

## **Fried eggs and phronesis: ICTs and social learning in rural development**

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### **Introduction**

In this paper I want to challenge slightly the focus of the working group suggested in the conference call. I am still very much interested in the potential for Information and Communication Technologies (ICTs) to inform or perhaps transform rural development. But rather than focusing on the capacity of ICTs to transform spatial and economic relationships and thereby provide new opportunities for trading and the sharing of information, I am interested in how technology can be enabling of the deliberate transformation of social relationships. That is, I will argue that ICTs have the potential to open spaces for learning, (High, 2002), to enable the creation of platforms for social or interactive learning (Gibbon, 2004; SLIM, 2004b), or to create heterotopic spaces (Jones & SPEECH, 2001) where new power figurations and social relationships can be rehearsed.

In short, I intend to point to ways that I believe ICTs can be harnessed for rural development through facilitating social learning. Not social learning as it has sometimes been studied - a phenomenon 'out there' in the world to do with the way that individual learning is socialised or affected by social relations, or transformations of group psychology. I mean social learning in a sense that is beginning to receive more attention in the literature on environmental governance and management (King & Jiggins, 2002; Ison et al, 2004; Keen et al, 2005a) – the focus of reflexive practitioners who facilitate and participate in transformative social processes in response to environmental challenges. The 'social' here suggests social co-ordination, and the 'learning' points to the need for innovation in the light of the uncertainties facing communities and other social groupings.

To make sense of such applications of ICTs, I intend to serve you up a fried egg, at least metaphorically. Peter Checkland's metaphor is a little bit more palatable than baldly stating that I intend to take a soft systems perspective (Checkland, 2000), but the idea is to open up the difference between hard technical expertise and the soft social skills that Goleman (1996) suggests are the key to success in many lines of work. With this on the plate I intend to discuss two particular applications of ICTs in rural development: computer aided decision-support models for social learning and participatory video approaches to programme evaluation. In conclusion I shall suggest that what these have in common are that they are both examples of what I call epistemic engineering – the creation and manipulation of epistemic objects within a social context. This could be explored as an example of a phronetic

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social science – social research concerned with practical wisdom alongside analytical and scientific knowledge (Flyvbjerg, 2001: 2-3).

## **ICTs and rural development**

The first point I want to make is that I am not here to complain about the current wave of ICTs and their transforming effect on rural livelihoods, or even the academic interest in that. I agree there is a huge potential benefit in the linking-up of rural spaces and communities through modern telecommunications to provide new opportunities for rural livelihoods, for education and training, and for access to goods and services that would otherwise require physical presence in the metropolis. I work for a distance teaching institution (one of the largest in the world, with over 200,000 students) and many of our students are able to take full part in our range of courses in spite of their geographical dispersal by means of newer ICTs such as web delivery of teaching materials and e-mail conferencing, alongside more established ICTs such as broadcast television, telephony and the post.

For me personally, my work arrangements have recently become much easier with the advent of broadband in my home village. I can now download a journal paper in less time than it takes to read it, and collaborate with other academics by Skype as well as e-mail. This is all significant in terms of my own livelihood, as it means I don't need to be in Milton Keynes (a two hour drive) to do as many of the things as I used to, just to make my living. I still value my time on campus, but now I can focus on meetings and spending time with colleagues. More generally, I can now renew my library books on-line, order a vast range of goods and services, get reasonably good technical advice on a topics from why my operating system freezes up to how deep to dig the pond, and take part in a wide array of campaigns and initiatives ranging from fighting local strawberry barons to reforming the IMF.

These all reflect the holy grail of ICTs in rural development: increased economic and associational activity in rural areas thanks to the wider availability of novel ICTs. In recent years we have seen studies of e-democracy in Tanzania (Planmo, 2001), ICT-based companies in the Scottish Isles (Greller & MacKay, 2002), the effect of ICTs on poverty reduction in Asia (Quibria et al, 2002), and a major international initiative led by IICD (the International Institute for Communication and Development) looking into the potential for ICTs to drive development has (IICD, 2004). In the UK the link between ICTs and rural development has featured in policy since at least 1999 when the poor communication infrastructure in rural areas was highlighted by the Cabinet Office's Policy and Innovation Unit (PIU, 1999: 63-4), an issue which the government now claims to have redressed (Strategy Unit, 2005: 13).

This wave of policy and research interest has been sparked by technological innovation that have enhanced communications, in contrast to earlier IT developments that concentrated on replacing labour (Vendramin & Valenduc, 1998). These innovations include mobile telecommunications, the internet, portable computing, and multimedia applications, not to mention other developments including groupware, workflow management software, intranets and VOIP (ibid). The benefits to rural areas include provision of market information, new employment opportunities suitable to remote areas

(Quibria et al, 2002), and access to goods and services and markets for goods and services that would not otherwise be readily available (Vendramin & Valenduc, 1998).

However, while the technology is important, I would be disappointed if I surprised a group of sociologists by pointing out that society has not been superseded by something better. While ICTs are changing outcomes in rural economies, they are doing so alongside other more well-established patterns of information flow and exchange. For example, McQuaid et al (2004) found that even though ICTs were more important amongst the rural employed for job-seeking than in urban areas, informal, social networks were still of overriding importance. Grannovetter (1973) is still as relevant as he was thirty years ago, long before the internet became a rural policy issue.

ICTs are important because of how they mediate social relations – how they reconfigure the spaces in which social relations take place. In order to investigate this in a little more depth, I'd like to draw your attention to social learning – a school of thought on environmental governance that has resonance with some of the best thinking (in my view) on rural development, and where the mediation of social relationships is of principal interest. By examining the potential contribution of ICTs to social learning I suggest we can learn more about researching ICTs in rural development, and the interplay between technology and social relations that underpins the field.

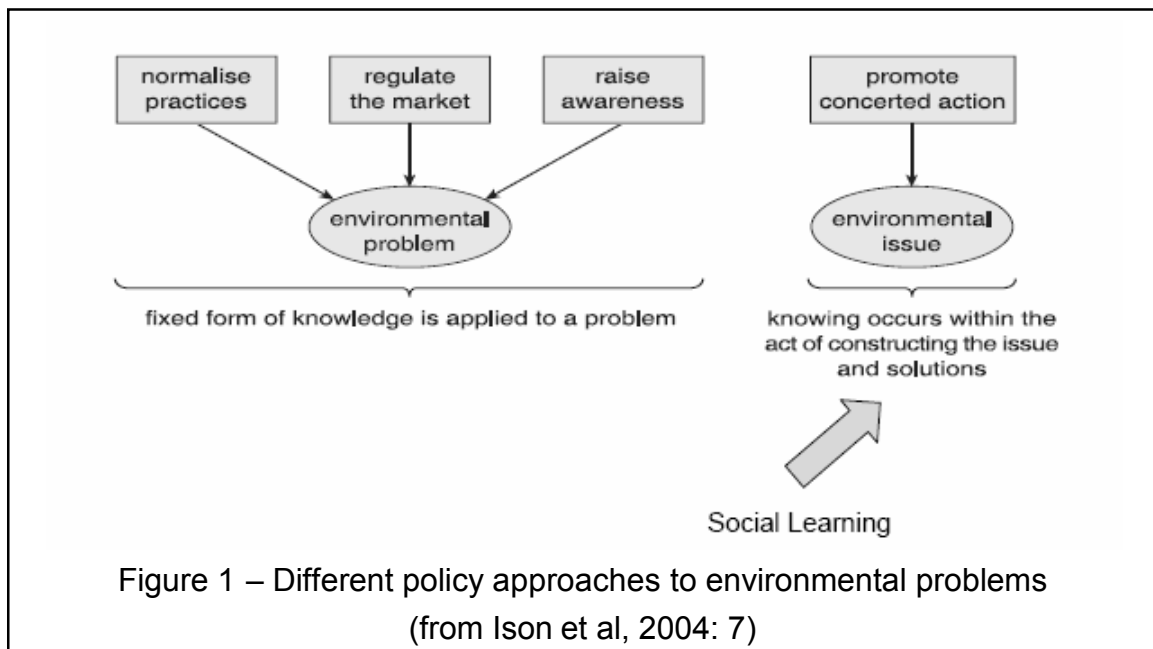
### **Technical expertise and fried eggs for social learning**

Social learning seems to one of those irresistible combinations of words that everyone from zoologists to anthropologists to computer scientists has lit on at some time or other (like sustainable development or social networks or critical anything), and used to describe phenomena of central interest to themselves but not necessarily one another. , I want to focus on one particular emerging school of thought (ie not by any means the only cluster of interest in the words “social learning” amongst students of the human species), which is concerned with social learning as the capacity of social groups to respond to complex and sometimes unexpected social and environmental stressors (Finger & Verlaan, 1995; Cerf et al, 2000; High, 2002; Leeuwis & Pyburn, 2002; Ison et al, 2004; Keen et al, 2005a). Under this reading of social learning, particular emphasis is placed on the art of mediating learning processes – on praxis rather than solely analysis, in the context of normative priorities such as environmental and social justice.

Influential centres within this tradition of applied thinking are located at Wageningen in the Netherlands, INRA in France, and the OU in the UK; with a substantial contribution from the Hawkesbury diaspora from Australia (I should make clear here that this is my perspective – these are the centres visible to me because they represent big and near nodes in the research network in which I am embedded). It has links with the research community behind PRA (Participatory Research and Action - see Pretty et al, 1995; Chambers, 1997) and is embedded in the systems movement (Farming Systems Research, Soft Systems Methodology and Second Order Cybernetics in particular). In the policy world, social learning is becoming an important framing concept around the participatory values of the European Water Framework Directive (SLIM, 2004b), and in the UK is attracting

attention from the likes of the Environment Agency, which has set up a unit responsible for implementing social learning in their operations. More widely, it fits with the general trend from government to governance (Richards & Smith, 2002; High et al, forthcoming) and the rise of participatory modes of research and action (Berardi, 2002).

Keen et al (2005b: 4) define social learning as follows: “*Social learning is the collective action and reflection that occurs among different individuals and groups as they work to improve the management of human and environmental interrelations.*” This has a clear relationship to the policy model developed in the 4 country SLIM project (Ison et al, 2004), which investigated social learning as an alternative mode of addressing environmental problems alongside the traditional triumvirate of legislating or providing norms of for practice, regulating through market measures or providing information to raise awareness (see figure 1). For Ison et al, social learning is concerned with promoting concerted action in “...*situations of complexity, connectivity, uncertainty, multiple perspectives and conflict.*” (ibid: 7). Critically, knowledge is not assumed to be external to the situation, but instead it is suggested that



addressing issues requires recognising that “...*knowing occurs within the act of constructing the issue and the solutions.*” Thus social learning is essentially a learning process approach with antecedents going back through Korten (1980; 1984) to Kolb (1984), Freire (1972), Lewin (1999) and Dewey (1991[1910]).

As with PRA and other participatory approaches (Chambers, 1997; Berardi, 2002), an important focus in social learning is on the re-orientation of professional skills required to work. One way of looking at this is through Checkland’s (2005) fried egg metaphor (figure 2), which differentiates between the central technical competencies that lie at the heart of many professions, and what is often perceived as a periphery of social skills that ‘make it all work’. This is equivalent to Goleman’s (1996) EQ (or emotional intelligence), the idea being that successful people succeed not just because they’re intelligent in the traditional psychological sense, but through their inter-

and intra-personal skills. Where the egg metaphor breaks down of course is that the peripheral social skills are often called 'soft' skills, whereas core technical skills are often distinguished as 'hard', whereas if anything it is the core of an egg that is soft, but I think I can hold onto both the metaphor and this distinction, without too much confusion.

In social learning, and indeed in any tradition of thinking and practice where lay and expert knowledge come into contact, paying attention to soft skills becomes of critical importance, the wellspring of successful programmes and initiatives. Hard competencies are still important, but many professionals struggle with the tension induced between the competencies that their training and worldview tells them are the heart of the job, and the requirement to deal skilfully with Schön's (1991) swampy lowlands where " *...messy, confusing problems defy technical solutions.*" But as Schön says, the practitioner needs to choose, and the choice is whether to stay on the technical high ground or " *...descend to the swamp of important problems and non-rigorous inquiry?*"

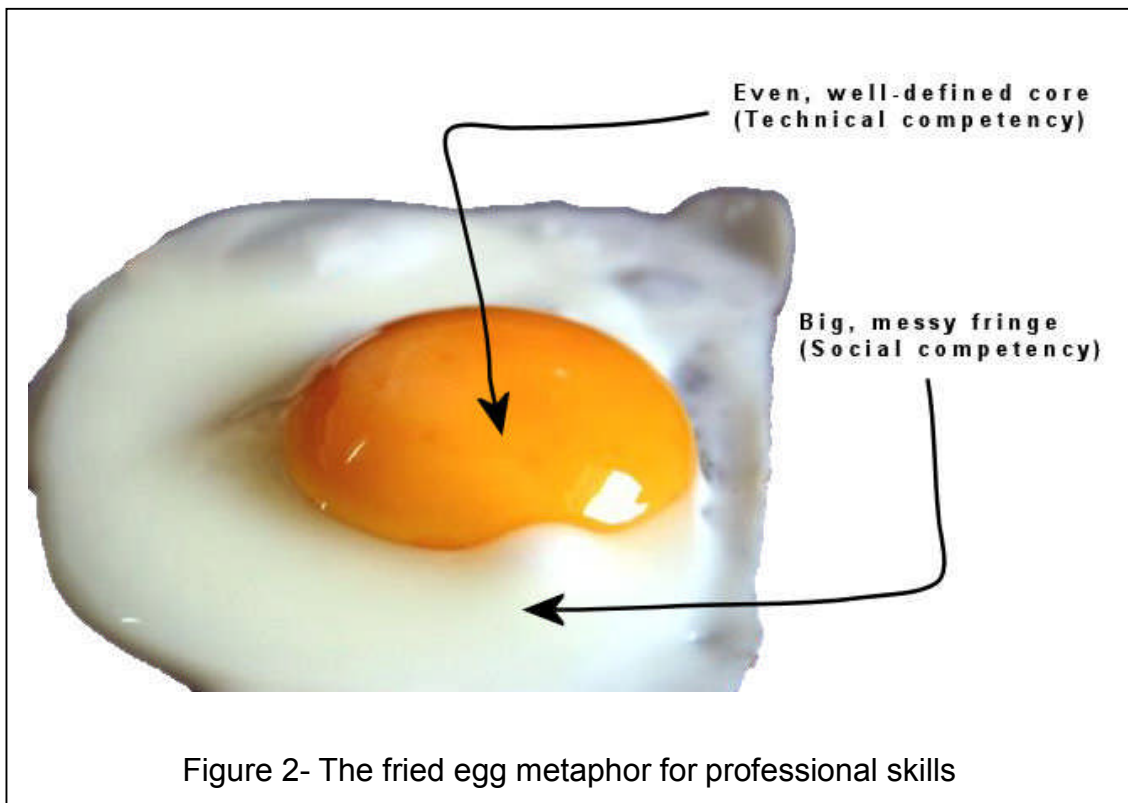


Figure 2- The fried egg metaphor for professional skills

For some skilful practitioners dealing with the soft issues in the white of the egg is accomplished by re-orienting what they conceive the profession is about. But this is ultimately a value shift and often neither personally nor professionally comfortable. It does not help that the issues of what is or is not core to professional competency is often strongly institutionalised within organisations – think not just about job descriptions, but what's measured in annual reviews, what it takes to gain the respect of peers, and so on. In most communities of practice, there are a broad range of formal and informal institutions saying what the job is and what good performance entails. Whatever an individual's personal values, if the organisational and institutional setting of their practice runs counter to the demands of competency in the egg

white, it can be unrewarding and even very difficult to be skilled at dealing with non-technical issues.

This has been highlighted as a key issue in social learning by some of the recent research at the Open University. The SLIM project, for example found that institutional constraints are an important limiting factor to social learning approaches, and that “...*Within agencies with largely technical and scientifically trained staff, social-based skills such as facilitation skills and social outputs such as group learning inherent in participative approaches are often undervalued, thus hampering also the integration of different technical and scientific skills among experts and practitioners.*” (Ison et al, 2004: 64). A potential solution held up by the research team is to step outside of organisational boundaries and develop learning platforms - emergent institutional spaces which “...*facilitate multi-stakeholder interaction*” (SLIM, 2004a).

In my own work, I have applied some of the latest thinking in organisational learning, concerned with shadow networks and communities of practice (Shaw, 1997; Wenger, 1999; Stacey et al, 2000; Wenger, 2000; Shaw, 2002) to unpick the social learning processes that underpin participatory development (High, 2002), rural adaptation (High et al, 2004; Pelling & High, 2005) and rural governance (High et al, accepted; Nemes et al, accepted). While this work has focussed on facilitation of social learning through policy research and participatory development, I have become interested some ICT-specific methodologies which are compatible with a social learning approach; to which I turn in the next two sections.

The two applications are computer modelling, applied to decision support at the landscape level, and participatory video making. Both rely on the computing power of modern ICTs, but neither depend directly on telecommunications. They deform time and space, creating new connections and possibilities, but operate as much in the social imagination as in the physical world. Metaphorically they have more in common with the market story teller than the town crier or herald, and require the same suspension of disbelief as good drama – a conspiracy to give a glowing screen a reality, a link to the experiences in the world away from the screen. I suspect that this combination of grounded conspiracy and drama are what give these methodologies the social energy that has driven their development, particularly in the case of participatory video.

### **Computer simulations in decision-support**

In this section I shall discuss the application of computer simulation models to social learning in rural decision-making, where they have been applied as decision support tools in agriculture and land management for some time. There is at least one specialist journal: *Computers and electronics in agriculture*, and illustrative examples of the approach can be found in Donnelly (2002) and Matthews et al (1999). Here decision support focuses on the capacity of computer modellers to provide useful tools for farmers and other land managers in order for them to explore the consequences of particular decisions or strategies. This sits alongside other decision-support tools such as GIS and expert systems, essentially providing individual decision-makers with options in “...*an increasingly complex decision-making environment*”

where production has to be achieved within narrowing environmental and social limits.” (Matthews et al, 1999: 10).

In my own experience, this is in contrast with the focus of more qualitative traditions of modelling, particularly in soft systems methodology (SSM - Checkland, 2000) and systems diagramming (Morris & Chapman, 1999). In Checkland’s work, for example, the idea is to produce opportunities for new understandings in complicated situations, not just for an expert analyst, but in such a way that culturally feasible actions to address problematic issues become possible. Thus instead of a tool for the comparison of solutions, SSM is a strategy for asking good questions for social learning, facilitated through a qualitative modelling process that can be public or private.

I believe a synthesis between ICT based simulation modelling and the methodology behind these more qualitative modes has a lot of potential for rural decision-making. This would combine the experiential lessons from the facilitative approach to systems modelling with the potential inherent in the increased capacity of modern computer modelling test assumptions in large and complex situations, while also drawing on advances in model interfaces, which make ‘the guts’ of the model more accessible to lay groups. That such an approach would be desirable is partially based on an impression that while decision support is reasonably well understood where management responsibility rests with one person or at least a group of people with a similar standpoint, there is much less progress in the case where responsibility is diffuse, and the decision-making process is shared and contested between multiple standpoints. I say impression, because I’ve yet to find a comprehensive review of decision support tools in rural land management, and I suspect that this is an area that could do with some scholarly attention. Such a review would be an important first step in any related research project.

The potential is significant, because the case of diffused and/or fragmented decision-making capacity is an increasingly important one in rural decision-making – because of the scope of modern environmental management, for example. Issues such as climate change, diffuse source pollution, flood management and watershed development require a different scale of integrated management, compared to decisions arrived at within the context of single-agency, single-issue management. In the UK context at least, the literature I am aware of in this area seems to focus on the technicalities of the model-building, rather than social learning or participatory decision-making, although I have come across some other examples of relevant projects elsewhere – for example the use of GIS (Gibbon, 2004) in Italy, and simulation modelling in Zimbabwe (Haggith & Prabhu, 2003; Haggith et al, 2003; Standa-Gunda et al, 2003). Thus it is worth asking what do these applications teach us, and is it possible to begin to discuss alternative views of good practice to that which seems to drive much modelling effort at present.

From my point of view, good practice incorporates a number of features. The first is close attention to the social setting of the application, because decision-making is inextricably embedded (*sensu* Granovetter, 1985) in the particularities of the social contexts in which they take place. Every application of modelling is particular, requiring social skill rather than just general principles to resolve, and therefore crosses into the white of the egg (see

figure 2). In participatory practice in general, this creates an imperative for a sensitive, listening approach, expressed in terms of relaxed rapport (Berardi, 2002: 850-1), active listening (Ison & Russell, 2000) and the politics of invitation rather than intervention (McClintock, 1996; High, 2002: 101-4). The social energy raised by the experience of genuinely being listened to (Ison & Russell, 2000) is an important side-effect of the process and often proves more important in terms of resolving issues than any amount of technical activity of any kind.

Another feature of good practice is a recognition of the very genuine epistemic tensions inherent in approaching the world as a modeller and as a facilitator of social learning, and a facility for dealing with this tension. The former approach is often couched in a realist mode, with models being increasingly fine-tuned to match data sets until the essential dynamics of real systems stand at least partially revealed. Thus knowledge can be packaged, commoditised and transferred from one site to another. I should add that there are enough counter-examples in my experience to suggest that this is perhaps a matter of conditioning rather than inevitability. Social learning, on the other hand rests on a recognition that modelling creates a space in which knowledge is constructed, rather than received or imparted. This requires an interpretivist approach to modelling, where the aim is to make explicit different understandings of a context in order to achieve new accommodations between stakeholders as the basis of satisfactory progress on issues that are causing difficulty. Models are used as epistemic objects, tools for exploring a situation which do not represent it, or at least only from one of many possible points of view.

In terms of practice, modelling for social learning therefore requires expertise as a facilitator as well as a modeller, and a skilful interplay between the two epistemic stances that support them. Producing good 'hard' models which support good 'soft' applications therefore requires a facility for "*epistemic cognition*" (*sensu* Kitchener, 1983; Salner, 1986). Such a facility is not the exclusive preserve of social scientists, and many of the most expert practitioners of social learning I have encountered have a background in the natural sciences or technology, before becoming interested in the interplay between hard and soft factors in problem milieus such as environmental management.

### **Participatory video**

Participatory video shares many features with simulation modelling applied to social learning. As a practice, it is probably better developed, but as a field of academic study there are less sources to refer to. The concept of participatory video essentially dates back to the advent of a combination of technologies in the 1970s – video cassette recorders, VCRs, video cameras and portable video production systems (Shaw & Robertson, 1997: 7-9), although there are earlier antecedents based on the use of broadcast and film equipment, such as the ground-breaking Fogo process of the late 1960s (Crocker, 2003). By the late 1970s and early 1980s in the UK, an independent video sector had grown up with strong links with the community arts movement, and has since found expression within social work, community development, therapy, participatory education, development work

overseas and arts access (Shaw & Robertson, 1997: 166). In the international context, White (2003) lists a wide range of projects from the use of video in PRA (Participatory Research and Action – see Chambers & Conway, 1991) in Africa, to dissipating tensions between Inuit hunters and conservation officials in Arctic Canada.

Participatory video has been defined as a “...*social and community-based tool or individual and group development*” (Shaw & Robertson, 1997), where as with modelling for social learning, non-experts are facilitated in using technology to make sense of their experiences. As with Freire’s (1972) conscientization, participants are thereby presented with the opportunity to become the subjects and not just the objects of a learning process. It is therefore distinct from related applications of video to issues of social and environmental justice, such as Harding’s (2001) video activism.

In participatory video, making a film is not an end in itself, and instead the focus is on the learning of the participants. But while learning technical skills can be part of this, the primary benefits are social. In good practice, the technology becomes a mode for directing the attention of participants, rather than an audience, and activities revolve around “...*the needs of the participants. Video is used to develop their confidence and self-esteem, to encourage them to express themselves creatively, to develop a critical awareness and to provide a means for them to communicate with others*” (Shaw & Robertson, 1997). It is therefore often used with disadvantaged groups, where the primary objective is control of members of the group over their own work. Some of the potential benefits are summarise below in Table 1, which draws on Shaw & Robertson (1997: 20-6).

The tension between technical and social competencies is well expressed in the literature on participatory video in terms of discussions about product and process. Both White (2003) and Shaw & Robertson (1997) discuss the use of video with groups in terms of whether they are process or product led, saying both are important. However, there is a strong sense that while the product is important, it is process that is most important. For Shaw & Robertson, for example, participation is distinguished from non-participation by technical focus, and non-participatory video arises when the quality of a production becomes an over-riding concern at the expense of interaction with participants.

It can be difficult to maintain a process-led approach, partially because of the expectations of many participants, whose ambitions of quality may outstrip their initial competency. This creates a temptation for facilitators to intervene, often reinforced by their own desire to apply their talents. However, Shaw & Robertson argue that it is important for groups to be able to make mistakes in order for them to take control of the process (ibid: 186). Thus for White (2003) development rests on abilities and personal characteristics of reflective practitioners. Note again that social skills are at least important as technical skills and a skilful interplay between the two is required to make the process work.

There are structural pressures too. As participatory video often takes place in the context of funded projects there is often significant pressure from external

parties for particular outputs, and funders and managers often have unrealistic expectations of what is possible over the timescale of a project. Thus *“Inclusion of plans for community participation is a virtual requirement in project funding proposals of most major donors. Yet, project evaluation procedures of the same donors may ensure that non-participatory elements of projects take precedence, because their benefits occur within a shorter timeframe and often are more easily quantified for reporting purposes.”* (ibid: 331-2).

Participation	<i>“In order to generate meaningful participation, development work cannot simply be imposed from above on passive recipients. It is crucial that people take an active part in decisions affecting their development.”</i>
Individual development	<i>“Recording their experiences and ideas on tape assists a process of self-definition. Video acts as a mirror. Playing back the recorded material can promote reflection and develop a sense of self.”</i>
Communication	<i>“Video can stimulate two-way communication. The presence of the equipment generates discussion by giving a reason for talking about issues.”</i>
Community building	<i>“Working with video equipment can in itself encourage co-operation. Video is a team activity. Participants have to work together to attain a worthwhile result, involving joint planning and decision-making.”</i>
Raising consciousness	<i>“Agreeing on a topic for a video or a message to convey can increase a group’s understanding of what it thinks about an issue...The shared strength can motivate people to continue working together to bring about improvements.”</i>
Self-advocacy	<i>“As a project progresses, the group’s desire to say something to a wider audience often increases.”</i>
Developing capacity	<i>“From the very beginning of a project, the group are all required to make decisions, and as their planning skills grow, there is a shifting of responsibility for the direction of the project from the workers to the group’s members.”</i>
Empowerment	<i>“...the group can progress with an increased strength and power to use video as a means to participate in divisions affecting their lives, to communicate with and influence the prevailing power structures, and to bring about changes on an organisational, environmental or political level.”</i>

Another important theme participatory video is the link between with broadcast television, a dominant cultural form in many societies. For Shaw & Robertson (1997: 14), much of the potential of participatory video arises because this cultural force can become active. As White (2003: 64-6) points out, we are conditioned by TV to accept video as a medium in which we are passive. Participatory video therefore enables self-expression, and in terms

of good practice this theme links to paying attention to embedded cultural forms, while perhaps challenging what these are.

In my own work I am interested in whether rural stakeholders are more able to express themselves through video than text, as then video could provide an excellent platform for collaborative learning in situations where the authenticity of group or individual views is important. My own experience is that producing a script for a documentary (High et al, 2001) in the context of a training workshop was much easier than documenting research outcomes (Rengasamy et al, 2001) with the same group of people. In Europe this has significant potential for processes such as evaluation of programmes such as LEADER+, where the challenge is to adequately analyse and represent diverse experiences embedded in local particularities of culture and circumstance. Participatory video may help bridge the gap between micro-evaluations and the synthetic macro-evaluations of such projects and between different realities at different scales of governance (see Nemes et al, accepted).

### **Conclusions: Epistemic engineering and phronetic social science**

What these applications of ICTs to social learning in rural development have in common is that they are both about the social creation and manipulation of what I call epistemic objects. That is, computer models and video scripts that become a way of directing attention – relating social consciousness to experience, by directing attention through often through the mediation of a skilled facilitator. Such epistemic engineering shares many features with PRA (Chambers & Conway, 1991), Planning for Real (Gibson, 1996), SSM (Checkland, 1999) and plethora of other participatory methodologies. By focussing attention on an imaginary representation, confrontational dynamics can be diffused, and dialogue take the place of debate (McClintock et al, 1998).

I suggest that a synthetic review of different methodologies which share this underlying approach would be timely and may well suggest important research themes relevant to social learning and the management of rural resources and governance of rural communities. The discussion above already points to some of these. With both simulation modelling and participatory video, the shift from a technical to a social rationality redefines the nature of good practice. In particular, I have identified and discussed: (i) close attention to embedded realities, (ii) epistemic cognition, (iii) awareness of product and process, and (iv) the importance of institutional and structural pressures. Redefining professional competencies to take these into account has been highlighted before (eg Chambers, 1997), but perhaps some of the recent progress in areas such as governance (High et al, accepted) and organisational learning (High & Pelling, 2004; High et al, 2004) opens up new avenues for changes to practice.

Turning to our own practice as researchers, another feature of these two applications of ICTs is that they challenge dominant conceptions of what research into ICTs is about. If as O'Donnell & Henriksen (2002: 93) have it, "*ICTs are defined ontologically by our use of ICT*", then application is everything and participatory video is intrinsically different to television, although they share much of the same technical framework. I think this is

worth bearing in mind when we research the applications and abuses of other technologically enabled social processes such as market access through the internet. How can we ensure that we're talking about the same things?

More broadly, I think these examples raise an interesting question, which is perhaps more a characteristic of research into social learning than ICTs, but is nevertheless worth pursuing here because it highlights a central question for all rural sociologists – just what is it that we get paid for doing? I am increasingly convinced by the argument that the value of social science is not just about surfacing truths however discomfiting these may be for those with powers. Responsibility in research cannot simply rest with Giddens's double hermeneutic (see for example Cassell, 1993) where sociology and society discharge ideas into one another like a pair of leaky old industrial plants, yet the price is questioning what the science is in social science.

Flyvbjerg (2001) and Midgley (1991), for example indicate quite persuasively the limitations of propositional knowledge, and both argue for the reinstatement of wisdom as an appropriate end of research. Flyvbjerg links his case to a re-examination of Aristotle's intellectual virtues of episteme, techne and phronesis. Episteme is concerned with the production of abstract theoretical knowledge, techne with practical knowledge and phronesis with the social knowledge that we use in our every relating to others (O'Donnell & Henriksen, 2002: 92). Flyvbjerg's argument is that the social sciences have become trapped in a fruitless pursuit of episteme, when it is phronesis, or practical wisdom which is most appropriate. A related academic tradition in which phronesis is highlighted is action research (see Akdere, 2003: 340-1, for a discussion of this tradition), where there is a strong emphasis on research *with* people rather than *on* them.

Research into ICTs in rural areas therefore highlights the interplay between scientific, social and technological rationalities. This in turn reveals a broader research agenda than is perhaps reflected in publications on rural ICTs, both in terms of content and approach. I don't want to leave you with the impression that I am arguing for dropping any particular line of enquiry in favour of another, or the inherent superiority of phronetic research over normal social science. However, I am inviting you to consider that there might be space at the table for both of them, and that just like computer modellers and video technicians, we may wish to reconsider our own professional competencies and the periphery of social skills that perhaps determine the success of our engagement with non-experts in our field.

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