and the denial of intrinsic value, has a damaging effect on the self-image of teacher informants. For example, Mary, Betty, Dennis, Barry and Gordon talk openly about the negative images they have of teachers. They do not intrinsically value what being a teacher means to them.

Mortification

Mortification (Woods, 1979) is the stripping out of certain aspects of the self. For example, friendship, honesty in relationships, dignity, pleasure, satisfaction, sympathy, understanding, autonomy, contemplation, enjoyment – what could be described as intrinsic values – are denied the teacher informants, and they,

through schooling, attempt to deny many of these same values to the pupil: the captured mind. In this way there is a correspondence of experience for pupils and teachers. Mary thinks that teaching dehumanises, Betty that teaching can be demoralising, Dennis that teaching is lonely, Barry that the world of the teacher is a small world, Gordon that teachers lack respect for each other. Mortification is resisted by some, accommodated by others, but damaging to the teachers and the teaching experience.

Mortification, derived from the needs of technical rationality (Marcuse, 1972), is reinforced through strategic action (Habermas, 1981) and a forced consensus surrounding the examination imperative. This mortification undermines respect, the teacher, and the values of curiosity and exploration. The examination imperative distorts instrumental value and weakens engagement with the intrinsic. In science, an overcrowded curriculum, poor resources, large classes and a positivistic approach to the subject aggravate the problems.

With the exception of *Engirl*, the informants reflect Nias's (1989) findings that the opportunity for communicative action (Habermas, 1981), for teachers to develop shared understanding of values central to education, is denied by their occupational experiences. This is not true of all informants, and not true of some informants all of the time. But, it is a large part of the experiences of many informants, and for a significant part of their occupational experience.

Summary

There is intense pressure from schooling for teachers to limit values to the instrumental, thus reducing the possibilities for intrinsic satisfaction. Teachers are pressured into responding with technical rationality, to let the characteristics of schooling take the responsibility for values engagement; to let distorted instrumentality, the commodification of education, offer a route to intrinsic satisfaction some time in the future. It risks the reproduction of technical rationality in the next generation of school teachers. Gordon, Dennis and Barry, simply gave up the battle, and so, to a lesser extent, did Derek, Betty, Susan, Keith and Sandy. Mary, recovering from stress, Millicent and Farouk, carried on. The English teachers, Jenny, June (*Engirl*), Roger and possibly Gerry (*Co-edcomp*) found an accommodation with the teacher problematic (Sachs & Smith, 1988).

A number of recent initiatives offer opportunities to address the mortifying effects of the schooling context. The 14-19 initiative (DfES, 2003), the Royal Socieity of Arts (RSA) 'Opening Minds Pilot Schools' (RSA, 2003) and proposals for another new science curriculum (Association for Science Education, 2003), in combination offer the chance to treat 14-16 year-olds as young people, rather than as minds to be captured. They offer the chance to link learning to curiosity and exploration, without the artificial limitation of age and subject boundaries. They offer a relaxation of the over-filled 'Science for scientists' curriculum. There are indications of a possible change in attitude at policy level to over-prescription and lack of trust in teachers and pupils, evident

since 1988. It is for policy makers to relax prescription, promote teacher creativity, and nurture a culture of schooling that will encourage teachers to engage with the values of their work and combat mortification. The challenge for teachers is to take advantage of the limited opportunities to break free from a safety first culture that smothers curiosity and exploration.

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