Recognizing learning: a perspective from a social semiotic theory of multimodality

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1 Education in a period of social transition: from 'state' to the neo-liberal market

Imagine three pictures of 'classrooms' in (European) schools, spanning a period of some 700 years. (note 1) In the first, we see a medieval lecture 'theatre': the teacher sits on the raised cathedra, an audience of adult students, in clerical robes, are seated in rows before him. A second picture shows an English 'monitorial school': a vast hall, in shape, size and fittings much the same as an 18th century factory. (Male) students are grouped in massed ranks, their 'monitors' in front of each group. The third image shows a classroom in a contemporary English secondary school: tables and chairs are in rows, arranged to focus on a teacher, whose desk is at the centre in front of the class.

We can use the images to make a point about continuity and change in education. The late 18th century classroom appears as the perfect pedagogic site – perfect that is, for the educational requirements of its time. Its organization mirrors that of the society in which it functioned to prepare a large part of the population for a role and place in the rapidly emergent mass-society of newly industrializing England: mass labour for an economy of mass-production. The medieval image works as convincingly for its period, its education system, and its society – producing clerics for the church and scribes to work in the chancelleries of the feudal state – the 'clerks' of Chaucer's England.

The image of the contemporary classroom marks a distance travelled, the social ground covered and the characteristics of the present social and educational landscape. While it too functions as a metaphor, it wobbles to some extent: it is less secure, in that classrooms in other schools can be organized differently. Some might use a 'cafeteria' style arrangement, two

or three tables put together with four or five or six students sitting facing each other; usually, though not always, boys and girls together. In others, the teacher's desk is at the front but to one side; in some classrooms the teacher has foregone having a desk. And increasingly now, the organization of classrooms is shaped by the presence of the (ubiquitous though still relatively new) technology of the Interactive White Board (IWB). Each of these arrangements embodies social-pedagogic conceptions that are different enough to matter. There is now less predictability, less stability, less uniformity, less agreement about the characteristics of 'the social' than there had been some decades ago. The pedagogic arrangements reflect both far-reaching social change, and the fact that change has not gone neatly in one direction. The point is: at present there is no uniformity, because there is no real agreement about pedagogic practices – pace the attempts of neo-liberal education policies; a fragmented social cannot produce a coherent conception about the social purposes of the school.

That, quite simply, encapsulates the challenge both for educational studies now as much as for the future of educational research. 'The social' has changed and is changing in ways which suggest no readily discernable continuity between the educational practices, assumptions, values even, of some decades ago (which in any case were largely those of the previous century) nor any coherent sense of these now. That defines the task for educational studies and for educational research: to describe and develop means for understanding present social arrangements, and, from that, to produce an image – detailed or merely sketched - which might *show* both what is *essential* and *shared* about our present and sketch plausible and desirable conceptions of the near future.

The formerly seemingly integral, stable links of school, society and economy have snapped. The images of the medieval as of the late 18th century school, each suggests a settled, stable sense of the social. At present, 'the social' is marked by multiplicity, diversity, fragmentation, fluidity, provisionality, by far-reaching changes in distributions and assignation of power, which affect the agency and the potentials of individuals. The "massed ranks" of the monitorial classroom spoke of stability and certainty; of hierarchy and power as the dominant social-pedagogic relation; of power as knowledge. They spoke of specific kinds of identity: whether as students or monitors; or as those controlling students and monitors, and organizing the educational system. The variously

organized classrooms of the early 21st century speak equally strongly of the distinct conceptions of social relations, subjectivities and identities. The 'cafeteria' classroom (now already becoming superseded) spoke of attempts to create equality and solidarity, mutuality, of difference in forms of subjectivity and identity deliberately brought together at one table, of distinct conceptions of agency; and of relations of identity, community, power, knowledge distinctly different from those before. The classroom with the IWB speaks yet differently about all these: it speaks of technology used to shape conceptions social relations.

In most (western) European school systems a social, cultural and affective chasm has opened up. The underlying conceptions of pedagogic relations which remain current are those of the previous five decades, and, with them, conceptions of learner identities, of what teaching and learning are, of knowledge and its production and origins. The frames through which present pedagogic relations are viewed were fashioned in a now distant past: in its conceptions, needs and requirements. The present forms of assessment – as *metrics* of success or failure –remain those, broadly speaking, of the late 19th and the first half of the 20th century

This situation is untenable and will become ever more so in the medium and the longer term, for any number of reasons. It is leading to massive waste, to a misrecognition of present practices and their effects: of learning as much as of teaching, of what might be apt forms of assessment. It demands a re-calibration of pedagogic relations congruent with contemporary social givens. At its core will be the attempt to bring the school's sense of the agency of young people and its understanding of their capacities into a reasonable alignment with that generation's own sense of their agency, their interests, in a recognition of their capacities. The urgent task of educational studies and research is to provide a clear view, and apt, serviceable frames, to fashion tools with which it is possible to develop reliable *means of recognition* of pedagogic-semiotic work of learners and of learning, with outlines of plausible pedagogic goals.

These *tools for recognition* will focus on social-pedagogic and semiotic practices in a theoretical frame of communication and meaning. The frame integrates social practices with semiotic practices in a social semiotic multimodal theory. In education, issues of meaning (semiotic issues) emerge as *pedagogy*, that is, the social relations of learners and teacher, and as *curriculum*, that is, as socially valued knowledge. There is a

constant 'trade' between the two sets: evaluation / assessment mixes the semiotic (meaning / knowledge) with the social (power) to produce pedagogic categories ('grades') and psychological categories ('ability', 'development') framed by larger-level social categories ('gender', 'ethnicity', 'class'). This might emerge, practically, in how well a piece of writing conforms to generic conventions; or in how closely the drawing of a magnetic field conforms to its canonical generic form; or how successfully an experiment performed in time and space, with a range of materials and three-dimensional objects, appears in a written recount of the experiment.

'Education' names a social process, usually located in a social institution. Teaching and learning are instances of communication, so that developing tools for recognizing learning requires – first and foremost - a sketch of a theory of communication, essential as the frame and model of a (multimodal social semiotic) theory of education. The traditional view of communication (in its very many different versions) rested on the assumption that the sender constructed and encoded a message, sent it, while the receiver's task was to decode it. Authority and power clearly lay with the sender; the receiver's task was to decode the message as closely to the original as she or he could. This could serve as a plausible account of communication in a society which assumed and accepted clear, hierarchical structures of power and authority. It is equally clear how it could serve as a metaphor of (relations in) the educational / pedagogic system of such a society.

Given the vast social changes which mark the transition from the dominance of the nation-state to that of the (neo-liberal capitalist) market, that account of communication has become problematic. In social semiotic multimodal theory it is assumed that *sign-*, *meaning-* and *knowledge-making* are the effects of communication in social environments, with their potentials and constraints, and so, therefore, are pedagogically oriented concepts such as *learning*, *teaching*, *curriculum*, *assessment* / (*e*)*valuation*. Sign-*making* is one aspect of interaction-as-communication, whether with a social other or with some aspect of the world. Without interaction-as communication there is no meaning-*making*, no learning, no (change to) knowledge. That makes a theory of communication essential as the frame and model of a (multimodal social semiotic) theory of education.

A brief sketch of such a theory is presented here. To make it concrete, it draws on two distinct educational sites, neither of them a school. One is an Operating Theatre (Figure 1), an example of interaction among a group of professionals engaged in joint practice; the other is from a project on museum 'visitor studies' (Figure 2), as an example of individuals interacting with a specific socially shaped environment. In both environments meaning is made and learning happens: each functions as a *site of learning*; each draws attention to criterial aspects of learning in / as communication.

Fig. 1 Operating theatre

Figure 1 shows an operation in its very early stage. A 'scrub nurse' stands in the foreground; behind her, on the right, is the 'lead surgeon' and opposite him the 'assistant surgeon', who is at the same time a surgeon-in- training. Behind them, separated by a screen, is the anaesthesist; at the very back, barely visible on the right, is an 'operating theatre technician'. Representatives of four distinct yet entirely integrated professions are present.

The event is, first and foremost, a clinical one, one of professional practice. At the same time it is a 'site of learning': the assistant surgeon is in the process of becoming fully qualified. From a multimodal social semiotic perspective the question is: 'how does communication happen?' From a pedagogic perspective, relevant questions are: 'How does learning happen?', 'What is being learned?', 'What has been taught, and how?' and importantly 'How can we assess what has been learned?'

Communication here is multimodal: by *speech* at times; by *gaze*; through *actions* — passing an instrument, reaching out for an instrument; by *touching*. Any of these can be taken as a *prompt:* a *gaze* from one participant can produce a spoken comment from another and that in turn can produce an action; a look at the screen by both surgeons can produce a guiding touch by the one of the other's hand; an outstretched hand is met by an instrument being offered. Communication has happened when the attention of one of the participants has focused on some aspect of the interaction, and that has been selected by him or her as a *prompt* of some kind*,* and the *prompt* has been *interpreted* by that participant.

This sketch assumes that 1) *communication happens as a response to a prompt*; that 2) *communication has happened when there has been an interpretation*. The characteristics of the *prompt* constitute the *ground* on which interpretation happens; and 3) that *communication is multimodal*. The *interpreter* and *interpretation* are central to communication. One of the participants selects the *prompt* as the ground from which to select, and *interprets* what has been selected from that prompt. The basis of communication are on the one hand the *prompt* and its *characteristics*, and on the other hand the resources brought by the interpreter to the interpretation of what she or he had selected. This account attends to *all modes* involved, all as potentially equally significant in making meaning, and in leading to learning. The three assumptions, always taken together, provide the basis both of a plausible theory of communication and of a plausible theory of learning. A theory of learning then needs to be derived from that.

To restate this in the specific frame of *learning* and *assessment*: *learning* happens in complex social environments; always in interaction with 'the world', whether as other members of a social group and their interests, or with the world as the culturally shaped environment; and usually of both: distinct and related. In this, the learner's interest guides her or his

attention; that frames (a part of) the environment to become the *ground* for interpretation. In interaction, members of groups communicate and make meaning, construct knowledge and learn, *within* and *across* social boundaries. The always transformative and / or transductive interpretation of the prompt constitutes *learning*.

Specific features appear in different environments of learning. In formal environments – in the school, say - the *ground* is shaped according to the requirements of the institution, as *curriculum* and a specific *pedagogy*. The learner's engagement is formalized in various ways: by knowledge organized *as curriculum*; by the organization of time – as timetables, school terms and years; shaped by notions of *ability* and *development*. *Metrics of achievement*, set by the institution, define what is to be recognized as learning and how it is to count as learning: both are subject to the power of the institution.

All environments of communication are also environments of learning. Whether in the Operating Theatre or in the Science classroom, as much as in so-called informal sites of learning, as in 'visiting' a website or in a visit to a museum, or indeed in any aspect of daily life, any aspect or feature can, potentially, be construed as a *prompt* for interpretation. In 'informal' sites, what is construed as a *prompt* is not (or is less immediately) shaped by power extraneous to the interpreter; it is shaped, rather, by the 'interested attention' of a 'participant'.

My emphasis on *learning* rather than on *teaching* is to signal two factors. The first is that the far-reaching social/political changes in contemporary (anglo-saxon) societies have changed distributions of power and authority; with a resultant shift of attention from teacher to learner. As the metaphor of the market is applied to educational sites, the social relations of the market begin to shape social practices in educational settings. The new social givens begin to shape identity. In the market, one kind of agency expresses itself as *consumption*, a social practice (ostensibly at least) guided by *choice*, itself seen to rest on the interest of a *consumer*. When the metaphor of the market dominates educational sites, the identity of the learner expresses itself through her or his agency in choice – and produces an identity of the *learner as consumer*. The larger level change social change from the agency of the state to that of the market has, at the micro-level, shifted attention to the agency of learners. The question is what consequences this will have for practices of teaching

and learning, for evaluation and assessment, for the 'security' of curricular knowledge, and above all, for the possibility of the *recognition of agency as choice* in learning. It also forces us to ask whether what is now revealed about learning and the agency of *learners as interpreters* has always been a factor in educational practices and processes, though kept invisible by theories of learning attuned to and based on the exercise of hierarchical power-as-authority, even implicitly.

The second factor is produced by the first. While authority and power in *teaching* had been taken as given, the question of *the recognition of learning* could not be an issue: the curriculum was presented in canonical forms – whether as content, genres or in specific modes – and assessment could be seen securely as a metric of conformity (of 'acquisition', of 'adaptation') to that curriculum in 'content' as much as in genres and modes. The appearance of the learners' 'interest', of their 'interested attention' as a factor, challenged canonicity, whether of contents, of genres, or of modes. The learners' agency, expressed in their interest through choices of modes and genres, of media and of contents, challenged all aspects of the formerly (seemingly) stable enterprise.

'The school' however, has continued, pretty well as though all is still in place. This means that the expression of the learners' interests in non-canonical modes, genres, in 'unauthorized selection' from the curriculum presented, cannot be recognized. The theoretical and descriptive 'tools for recognition' do not yet exist: and that is the case whether for learners' agency, however expressed, as for contents, modes, genres, media. In that context, an urgent and essential task for educational research and practices will need to be the developing of 'tools for recognition' of the agency of learners, for the modes, genres, and media used by them. In very many ways much the same applies to teaching: many teachers do in fact give recognition to these features and practices, though without the support of theoretical underpinning, not to speak of the lack of support through policies at any or all levels.

While the presence of a teacher never guarantees learning; and while by far the largest part of what anyone learns is learned outside school and without the (overt) presence of a 'teacher' of any formally recognized kind, the task for educational research and theorizing will have to be to concern itself with the new role and tasks for teachers: a role which recognized their expertise, knowledge – though in ways which match the

now different needs of students. My argument here is about considering both learning and teaching in ways which fully recognize the potentials of learners and teachers aptly. Nor is my argument one against 'the school': it will remain as an essential site, socially and culturally.

2 'Signs of learning': agency, principles, resources

A major need in educational research is for the development of metrics for valuation / assessment of learning which acknowledge expertise; metrics which are attuned to the semiotic work of learners and of teachers: transformative and / or transductive. These will allow the recognition of *agency in learning* and the *recognition of the many modes in which learning becomes evident*: in settings seen as institutional or as informal; irrespective, at one level, of the operations of power and yet also capable of recognizing its effects in all settings. This approach will focus on the *recognition of agency* in institutional education and beyond; and require us to develop tools for the recognition of *signs of learning* in all the modes which are at work in any process and in any site of learning. The social semiotic aspect of the theory will focus on *agency* in semiotic work; the multimodal aspects will deal with the multiplicity of *means for realizing meaning*.

The term *sign of learning* moves the focus, decisively, from the metaphor of *acquisition*, away from 'metrics of achievement' based on the power of an institution and conformity to convention, and toward hypotheses about *principles of interpretation / transformation* which had been brought to bear in the sign-maker / learner's interpretation. Practices of assessment will need to focus on and appropriately recognize all semiotic work in all modes to allow the elucidation of the principles which led the learner to her or his interpretation and hence to learning.

An understanding of these principles provides a basis for a teacher's next move in a chain of steps which constitutes the path of learning for some practice or concept. Each step involves the shaping of a *new ground* for the learner. This *new* ground In turn provides the learner with means to recognize and understand the principles he or she had used in their earlier interpretation / transformation and in their making of the new sign. It gives learners the resources to reflect on their making of signs in relation to the principles inherent in each of their own transformations of the teacher's new ground. By these means learners are brought or can come

closer to the teacher's and the culture's understanding of the matter in a sequence of steps.

In other words, this approach is founded on giving recognition to the principles inherent in the semiotic work of learners, and uses these as means to design a (series of) further prompt(s), each designed to bring the learner closer to an understanding of the culture's understanding of the issue. In other words, attending to the learner's principles constitutes neither a resigned 'anything goes' nor the command 'bend your principles to the power of an institution!'. Rather, it allows a teacher to use the learner's principles as information to construct a route for the learner to the meanings of the culture: not via imposed power but via a sequence of steps each built on engagement with the learner's principles.

This is the kernel of the role of teachers in these new social arrangements. Far from diminishing the role of teachers, it rests on their essential function as designers of precisely tailored learning environments, each shaping the learner's path to an epistemological proximity to the curriculum of the school through the teacher-designer's understanding of the learner's principles. In other words, the teacher is becoming a designer of learning environments, each of which brings the learner closer to what the curriculum is designed to offer.

At issue here is a fundamental change in conceptions of what learning is, where agency lies, what resources are involved, and an attempt to give recognition to the social-pedagogic teacher dispositions with their distinct vantage point, with a plausible perspective and view of learning. The attempt is nothing more - nor anything less - than a paradigm shift in views of what learning is and a mapping of that shift for the relations and the identities of teachers and learners.

My second example here explores such a position. It shows learning in a museum exhibition, a so-called informal site of education. It is from a research project on visitor studies: "The museum, the exhibition and the visitor" (funded by the Swedish National Science Foundation). It was conducted at the National History Museum in Stockholm, in an exhibition on Swedish pre-history, and in two exhibitions at the Museum of London, 'London before London' and 'Roman London'.

One aim of the project was to understand – and document - how visitors 'make sense' of an exhibition in a museum. Visitors were invited to participate as couples (grandparent and grandchild, friends, married couples, etc.), in order to 'capture', at least in part, a sense of their *interaction* with a fellow visitor and with the exhibition. Participants were given wearable voice-recorders, a digital camera to take whatever photos they wished; they were videoed as they made their way through the exhibition. They were asked if they would, at the conclusion of their visit, "draw a map" that represented their sense of the exhibition and to participate in a brief interview about the visit, prompted by their 'map'. All of these - video, photos, voice-recording, interview, 'map' - were seen as a possible means of eliciting and documenting 'signs of learning'.

Museums can not exercise the kind of power over their visitors that schools (attempt to) exercise over students, whether in relation to communication or to learning. In other words, school-based forms of assessment are problematic - which does not mean that they are not commonly used. we thought that 'assessment' of learning based on the principle of interpretation would be preferable. As our one example, here are two 'maps' - both from the London study - made in each case by a member of two of the 'couples'; both 'maps' are from the exhibition 'London before London'.

Fig. 2.a Map of a museum exhibition
(Integrated display)

Fig. 2.b Map of a museum exhibition
(Heathrow)

Curators (as designer(s)) of an exhibition have specific aims and hope to achieve these by a number of means: they show objects, produce images, design reconstructions of the pre-history of a community or a place. They do this by *telling* 'stories', by *constructing* 'displays', by *showing* videos. They have purposes - social or pedagogic, ideological, aesthetic or others. These are rarely stated overtly in the exhibition, though in interviews with curators or curatorial teams it is clear that much discussion around these purposes precedes the construction of an exhibition: framed by policies of the museum, the expectations of Governments, etc. Given the absence, usually, of explicit accounts of the aims of such exhibitions, and given in any case the gap between overt purpose and achieved production, semiotic analysis of the exhibition seems one tool for gaining an understanding – as a hypothesis- of what meanings have been made by the curatorial and designer team; and what meanings visitors in their turn make from the exhibition. From a pedagogic perspective, the semiotic analysis might give a sense of what the visitors have *learned* in the course of their visit.

Communicationally and semiotically, an exhibition is a message; it provides a complex series of prompts – infinitely many in fact - for the visitors who come to engage with it. Pedagogically speaking, an exhibition presents a 'curriculum' for visitors seen as learners. In that context, the

'maps' made by the visitors at the conclusion of their visit, can give some indication of what aspects of the overall design / message / curriculum engaged the visitor's interest and how the *prompt* produced by each was interpreted. Whether from the perspective of *communication* or of *learning*, the maps are of interest: from a pedagogic perspective they function as *signs of learning*. They are not, of course, a full account of the meanings made by any visitor (one of two 18 year old women in the case of 2 a, and of a mother with her eleven year-old son in the case of 2 b). They do give a clear sense of a difference in *interest*; hence of a difference in *attention* and *framing*; and of distinctly different *interpretations* of the same learning environment, seen as a complex *ground*.

Most immediately, the figures 2 a and 2 b show a specific – and we might say, unusual - sense of what a 'map' is or does, of what 'mapping' means and of what is to be mapped. In both cases the notion of 'map' is a 'conceptual' – rather than a 'spatial' – one.

In a sign, the sign-maker's *interest* and *interpretation* are made *material* and evident. In that sense the maps can be taken as answers to an implicit question: 'what was my interest?' In the case of one map, (Fig 2 a), that question seemingly, was: 'What is my sense of this exhibition overall, given all these interesting objects and displays which I have encountered?' In the other case (Fig 2 b) the question, seemingly, was 'What, for me, were (the) salient elements of this exhibition, and in what arrangement shall I present them?' For the first map-maker, the 'map' permits her to present an integrated, coherent impression of the kind of life lived by Neolithic people: what is 'mapped' are significant objects, people and practices in inter-relation. 'This is what life was like' seems to be mapped here; and that defines the notion of 'map'. For this visitor that is the *interpretation* of the exhibition overall (on this occasion); it represents (an aspect) of the knowledge she made for herself and of what has been learned.

The 'map' of Fig 2 b is a *conceptually* ordered representation (Kress and van Leeuwen, 2006), as a presentation / display of elements regarded as salient by the map-maker. It has fewer elements than the previous map and the elements are not integrated into a display whose coherence is readily apparent. That is not to say that this map does not 'have' coherence: its principles of coherence differ. WE might say: each map is organized by and presents a specific interest (and degree of engagement):

in one case: 'what was the museum trying to show'; in the other: 'what items were interesting to me'. Both visitors had 'made knowledge' for themselves; both had learned, even if differently in a number of ways.

An immediate pedagogically motivated questions might be: 'has one visitor 'failed'? Or have both, perhaps?' or 'Is one map better, more adequate, than the other?' Do we say that the map of Fig 2 b is incoherent? Or do we say – as a theory focused on the learner's agency suggests - that the assessor's task is to reflect on and attempt to uncover the principles of coherence employed in each case by the makers of each map? These are questions motivated by a focus on agency and sign-*making*. The traditional approach to assessment would be shaped by the principles and the authority of the maker(s) of the curriculum: 'is this map adequate to my conception as materialized in the exhibition?" in its terms we might well say that one map is incoherent; or we might even say that neither of these are 'maps'; and so on.

Attention to social semiotic aspects would make us ask about the processes of selection, transformation and *transduction* – the agency evident in semiotic work. The multimodal aspect of the theory would make us ask about the use of modes in the exhibition and their change from one mode to others which are apparent in the two maps. In the map of Fig. 2 b several three-dimensional objects - a mask, a model airplane, a stone knife – appear as images. That is the case too with the map of Fig 2 a: three-dimensional *objects* are transducted to *image* (the skull, eg), diaramas are (re)presented / transformed as *image*; *written* descriptions are transducted to *image*. Elements are selected, transformed and transducted, *composed* and made coherent in an entirely novel integrating arrangement, in a (visual) genre of 'display', of 'visual documentary'. We can say both that semiotic work has been done in each map; and we can say that much more semiotic work was done in 2 a than in 2b. And we can say quite a few things about the kind of semiotic work done.

If *interest* guides selection, attention, framing, interpretation, we need to ask about that 'interest': who are the map-makers, what are their interests and what principles of selection, attention, seem to be evident in these maps? This is not the place for a detailed account; though it will help understand these two *signs of learning* to know that the first 'map' was made by one of two 18 year old German women who were spending

a week in London "to get to know England"; and that the other map was made by a 11 year old boy from London who had come – reluctantly – with his mother for a 'day of activities' (which did not eventuate) at the museum. His attention had been drawn by a model airplane at a display representing a neolithic site uncovered at the location of the present Heathrow airport; as well as by an African mask and some tools and weapons.

The Social Semiotic part of the theory attends to uncovering the sign- and meaning-maker's *interest*; *agency* in the *semiotic work* done and the principles used in *selection, transformation, transduction, arrangement* of modes and entities of the modes. The multimodal aspect attends to the modal resources used and to their affordances. In description and analysis it is not easy to keep these apart; though to do so has heuristic value, while conflating them produces blurring, imprecision and categorial confusion. Both aspects of the theory allow us to make inferences about *environments of learning*, about *interest, attention, framing, prompt, ground, principles of composition, modes, transformation, transduction*.

Both signs, 2 a and 2 b, rest on an initial analysis (as selection). Both are the outcome of *design*. In moving from *analysis* to *design*, theoretical precision about the semiotic resources – e.g. the kinds of *ordering* and *arrangement*, *transformation* and *transduction* - and the representational resources - the *modes* and their potentials - is an essential semiotic requirement for the designer/sign-maker. If the task is to sketch the current challenges for educational studies and the needed educational research, then clearly a learner's semiotic work in and capacity for *design* will be one of a number of crucial factors – potentially as central components of a curriculum for the future.

Both the examples of the Operating Theatre and of the Museum visitors seem to me, in their different ways, to be apt models for thinking about education now, a period which has been shaped socially for some four decades by the neo-liberal market. Two generations at least have grown up in societies in which the expectations and demands of the state (stability / homogeneity / convention, conformity to authority, identity through 'social position', notions of social responsibility, agency within a frame set by hierarchical organization) have given way to the expectations and offerings of the market (fluidity / diversity / fragmentation / choice, identity-as-style through the exercise of choice, individual gratification,

agency and responsibility assigned to the individual). These expectations are now normal, natural even for members of those generations, as they carry these dispositions into the school. There they come into confrontation with traditional social-pedagogic assumptions of the school. Communication and learning in the professional site of the Operating Theatre as in the informal site of the Museum offer models which need to be understood by educators and policy makers: whether in full or in partial acceptance, with strategies designed to engage with these learners productively, without alienating those in school or in other sites of education.

3 Recognition: agency and multimodality

The term *recognition* has a range of meanings, from 'making visible' to 'acknowledging and valuing' to 'drawing attention to something so as to give a proper tribute'. German has a range of words for each of these from Erkennen – making visible; to Anerkennen – acknowledging the value of something; to Wertschaetzen – to make a special feature or issue of the value of an action or object – and of the person responsible for that action. The idea of *value* and *valuation* inheres in all these, to different degrees; whereas the term *assessment* bears, much more the notion of metrics associated with *calculation* or *measurement*. In the context of this chapter my main concern is that of *recognition* as *making visible* (what is otherwise not visible) so that it might become visible, and accessible for (e)valuation.

Unless semiotic work is readily visible, the agency of those who have performed that work can not be acknowledged. In the two cases above, the map/sign-makers made knowledge for themselves; both learned. Neither 'map' conforms to narrower generic notions of a 'map'; neither 'map' might be acceptable to the curator (as shaper of the exhibition-as-curriculum to be assessed) as in any sense adequate evidence of learning.

The question is whether and if so how that learning is (to be) given recognition? And, what might follow from recognition or non-recognition for those involved and for theories of learning, teaching and communication generally, in this as in all other sites?

On the face of it, the map of Fig. 2 a might be more readily accorded recognition in terms of learning (and design) than the map of 2 b. We might devise criteria whereby it could: it 'cites' many items from the

exhibition; it does so with skill and precision – the drawing of the skull for instance; it integrates the elements into a readily recognizable, coherent pictorial/textual entity. That is, it shows a high level of compositional expertise. Yet both maps are based on the semiotic work of *principled selection*, of *design* and *composition*. The question of recognition is a matter both of appropriate tools and a matter of power. Behind that are many questions: 'What is accepted, by whom, as legitimate materials to be assessed?' 'How do we assess what learning there has been as a result of the engagement with this site?'

If signs — say, each one of the two maps above — are the result of their makers' interest and are an apt reflection of that interest at the moment of the making of the sign, then the *shape*, the form of the sign, is an indication of what has been learned. We can see what has been selected; and if we know the exhibition we can see what has not been selected – where interest and attention have gone and where not. The maker of the sign has made the sign as an apt expression of the meaning to be represented. We can see the principles of *ordering, arrangement* and *composition* and make inferences about notions of *coherence*. For the recipient of the sign, the form of the sign is a resource for forming an hypothesis about the makers' interest and about the principles that they brought to their engagement with the prompt and that led to the making of the sign — whether the experience of the visit to the museum exhibition, or the experience of a series of lessons in the classroom, or of any other environment and event.

That makes the *form* of the sign into a means of uncovering (principles of) learning. When the recipient of the sign is an 'assessor', the question becomes: 'What are the means for assessment? What principles? What metric will he or she apply?' Will it be a metric oriented to authority — indicating the learner's 'conceptual / epistemological distance' from what ought to have been learned, whether in terms of modes used, or in terms of conformity in content or form to the authority of the teacher / assessor? Or will it be a metric oriented to the learner's interest and the principles the learner brought to the engagement with the curriculum? Will it be the metric of the curator as communicator or of the curator as pedagogue, or will it be a metric oriented to the curator's need to understand the visitor's interest?

The question becomes 'Whose *interest* is dominant here, the curator's or the visitor's?' and 'What metrics of assessment are to be used, and why?' Lack or not of *means of recognition*, refusal or inability to recognise signs of learning, obviously have effects on assessment. This might be because of *mode* (one 'map' from the London study was in the form of a written critique of major aspects of the exhibition), or as generically inappropriate, that is, 'these are nothing like a map'; or a lack of recognition of the semiotic work of the sign-maker more generally in some other way: 'what you have done bears no relation to what was expected!'.

4 Recognition through a social semiotic theory of multimodality

The term *multimodality* draws attention to the many material resources beyond speech and writing which societies have shaped and which cultures provide as means for making meaning. *Modes* are socially made and culturally available material-semiotic resources for representation. *Multimodality* attends to the distinctive affordances of different modes. In itself, it is not a theory, even though its explicit challenge to the central 'place' of language has profound implications for thinking about meaning, representation, communication. *Multimodality* poses a challenge to the long-held and still widely dominant notion that 'language' is that resource for making meaning which makes possible the 'expression' of all thoughts, experiences, feelings, values, attitudes. In short, language as the pillar which guarantees human rationality – a view which has up to now guaranteed it a privileged place in environments of teaching and learning.

Social Semiotics is a theory about meaning-*making* in processes of interaction as communication. To be specific, it is a theory about meaning-*making* as sign-*making* with all the *modes* which are available in a culture, where sign-*making* is seen as the semiotic work of social agents. *Signs* are *motivated* conjunctions of form and meaning, the product of the sign-maker's agency and interest. Social Semiotics deals with the sign-*maker's* assessment of *environments of communication*, that is, with the *rhetorical* assessment of the complex of participants – occasion – objects - location, linked in practices shaped by relations of power. The theory includes attention to the means of dissemination, that is, to the *media* involved. At the centre, at all times, is the *interest* of the sign-*maker*. The emphasis on sign-*making* rather than on sign-*use* is crucial: it asserts that signs are always newly made, out of the sign-maker's assessment of the

environment of communication, the resources available for making signs and the *interest* of the sign-maker at the moment of making the sign.

For education, the theory provides a link between the (interest of) sign-makers as *learners*, and an account – as a hypothesis - of their perspective on the world at the moment of making a sign. Both learners and teachers are sign-makers in this sense. The Social Semiotic view of the sign takes the sign as documenting the *interest* of the sign-*maker*/learner and so gives us insight into the sign-maker's interest; and in this way it is crucial for a theory of learning.

In this approach, a sign which does not conform to an assessor's expectation can not, in the first instance, be treated as evidence of something 'not properly understood', as 'misunderstood' or as 'badly remembered' maybe. At the first step, a sign is always taken as documenting the learner's principled engagement with what was (to be) learned and her or his response to that with the new sign.

Assessors and learners are likely to have a quite different 'take' (arising out of their 'interest') on the curricular or pedagogic matter at issue; and particularly so in societies marked by intense diversity, fragmentation, provisionality. The assessor may well see the sign as an 'inadequate', 'wrong', 'mistaken', misguided sense of the matter. Yet with a focus on the centrality of the sign-makers / learners, the sign is seen first and foremost as the result of the learner/sign-maker's principled semiotic work. That opens a perspective to different principles and forms of assessment: not a metrics of 'adequate comprehension' or 'appropriate acquisition' but a perspective documenting the characteristics and principles of the learner's interest, which reveal the forms and the characteristics of *the learner's engagement*.

This makes multimodal social semiotics relevant to the very core of educational aims, processes and policies. As a theory it provides a dual focus: on the *agency* of the *makers* of signs in social environments and on the *resources used* in the making of signs. The theoretical and descriptive tools of Social Semiotics provide the means to see *sign-* and *meaning-making* as *learning*; and they allow *learning* to be seen as an instance of *sign-* and *meaning-making*. Multimodality provides the tools for the recognition of all the modes through which meaning has been made and learning has taken place.

Here is an example to exemplify some of these points. In a Science classroom for 13 to 14 year olds, the children are in the fourth lesson on cells. The teacher asks the class: 'What can you tell me about a plant cell?' A student says 'Miss, a cell has a nucleus'. The teacher asks her to come to the front and *draw* on the whiteboard what she has just *said*. The student takes a felt-tip pen and draws something, as in Figure 1.
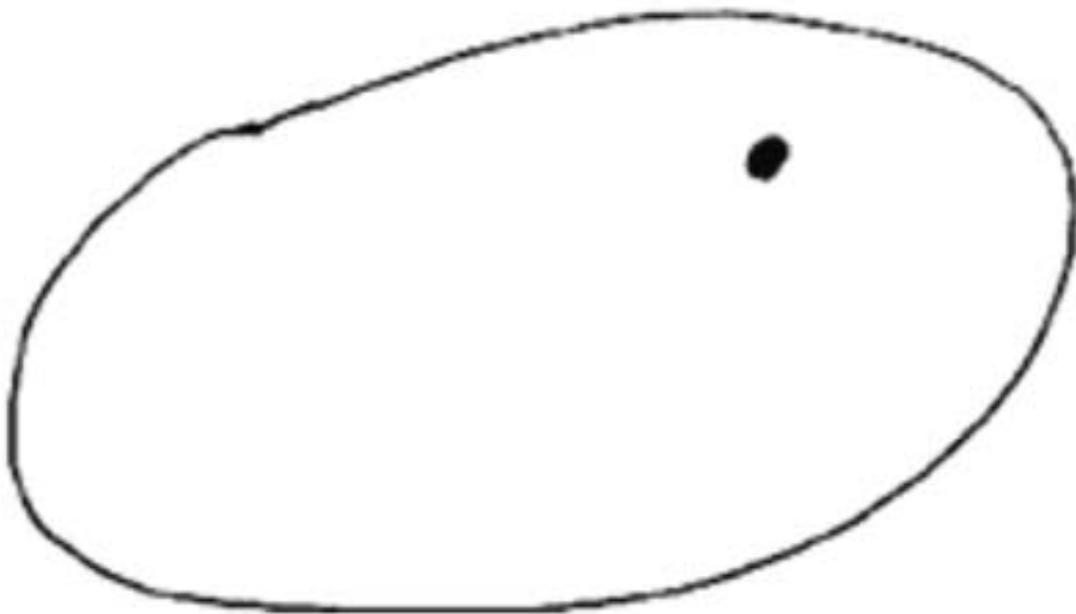

Fig 3   Cell with nucleus

In drawing the image, the student is faced with some (implicit) questions which she had not faced in making her spoken comment. She has to decide what shape the cell (-wall) is; what the nucleus looks like; how large it is; whether it is a circle or a dot; and she has to make a decision as to where in the circle she needs to place the nucleus. Without that she cannot make a drawing; though she had not needed to focus on these issues to make her spoken utterance. The result of her decisions is realized in the drawing of Figure 5. Once having drawn the circular shape and placed the dot or circle, the maker of this sign has made an *epistemological commitment*: 'this is what it is like, and this is the relation between the entities 'cell(-wall)' and 'nucleus''. A student who looks at a

teacher's drawing on the board or a drawing in a text-book is entitled to take what she sees as 'the facts of the matter'.

Epistemological commitment cannot be avoided: a shape of some kind has to be drawn to indicate cell-wall and cell; a dot or a circle of some size has to be made as a representation of the nucleus; and the dot or circle had to be placed somewhere. Yet the spoken comment also represents an *epistemological commitment*: that there are two object-like things, a 'cell' and a 'nucleus', which are joined in a relation of possession, 'has'. The drawing entails no suggestion of possession; there the relation is one of spatial co-locations of a specific kind: proximate or distant, central or marginal. No matter what the mode, epistemological commitment cannot be avoided. It varies with the affordances of each mode. Here it is a contrast of the affordances of *speech* (temporal, sequential) and *image* (spatial, simultaneous): of *lexis* vs *depiction*; of *possession* vs *proximity* or *distance*; of *centrality* or *marginality*; as a *verb-form* vs *spatial co-location*; *sequence* (as *temporal succession* in speech or *linearity* in writing) vs *simultaneity* (of appearance and arrangement) of the entities.

Both the spoken and the drawn signs were newly made. The drawing was new even though drawings of a similar kind will have been made before; nevertheless this drawing is unique. The spoken utterance is also new (here reproduced in a massively reduced 'transcription' from speech into writing, where nothing remains of *tone of voice*, *dialect-features*, *pace, rhythm, intonation, gender-features of the voice*). Both drawing and spoken utterance are based on the *interest* of the student: in the one case, for instance, selecting 'nucleus' as the salient feature. That is, both the spoken utterance and the drawing represent this student's selection from a large variety of material encountered in the course of four lessons. Both signs represent selection, transformation and encapsulation of her knowledge, at that moment. In making the signs, she is making *knowledge* for herself and for others. Both signs declare: 'this is what is and how it is'; and *'this is what I know'*. Quite likely she may know other things about cells as well, but at this moment, in response to the teacher's *prompt*, out of her *interest*, she has chosen to condense what she regards as salient in this environment at this moment and present that as her knowledge in these two signs. They are *signs of learning*.

The two representations materialize (curricular) 'knowledge' about this topic differently: ontologically the two are different accounts of the world

in focus. For learning and teaching, in the construction and presentation of a curriculum for a specific group, this matters. Until 'knowledge' is 'made material' in a specific mode, it has no 'shape': we cannot 'get at it'. To me it is not at all clear what knowledge *is* before it is made material in a representation. In *speech*, knowledge is represented in a mode shaped by the underlying logic of sequence of elements *in time*; as *image* it is shaped by the logic of simultaneity of elements *in space* and by their spatial placement and relation. Each *logic*, with the social shaping of each in long histories of social and semiotic work, imposes its ontology and epistemology on what is represented through the organization of elements in arrangements.

To make a sign is to *make* knowledge. *Knowledge* is shaped in the use, by a social agent, of distinct representational affordances of specific modes at the point of making of the sign. Another student might have regarded cytoplasms as most significant; or he might have focused on the functions of the membrane of the cell; and in each case he could have written or drawn what he wanted to represent. In each case, from an enormous amount of 'stuff' encountered over four lessons, selections have been made by the students; the selections indicate the interest of the students at this moment. The modes used would be a response to the requirements of the moment – a response to 'can you tell me?' or to 'show me!'. Just moments later, perhaps as the effect of the prompt of another student's sign or a new prompt from the teacher, the student's interest is likely to have changed.

Both the spoken utterance and the drawing represent *learning*: they are *signs of learning* (Kress, et. al. 2001). Whether in making the spoken sign or the image sign, the sign-maker has made knowledge. She has *shaped* something and now knows that something in a way she might not have known before or known in this way. In making the sign, she has augmented her knowledge: she has *learned*. Making signs, meaning and knowledge all change the 'inner' resources of the sign- and meaning-maker. In that process identity is constantly remade.

Teachers need to know what students have learned. So the question arises how a teacher treats these *signs of learning*; how (s)he responds to them. If the result of decisions the student made are embedded and materialized in the drawing of Figure 5, is the teacher able and willing to recognize this sign as the outcome of '*decisions*'? Did he (in this case) have

the means to *recognize* the semiotic work of the student and accord *recognition* to the student's 'decision'? And does he have the means to understand the principles – of interest, of selection, modal representation - on which the sign is based? This goes directly to the matter of theories of learning, evaluation and assessment and of forms of either. It also goes directly to politics in a wider sense, that is, to the question how the understandings, the knowledge, the (semiotic) work of members of a social group is to be valued.

5 Embodied knowing: the notions of implicitness and explicitness

'Education' has escaped from the physical and institutional confines of the school and the university; in fact only some aspects of learning had been located there, and as mentioned above, most learning has always taken place outside of institutional frames – whether of physical site, of social institution, of formal curricula and temporal organizations of year, term and day. So the present interest in life-long / life-wide learning is due to somewhat confused (or at least confusing) and contradictory trends. First and foremost it is due to particular kinds of social changes: predominantly the severing of the former links of school and certain kinds of work, whether work as profession or work in a 'trade' or schooling for 'unskilled' work. That had expressed itself in terms of chronological boundaries: the years of formal schooling, different for different social groups and different life-plans, and the years of formal work. It has also expressed itself in the blurring overall of boundaries between work and leisure; leisure has, in many places, become curricularized and work has 'seeped into' domestic spaces, into the private, the (former) times of non-work. Contemporary digital technologies have played a large part in that though they have assisted a social trend with different origins.

At the same time, the elision of the chronological boundary between the end of formal schooling and the beginning of formal work has had the somewhat odd effect that whereas before learning and knowledge which had been the proper domain of trades and professions, and learning and teaching of this knowledge had proceeded according to quite other arrangements to those of the school, have become of interest to institutions of formal teaching (and learning). Much of the knowledge on which both trades and professions had been founded was never expressed in formal curricula or organized as syllabi. Now that is changing, and professions and trades which had been outside formal schooling (with a cautionary note about the very different practices in this regard in

different parts of Europe, never mind different parts of the world) are now becoming subject – in part at least – to formalization.

Now much knowledge which had been 'passed on' in a variety of ways is being curricularized and is becoming subject to formal teaching. In that context, the question of the relation of meaning, knowledge and mode arises in entirely new and sharp fashion.
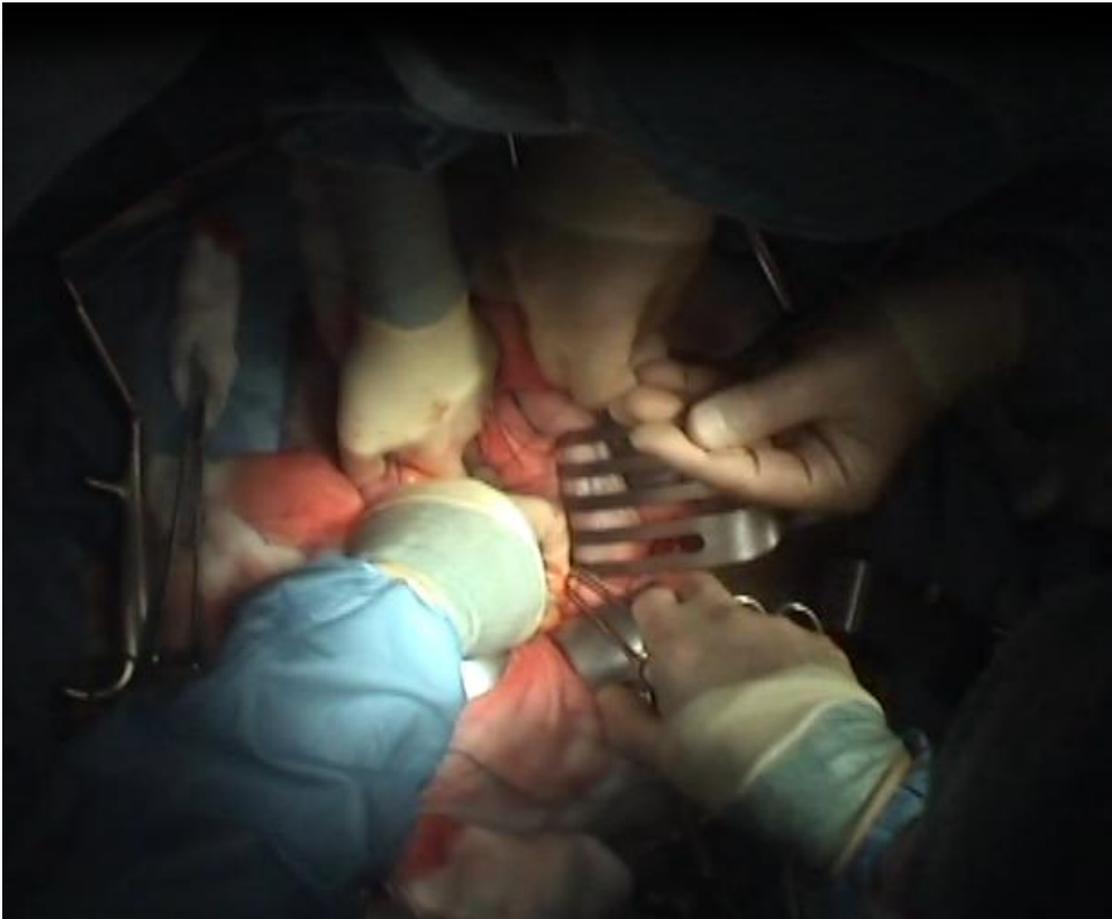

Fig 5   The ballet of fingers

In that context attention will need to be paid to a variety of modes which had never before been subject to detailed description and analysis, both by themselves or in the environment of other modes, as complex orchestrations of modes.

Take Fig 5 as an example. It too comes from the Operating Theatre. An operation is in train. In this image three pairs of hands perform something like the Ballet of Thirty Fingers. The point is that the three pairs of hands

and the thirty fingers have to be perfectly attuned, each to all, knowing precisely what needs to be done from instant to instant, without the possibility – and without the need – of attempted coordination of action by the speech of one of the three participants. It is not a tenable position to regard the knowledge at work here as 'implicit' or 'tacit' because it is not spoken and cannot be. Much – or most - of the actions rest on knowledge which is not spoken or written and in most cases cannot be, yet is precise in every respect.

Consider the following to excerpts from an operation. In (a) teaching and learning takes place through talk – as well as action.

Fig 6 a

Consultant	What's this?
MedStud:	No idea.
Cons:	I'll give you a clue, this is the liver
MedStud:	The ovary
Cons:	Yes.

In Fig 6 b, no speech occurs: other modes of communication are used, notably gestures and hand and arm movement.

Fig 6 b
In Fig 6 b, a piece of tissue has to be cut. The cut has to be made at precisely the right point. One of the surgeons holds the tissue so that it becomes clear where it needs to be cut; the surgeon in training can now use the diathermy to cut the tissue. No words are spoken.

0:16:37 / 1:01:25

Example (**6 a**) is usually described by the participants as teaching, whereas (**6 b**) is not. The use of speech is seen to be more 'explicit' than the use of gesture or movement. But it is clear that teaching in (a) and (b) are equally explicit and should both be *recognized* as teaching episodes. By holding the tissue up, the consultant indicates to the Specialist Registrar precisely where she/he needs to dissect.

Of course, using multiple 'modes of interaction and communication' has specific advantages. Whereas in (b) only one student can be attended to by the Surgeon / trainer, a combination of (a) and (b) would allow a 'trainer' to teach multiple 'trainees' at the same time: examples (a) and (b) could well have unfolded simultaneously.

The issues which arise in this context for educational studies and for educational research are both – in some instances – entirely new and not recognized and addressed before, and in others, these are well-known, existing issues which can be newly addressed. One of these precisely is the distinction between 'tacit' or 'implicit' knowing on the one hand and 'explicit' knowing on the other. It is a distinction which rests on the confusion 'capable of being spoken or written' and 'not capable of being

spoken or written'. In a multimodal account, meaning is made with all modes, differently, and means will need to be developed whereby each mode has what Bernstein (1996) called a 'language of description' – in this case the possibility of a descriptive account in the mode at issue and apt to it.

Multimodality forces us to recognize that meaning is made in very many modes. It is not only in relatively exotic sites of learning ad teaching such as the Operating Theatre that these tools produce fundamental, significant insights. In directing our attention to a careful analysis of all modes, our attention might be caught by aspects of meaning which are crucially important and yet have been entirely overlooked. A paper "Displaying Orientation in the Classroom: Students' Multimodal Responses to Teacher Instructions" (Bezemer, 2008) shows how a 14 year old female student, a recent arrival from Somalia, has to learn how to display 'attentiveness' by using gaze and bodily orientation. But in showing what this young person has to learn – nothing at all would ever have been spoken or written about this – we can also see how much had already been learned without overt teaching by every other member of the class: how to display "I am attending to you" to the teacher in various versions; and of course how to attempt to signal "do not engage with me at this point". A student's report at the end of the term is likely to show just how significant this learning had been for the students' assessment of *ability, interest, engagement* and so on, all of them factors which crucially influence a teacher's assessment of a student learner and her or his performance.

6   Education as a fully marketized commodity

Present political trends in some anglo-saxon countries – e.g. the UK, the US – aim at the elimination of the State from certain domains which had hitherto been regarded as quintessentially its business. In the UK, Education is now in that position, including education in schools. The gap I had mentioned earlier between schools and a younger generation's sense of their identity and agency will then play out in a new frame and phase, where the notions of the market dominate fully. On the face of it we might expect that there will be no 'chasm' separating subjectivities and identities formed in the market with those in this domain of the fully marketized school.

At the same time, and driven by the same ideological and economic motives, there will be trends towards the severing of the connection of 'the school' from its (physical) locality – actual or virtual - under the banner of 'globalization of standards' and forms of assessment. The drive toward niche-marketing has already been evident in Education in notions such as individual curriculum and learning. This will affect social features in two ways: the pedagogies used will tend to move away from social relations and notions of community and 'sociality'; and 'curriculum', which had provided a 'social cement' of commonly shared knowledge and values for communities, will focus on individuation. It may be that an image of large supermarkets, or more likely still, large Shopping Malls – different of course for clients with different wealth and spending power, will become apt images of education in that future.

A social semiotic multimodal theory can produce accounts of meaning and learning which are compatible with current social conditions and conceptions of agency, and no doubt it can do so for a 'social' which is totally shaped by the neo-liberal market. "Provide me an account of the social and I shall produce for you an image of Education as its visual metaphor" one can say. Similarly, social semiotics and multimodality can be used to construct hypotheses about the society given an image of a particular school or University to analyse.

In other words, a social semiotic theory of multimodality works. As a theoretical frame it has no ethical or political or social or cultural metrics. It can be used in relation to such metrics. These metrics will have to come from elsewhere: from communities, from intellectual work and projections, from ethical schemes. At this point the theory of social semiotic multimodality can be used to say: if you wish to have a community with certain kinds of features, this (image of an) education system will or will not provide it; this image does not or does correspond to it. Or, should you wish for certain kinds of sociality, then the theory can provide relatively clear social-semiotic designs for such social forms.

At the moment the trend – in England, not necessarily in Scotland or Wales or Northern Ireland - is towards continuing social fragmentation, to individuation, and an abandonment of a belief in the social, in community, in sociality. Of course, as always, power remains an issue and power is used to produce ideological constructs. The means for individuation through choice are cultural resources which have been socially produced.

Anyone who has strolled down a twenty or thirty metre long aisle of breakfast cereals in a hypermarket will understand what the notion of resources for individuation can and cannot mean. It is available as a model for Education and in many ways and forms it is actively fostered at present by political forces.

Note   I have borrowed the metaphor of the three classrooms from the inaugural professorial lecture and opening address as the new Director of the Institute of Education, Professor Chris Husbands , November 3, 2011 *"Teaching and learning in the twenty-first century: What is an Institute of Education for?"* IOE Publications, 2012

Bezemer, J. (2008). Displaying Orientation in the Classroom: Students' Multimodal Responses to Teacher Instructions. *Linguistics and Education* 19, 2, 166-178.

Husbands, C   2012 *"Teaching and learning in the twenty-first century: What is an Institute of Education for?"* London: IOE Publications