

~the "text" is a discursive activity, a production in language, in the materiality of which

... meaning arises ... the text is a permutational, ever mobile space, and within this text a multiplicity of utterances or discursive events crisscross and interpenetrate one another (1988, p.108).-B

~Because we chose to present this unfinished version of our journey in chronological order the

... crisscrossing and interpenetration becomes evident. Some might find the result haphazard. We present it as a mapping of how two minds have tried to bring to a conscious, visible level, the many layers of values and assumptions; theories and knowledge; the social and personal construction of subjectivity; and the knower and the known, which intersect in what is called 'knowledge'. Subjectivity and language as forms of knowing, understanding, and communicating meaning, developed as subthemes within the text as it evolved, and as we became more aware of how our own subjectivity and language shaped the ways in which we construct knowledge.

An important distinction was made early on, towards the end of May, in one or the first fax messages to pass between us.]-

~Ballarat University College, 27 May, 1992. Dear Mike,

The answer is yes, I am using 'constructivist' in the same sense as Habermas. But I am also using

it in the sense that Carr and Kemmis use it in Becoming Critical, 1986, p.148-9, and also Walker,

and others in Smyth (1987). In this view, it is not just the fact that people come into a setting with socially constructed knowledge, it is also that teachers can teach in a way that allows student knowledge to be valued in the classroom. To do this teachers use the knowledge of their students as the initial text, rather than privileging an external form of knowledge. There is in my mind, quite a difference between a person who believes that knowledge is socially constructed, and a person

who plans their teaching acknowledging that 'reality'-

~[The importance of this statement became apparent when we went on to look at the work of

Erickson (1989). Another significant development was that we began to adopt the metaphor of

It was not until my visit to Canada in the second half of 1991 that I discovered a renewed interest in Constructivism amongst teacher educators. This manifested itself in three ways which seemed unrelated at the time. First, Elizabeth Cooper at Regina took me to task for my over-optimistic faith in the power of the individual to transform society through education. Whilst having no problem with the overall view that our subjectivities are socially constituted, I objected strongly to the idea that this occurred in any socially deterministic, totalizing, manner which emptied out the child and the individual from the classroom, or which permitted a return to explicit, transmission forms of teaching the proponents of which claim that you get more of a specific product for your money if you adopt a particular form of teaching.

The second manifestation of constructivism could be seen in the work of Gaalen Erickson at the University of British Columbia where I was fortunate enough to be able to attend an SI2 session (Student Intuitions and Science Instruction).

Erickson (1989) rejects the view that research can provide us with a set of diagnostic techniques comprising a catalogue of teaching strategies. He believes that teachers should be expected to construct such techniques and strategies for themselves through collaborative enquiry.

The session comprised a video of some children aged 9-13 years old obtained in one of those ethnographic ventures behind the lines. The children were providing explanations for the inverted image produced in the camera obscura. Attention focussed on the way children went about mentally constructing what they had observed and how they represented that to themselves in language. This threw into relief various 'folk' beliefs about science which sit comfortably with children and many adults but which have to be translated or reframed in more acceptable scientific language. For example the use of the word 'rays' and their linear, graphic representation led to a discussion on interpretations of reality. One child in seeking to explain the inversion maintained that there had to be a point where there was 'a ray of light' going right through the middle of the pinhole, so how did that equate with an explanation based on turning the image upside

down? Although this particular session dealt with the mental representation of knowledge, the children's utterances were not viewed in any developmental way. The interest centred on finding metacognitive ways of assisting children to reframe their folk utterances in scientific discourse through a process of translation. I see the New Zealand work that you sent me being carried out by the SAME Research Centre at Waikato (Bell 1991) as being in the same tradition.

The third aspect of constructivism I encountered was the work grounded in the concept of the

'generalised other' that MacKinnon and Grunau (1991) have been carrying out. The generalised other has always seemed to me to be a useful concept in social science research. If we are looking for themes, structures or patterns. It is a convenient abstraction which assists us to come to grips with the data and make it more manageable and more meaningful. For example, when we talk of professional behaviour we are talking of a set of generally shared norms which owe their origin to the 'generalised' other. Hence we have an expectancy of how to address as a Student-Teacher, the social, psychological and physical distance to maintain between us as teachers and parents and so on. However, I now have some nagging doubts about the generalised other as the quintessential definition of the social which relate to my original concerns with a remorseless, unidirectional, deterministic view of social construction of knowledge and the self. And then, of course, when I arrived back in Australia, I was to find the Project of National Significance into the teaching of English literacy (Christie et al 1991) had been published which recommends the adoption of a social perspective on learning and 'the formation of social subjectivity' which I felt I needed to investigate further. I've tried to represent these concerns in my mind maps. I'm not sure though how you would wish to proceed. Once one starts fixing concepts as I have done there, they take on a reality of their own and you may rightly object to that. It was not my intention to produce a taxonomy or checklist but to show how some of the issues and concepts which seem central to me might be related whilst at the same time pointing up some of the difficulties and differences which exist in interpreting the term 'the social construction of knowledge'. You may of course decide that you want to do your own mind map and if you have the time and a belief in their efficacy that might be the way to go, then we really would have something to compare and to

jointly construct. Darwin,

Tuesday 11 August 1992. Dear Wendy,

Herewith the mind maps as promised. [There were originally seven mind maps altogether. Four of these are reproduced here together with a fifth produced later by Wendy in response]. I don't know how much you know about schema theory and the construction of such maps. I suspect I have broken every rule in the book, but I still believe the process to be worthwhile. Normally one tries to show all the interconnections between the nodes and their offshoots. I haven't got that far because of the complexity of the undertaking.

As I carry out my preparatory reading, I'm constantly coming across issues and concepts which I had

ignored or wasn't aware of. For example Broughton (1981) in his article on Piaget's knowledge without a self and without history raises the issue of Piaget's notion of structure which he says is given a purely formal conceptual interpretation. This raises the disturbing question of what exactly are these structures of knowledge we are talking about. If 'an ideology of models' is

unsatisfactory, as Broughton says, what do the structures actually look like empirically? This issue in turn relates to a number of nodes on the varying mind maps. And conversely what are we deconstructing? Are we deconstructing the models themselves or revealing the knowledge constitutive interests behind them, or the meaning invested in them? Incidentally when I sent the fax yesterday I meant to say how much my own approach to education and learning has been permeated by Piagetian psychology without me being fully aware of it. The tendency towards distancing, conceptualisation, overtheorising and decentering has really come home to me. I seem to have been sustaining a number of contradictions. There do appear to have been earlier constructions on the same site.

Q 15 August 1992. Dear Wendy, Already though there are a number of newly discovered features which need to be incorporated. One concerns the place of language and discourse. Should linguistic constructivism be given primacy over the other forms? I've just gone through Bazerman's (1990) Discourse analysis and social construction in which he argues quite strongly for that. Does linguistic constructivism require a separate mind map of its own? At present it is built into several of the other maps including the SOCIAL CONSTRUCTION OF SUBJECTIVITY under discursive practices and discourse features with links to dialoguing across difference on INTERSUBJECTIVITY.

The whole of Bazerman's article raises for me the issue of social determinism. By this I have in mind a situation or condition from which the individual cannot escape. The individual's choices are determined, permitted and constrained by society. Everything in fact is determined in some kind of remorseless, mechanical, inevitable fashion. I suppose this relates to Bourdieu's conception of the habitus. (Nespor 1991 looks at the creation of classroom knowledge in terms of the habitus.) Whilst accepting the existence of culturally generative forces of this kind, I find any strong form of belief in determinism difficult to accept

simply because it limits and negates the possibilities of individual agency. It entangles us in the structuralist trap and introduces a transcendental element into the discussion, the carrying over into the argument of an 'accepted', given, theory or supposition. Interestingly Bazerman [refers twice to 'a form of subjectivity' (emphasis mine!) which suggests there are other

forms which he has not identified, apart from this socially and discursively produced variety. At one point he talks of social 'determination'. At what point does 'determination' shade off into determinism? Presumably we can show our determination in our resistance to social determinism. We are thus 'determined' in both senses.

I have the same problem with Usher (1989). Although Usher problematizes the concept of experience, something which I don't think I have done very well in the mind maps, I believe he has not considered the notion of self-reflexivity very extensively. Usher rejects claims that the individual is totally determined by impersonal forces (1989:30, my emphasis again). The suggestion that individuals do not choose their subjectivities then he is clearly embracing determinism. The ways in which changes in our consciousness and subjectivities occur need more extended treatment and

justification. Any transformative view such as McLaren's (1989) must assume that we can influence the nature of our subjectivities. The problem goes back to the type of subjectivity we are talking about. The transformation has to take place in ourselves first before we can reconstruct society. Freire says something like that somewhere. I'll track down the

quotation. In the mind map on SUBJECTIVITY I have tried to show three main types of subjectivity:

- (1) subjectivity as in 'subject to' or 'subjected to' which I think captures the deterministic aspect;
- (2) individual subjectivity based on motive, desire, will and agency and
- (3) the subjective vs objective truth dimension which relates to propositional knowledge. Kitwoods's (1990) conception of free attention and moral space is based on the acceptance of non-propositional logic on the grounds that the quality of experience cannot be captured by categorization. Similarly he subscribes to the complete acceptance of particularism and avoidance of prescription. He talks, too, of the sentient being being allowed full expressivity which fits into the second category above. The first category is inclined towards fatalism, passivity and acceptance and belongs with oppression. The second relates to action, determination to effect change, subversion and the celebration of possibility.

Clearly the distinction is not as clear cut as that. People can be intimidated into taking up a proactive or revolutionary stance. But this is only exchanging one form of subjection for another. At the same time, our individual subjectivities have clearly been constructed out of information derived from the discursive practices and cultural histories in which we are

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em (situated and our wills and desires, intentions and motives are subject to and influenced by knowledge constitutive interests. There is thus a continual shunting between the three forms of subjectivity, between the socially determined, the sentient or expressive, and subjective truth. There is not necessarily any significant congruence between them. One can penetrate and frustrate the others.

The social construction of knowledge, therefore, needs to take into account these differing forms of subjectivity. However, there is another problem because the social construction of knowledge has two sides to it as well. One is the actual psychosocial process through which subjectivity is constructed. The other is the actual knowledge creating process itself, what knowledge is created and how it is modelled, shared, exchanged and so forth. The one is ontological and the other epistemological. Both are intimately related in that through self

reflexivity we arrive at knowledge of our own subjectivity, the ontogenesis of our beliefs and the ideologies on which they are based.

-Ballarat, 19.8.92;

& Dear Mike,

& Your mind maps arrived yesterday, and your asked for my reactions.

First I am extremely impressed ñ overwhelmed. As one of my graduate students said to me a few years ago "isn't it a good thing the human mind is not restricted to three dimensions".

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Second ñ I am trying to find the most significant ways for me to respond to what you have written in order to take up the dialogue. Should I try to add to your mind maps? Should I take up your earlier theme using Geographic images to try to conceptualise the constructivist 'landscape'? Perhaps having gained value from both of those activities you are ready to move on to other plans and

spaces, rather than go back over, what for you, might now be unfertile terrain.

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u Your description of your mind maps highlight just how many faceted each of the nodes might be, and how, at any given time, ideas are placed in relation to others, but how transient and relational those positionings are. It also shows how the process of looking through different lens foregrounds different views of knowledge.

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± How does all of this fit with subjectivity? I don't know. But I have an optimistic view, based on ideas of agency and creative thought, that despite the enormous factors stacked against it (as demonstrated in your maps) there is still scope for original ideas, or at least new ways of thinking about old ideas. Is that constructivism in its purest sense?

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I (I just wanted to highlight one difference which is obvious to me before I close in order to prepare a more considered response. I noticed how little, if any, significance you have given to gender in the

social construction of subjectivity', 'subjectivity and the self' or 'intersubjectivity'. My female wants to say that from experiencing oneself as 'other', as 'outsider' from the dominant culture, the issue of gender is central to me in each of those dimensions. My reading of Ellsworth and Lather suggests that they

may see it similarly. Although perhaps Lather would argue that many forms of 'other' (race, culture, religion) might juxtapose.

-21 August 1992.
& Dear Wendy, Thank you for your first reactions to the mind maps. I'm sorry you were overwhelmed because that was not the intention. I think the mindscape forms the territory through which we are journeying and you have already pointed to a central massive around which I have skirted, the area of gender, our first major discovery of difference on our dialogic journey. I had already detected tracks that run into the interior. Lacan marks the way, for instance, and we should

add Walkerdine (1985) and Weedon (1987). We need now determine how this particular feature has been shaped through weathering. It seems we have to look at this predominant feature, the significance of which has only recently been discovered, and determine the difference(s)

it makes. But before proceeding, lets

look at the type of paper we wish to produce which has also been concerning me. As I see it we can do several things none of which are mutually exclusive:

(1) We can describe the collaborative process in terms of the social construction of knowledge. The fact that there are only two of us in an external dialogue does not deny the social, particularly if we extend the concept to include intertextuality, by which I mean how we have taken over, and been influenced by, the writings of others. This then allows us to carry out a lineage study to trace the philosophical, ideological, historical and discursive influences which have shaped our own individual subjectivities.

(2) I would see us quoting from our writing to illustrate how we went about dialoguing in the first place before we can talk about dialoguing across difference such as when you commented on the transitional and relational positionings around the node.

The way we are talking to each other is interesting. it raises the question of the suitability of the term 'dialoguing across difference' because it has a parallel, I think, in the expression 'talking across someone'. It is possible that the long distance aspect of our enterprise may encourage this, notwithstanding the fact that we are both sensitive to it.

(3) But first we need to explore what we understand by difference and whether we feel confident enough to handle it using Derrida's terminology. I suspect we haven't got any option, hence I will attempt in the next few days to tackle the play of difference as I am following it.

You have already, quite unknowingly I suppose, helped me to a new understanding of the 'Other'. In the mind maps I only examine the 'other' in the terms of the 'generalised' other where otherness is defined externally in relation to me, a situation in which I maintain myself as the subject of the sentence. 'Other', in the sense of the outsider, the one who is made to feel that s/he does not belong, or in the sense of 'absence' in Pagano's terminology, (the reference is to JoAnne Pagano (1992) *Speaking daughters*) The experiencing of oneself as the excluded 'other', had not entered my thinking. Again this lends support to my concerns about the validity or usefulness of the concept of the 'generalised' other which can only reflect back or represent what is generalised or objectified and hence signifies the acceptance of cultural exclusion. The 'generalised' other is not necessarily a benign concept.

Perhaps I need to state something for the record which may not have yet become apparent. I got into the constructivist debate because I saw subjectivity, as constituted by creativity and individual expression, being threatened by socially deterministic views of the

construction of knowledge. I saw the danger of the intellectual and academic squeezing out 'the sentient being' to resort to Kitwood's terminology. (Kitwood 1990). I envisaged an emptying out of the

childhood from the classroom and the progressive sequestration of experience in a period of high modernity (Giddens 1991). However, there is another side to this. In attempting to protect subjectivity and the valorization of experience, I appear to have been subject to an affective, esoteric regard for subjectivity induced by another enlightenment figure, the author of *The Confessions* and of *Emile*, such that subjectivity became the last refuge for narcissism. I now find it necessary to escape from this prison of subjectivity and to open myself up. An unreflective belief in the primacy of subjectivity, whilst confirming the right to independent, self-autonomous judgement, can also constitute ignorance, intolerance and exclusion.

You seem to be saying that the social construction of knowledge has been/still remains a

phallogocentric enterprise from which women have been excluded or in which they have only been passively represented. Pagano (1992) tells us that 'language is seen by postmodernists as a substitute for the forbidden, absent woman' and 'that language speaks male desire only and is silent with respect to female desire and experience'. So, one thing is already apparent that in dialoguing across difference we are being forced to consider our individual subjective histories, the genealogy of our knowledges, and the way that knowledge is differently constructed (or constructed in difference or out of the play of differences) and the part that socially constituted gender relations play in this, so that we can talk of gendered, or gender-controlled knowledge, discrimination and positioning. The significance and the interpretations of this knowledge which has been socially shaped will be determined by our subjectivities. Even so, this still allows for the possibility that in difference can become indifference. When we began I saw our dialogue as essentially about differences in understanding, interpretation, text construction and deconstruction in so far as this referred to the construction of knowledge. I had a linguistic, conceptualist approach in mind. Now, I can see that this will not suffice. It's also about the differences within, the differences between ourselves as gendered beings, differences in ideology, a close examination of the lenses through which we examine reality.

Ballarat, 22.8.92

Dear Mike,

I am becoming daily more aware of the complexity of the task we have undertaken in dialoguing across differences, and across distances, I agree that there is a real risk of 'talking across someone'. So I intend to use this opportunity to try to pick up some of the loose threads and weave them back into the web of our communication. First, thank you for your preweekend Fax. I am delighted that you were so able to cross the barriers of our difference and, from your 'top of the head thinking', been able to touch an important point of understanding. However it is not so much the construction of knowledge from which women have been excluded as the right to a valued position for their construction in the language, history (herstory), religion, social mores, etc. Just as a point of interest here. I find it fascinating that in this context of constructive dialogue, both of us continue to cite "expert" references in order for me to voice my opinion, and for you to acknowledge that you have heard it. I wonder how this fits. Thank you for clarifying your motives for your initial interest in the constructivist debate. I can see more clearly now (I think) your reasons for your emphasis on the subjective aspects of the construction of knowledge. A point which I hope I will make connections with as I write. I like your geographic imagery because it provides the potential for both two and three dimensional charting of the complex terrain of constructivism. In briefly tracing my own historical journey I find that although I have been coming from a different point in time and space some of the landscape has been similar. Piaget with his language of assimilation, accommodation and schema theory was certainly one mountain I too was expected to be able to map accurately but not necessarily to be

understood as constructivism as I now know it, but rather as a competitor with Skinner in the psychological world of right answers. In that context the ideas were interesting, but not appealing or challenging enough to revisit. Then, like you, there was a vast time and space over which I traversed before coming in contact with the political arguments over the construction and ownership of knowledge in reproduction and critical theories. These ideas made sense for me in the context of my personal experience in working with secondary students who were defined as 'slow learners', and with unemployed young people (age 18-24) who were all, to me, intelligent people who happened to have not learned to read and write and therefore were cast, or cast themselves, as outsiders. Perhaps these experiences also explain some of my awareness of 'otherness' as potentially a strong influence in the defining of 'self'. As I

delved further into critical theory via neo-marxism, freirism, feminism, and participatory research I applied my understandings in the ways I redesigned the courses I taught. In hind sight it would be easy to put the name of constructivism on the approaches which I now use in my teaching (as described in other papers). At the time I argued that the changes were made, in my mind, for political and ethical reasons rather than ontological or epistemological ones. But at the same time (since 1988) I have been reading Popkewitz and Zeichner, Eisner and Dewey (amongst others). It is difficult therefore to trace exactly at what point in my journey the landscape of constructivism became part of my consciousness and was subsumed into my language. This point of knowing without being able to transform that knowledge into a form where it can be communicated to others is a place I want to revisit in my mind map.

I have spent some time today trying to chart some of the European contributions to constructivism through the work of Vico, Ceccato, and von Glasersfeld. This search was partly motivated through my surprise at the amount of currency constructivism has there at the moment. But it was also a voyage of discovery. What I found was interesting, but not wholly satisfactory to me. I needed to be reminded, as I was by von Glasersfeld, that constructivism is not, like other knowledge paradigms, a search for an ultimate, or objective truth, but that "concepts, theories and cognitive structures in general, are viable and survive as long as they serve the purposes to which they are put" (1987, p.139). How easy it is to fall into positivist mind-traps. Mine was the old 'separation of theory and practice' trick. In constructivism there is no such separation because the theory is the practice, and no single set of ideas are ideally privileged over others. When I was reflecting about your mind maps I slipped into thinking of them as a 'theoretical position' which needed translation into 'practice'. Which of course is wrong. They are your construction, and therefore, to some extent at least, your reality. Is there a split at that point between theory and practice? Another necessary reminder was that when knowledge is no longer defined as a commodity which can be transferred, and when language is recognised as a weak form of communication of meaning, the role of teacher really does need to be redefined. My problem with von Glasersfeld, et al. is that having said that, they still see teachers as having decision power over the destination of the learning, without questioning the social and political implications.

However I am not comfortable with constructivist's views which accept absolute relativism. That does not place me on the side of the positivist in searching for ultimate truth, but I am not prepared to give ground on some of the strengths of critical theory in recognising hegemonic power in defining the biased, value-ridden social construction of knowledge. As Lather (1990, p.321) states "relativistic

assumptions of a free play of meaning that denies the power relations are of little use for those struggling to free themselves from normalizing boundaries and categories".

I also agree with, and applaud, your concerns about certain forms of constructivism, in foregrounding subjectivity, they are open for criticism of supporting unreflective ignorance, and/or narcissism

[An example of the fragmented, crisscrossing nature of dialoguing is that we later discovered that Nias (1989:24) takes the view that narcissism (in the form of self-love) is 'a means by which many admirable human qualities are developed', in that context narcissism must be seen as a very positive feeling.]

Another problem which I have with constructivism as interpreted by the both Piaget and the Italian School is that whilst they recognise that knowledge (learning) occurs as a result of experience, and that these experiences are recorded through the senses, they tend to be very 'cognitive' about the knowing. Despite all of these criticisms of constructivist approaches, if we accept that there is no other way of knowing except through interpretation and construction of experiences, then we might become frustrated at the difficulty to challenge what has already been constructed but on the other hand there is an assurance that despite the positivist's worst efforts they will not be able to "empty the child out of the classroom". Taken in that context, what then do I mean by constructing knowledge? There is the cognitive knowing. There is tacit knowledge and habit which need to be acknowledged, but I think there is more. Is this the physical education person reacting? Certainly I found McLaren's recognition of "bodilykinaesthetic intelligence" and idea that "the body/subject becomes both the medium and the outcomes of subjective formation" (1988, p.61) useful to give me language here. I also value Eisner's view of multiple meanings and multiple ways of knowing, because perception is always qualitative, multi-sensory, simultaneous; always interpretive according to prior knowledge, purpose, frame, and emotion. The limitations of understanding, I think, are not in the knowing, but in being able to transform, interpret, reconstruct, the knowledge into a form which can be communicated and understood there are links here with ideas about partial knowing, audience, etc. I want to try to map this for myself. There are clearly some connections here with some of your mind maps. But there are also points of difference particularly

the shift from the "linguistic, conceptualist approach" which you acknowledge. I need to respond to your points about the type of paper we want to produce. Clearly this dialogue will be unfinished at the time it has to be submitted for publication. I envisage, as I think you are saying, the presentation of this paper to be a read dialogue, I feel that it will add greatly to the participants' understanding if they can see the origin of the ideas, as well as the interplay of those ideas. The time for the presentation will not allow for all of what we put into the paper to be articulated. Considering the theme of the conference, I thought it might be interesting to also briefly talk about this as a form of research. Lincoln (1990, p.86) talks about constructivist research as needing a language which reflects intense interaction and interactivity and which demonstrates an emotional and social commitment on the part of the inquirer. In this she argues against conventional research approaches in stating a need for researchers to be passionate participants

who use a research language of energy and passion (italics in the original text).

-24.8.92

Dear Mike, Having now done my mind map, I wanted to say first of all, that in the process I became aware that what I was trying to represent in 2D was an interconnecting web within a cycle where the experience is re-experienced, re-interpreted, re-constructed and refined in each process of experience and communication.

The map raises some interesting questions for me. Can there be a separation in constructivism between the knower and the known? The phrase 'the active learner' indicates some points of dialectic conjunction but I am not sure about the different constructivist interpretations of this. In critical theory there is some recognition of unity, as indicated in the writing about teachers by Jennifer Nias. At this point I went back to your maps. I am amazed again at the differences. Not that I see that as bad. In fact I think that our work here is complimentary. What I have produced, I think, sits somewhere beside your 'Intersubjectivity'. You will notice that I have left the language component of my map fairly undeveloped. You suggested (August 15) the need for a separate map for linguistic constructivism. This is without a doubt your area of expertise so I will leave you to plot such a map if you still deem it necessary. To connect to teaching, with the understanding about knowing charted in our

combined construction, how uniñdimensional are the traditional, inñput ñ outñput, black box models, of schooling, learning and evaluation. Some of the recent trends of profiles and competencies could be seen to be attempting to widen the net. But I fear that the political motives behind those changes are not 'educational' in the critical sense. In relation to teacher education and our student teachers ñ for example knowing (not knowing about) classrooms. As artefacts of that knowing, how redundant lesson plans are, yet how essential, as a form of 'holding together', for the neophyte student teacher. The issue of having students write detailed lesson plans is a tension for me at the moment. I recognise the survival needs of the studentñteacher but I also know that once the lesson plan has been constructed it becomes the reality. I think I have created as many loose threads as I have connected. That seems to be the nature of this enterprise. -

2 September 1992 & Dear

Wendy, Currently I'm intrigued by a number of things that are emerging but I'm not sure I can relate them together into a coherent whole or determine which is most relevant, nor exactly how my complicity in historical events prejudices my understandings. However, I think we are starting to penetrate the differences whilst at the same time identifying a number of solidarities and unities. I resist the term 'same' or 'sameness' because that would be too sterile and copyist. Similarities might do.

Well, what do I mean by all this? Well your quote from Lincoln (1990) is exactly where I would like to move. Everything I am reading at the moment relates to this: the neglect of affectivity, emotionality and intensity, in research into the construction of our subjectivities and their transformation because in seeking to transform the world we are attempting to move beyond the restraints imposed by our subjectivities and those of

our students. My doctoral research into the interaction between (some) Liaison Lecturers and (some) StudentñTeachers confirms the distancing from emotionality over and over again. The barriers to intense interaction and emotionality I believe are directly responsible for the numbers of students who remain socially uncommitted and who remain outside a socially critical agenda. We need to look for signs of disengagement, avoidance, lack of confrontation, and nervousness in the face of squishyñsquashy displays of feeling and personal crises. The reifications of logocentric thought and logical positivism coupled with an excessive reliance on the cogito have contributed to this decentring and distancing.

Reflecting on our own dialogue it seems we are unintentionally trying to position each other in order to arrive at a justifiable account of difference whilst at the same time in the modality of our language giving each other room to adopt solidarity positions. I think this says a great deal about the dialoguing process and to some extent reveals the limitations of the letter writing channel by which omissions are considered to be absences. Lack of qualification and explanation is seen as exactly that: the lack of qualification to explain. I appreciated your comments about 'expert' references and thought of the ways in which it could be viewed: (1) as living proof of intertextuality and intersubjectivity. This would support the cultural transmission and generativity view of the social construction of knowledge. It also acknowledges the existence of other travellers, fossickers, mystics and castaways in the area, (something, incidentally which Gary Crew (1990) does in the teenage fiction story *Strange|y*); (2) more concretely as map references? Getting out the old charts to see how the coastline had changed only to realise that some features were now much further inland than they used to be, that some meandering rivers had formed oxbow lakes which were now cut off from the main channel whilst others had changed their course entirely, that still other features were much closer to the surface and higher than the surrounding ground than they used to be; (3) as another example of the objectification of knowledge at the expense of personal, experiential knowledge? Your comments on the point of knowing at which we are unable to transform that knowing into a form where it can be communicated to others opens up a vast area for exploration. Such comments would tend to give credence to Piagetian theories of nonverbal thought, preceding or separate from the use of language. But I think it is more valuable to explore them from the point of view of intuitive thought. Intuition, which here I take to be the unconscious reading of signs and symbols, and acting accordingly without articulating our reasoning, comprises an embodied knowledge built upon our own individual subjective interpretations of feeling. This brings us to the related area of embodied knowledge, this 'bodily kinaesthetic intelligence' to which you refer. Once again I do not think we are too far apart on this but there is still an echo of social determinism there somewhere. The body/subject is described as the medium something through which something is passed or mediated and we see the outcomes in the form of subjective formation but what do we as individuals bring to the process? What are the effects of emotionality and affectivity, conscious and unconscious motive, intention, will and desire? Perhaps we cannot 'know' them in any decontextualised, objective sense because their attributions may not be stable but they are nevertheless

operative. Perhaps this is the point to bring in your concerns with relativism in which I share because once we accept multiple meanings and multiple ways of knowing the charge of relativism is often made by those who want

to prioritise or select the 'best' explanation or interpretation in a logico-deductive manner. As Patti Lather says somewhere relativism is a modernist concept which has emerged in order to maintain enlightenment thinking. Perhaps I am suffering from tunnel vision because the charge of relativism has no meaning for me in a relational system of power and control. I see relativism as absolutely necessary if we are to sustain and explain the inner contradictions in our knowledge and our actions, produced by multiple understandings. I see it as producing those particular forms of subjectivity beyond which the social has no overriding (deterministic) control, although relativism itself is, as already indicated, a mark of the episteme and itself is socially produced. The circulatory nature of truth, power and control involves the continuing adjustment of these relativities and only becomes a problem if this process becomes routinised or mindless on the one hand, or totalizing on the other. With hindsight I think we can say that the mind maps indicate the relational aspects of 'truth'. You revealed that insight in your initial response in which you talked about the recombination of spaces. They suggest how various perceptions of truth (i.e. concepts, theories and cognitive structures, of which mind maps are only one kind) relate together.

Perhaps you would clarify your comment concerning language as a weak form of communication of meaning. This has me more than a little puzzled. Clearly I accept that language is not transparent and that it is contaminated yet all the reading I've done suggests that the social construction of knowledge and the construction of our subjectivities is achieved through language and discourse. I don't see difference as weakness and I know that you do not, either. I have just analysed the tapescript of a Student Conference on the Practicum which appears to suggest the constitutive power of language in this regard. I would have thought the work of Douglas Barnes would have led to the same conclusion. The discursive practices adopted by the Liaison Lecturers in my research have clear effects on Student-Teachers. This is not to say that these effects are direct or that the exercise of power and control is in any way linear, but simply to say that Student-Teachers use particular communicative devices and strategies to resist positioning and particular pedagogical orthodoxies.

A relational view of truth has to be held in partnership with a relational view of power which is why I believe a major area to map is how language is used in resistance and

contestation. I have in mind resistance to oppression, positioning, exclusion and marginalisation but I would extend it to include resistance to transformative and critical pedagogies. The bulk of what now follows has been inspired by my reading of Edwards and Mercer's *Common Knowledge* (1987). It seems a very fortuitous occurrence in view of your comments about von Glasersfeld et al because Edwards and Mercer establish quite clearly the ways in which teachers retain decision making power over, not just the destination of the learning, but the way in which that learning is structured and achieved in spite of a declared belief in an activity-based, child-centred, progressivist approach. (The same process is at work, too, amongst supervisors in the Practicum.) Their conclusions cannot really be understood without a close reading of the argument but they certainly lend support to what you are saying about resisting the positivist 'empty the child out of the classroom'. They point out as you have, that experiential learning by itself is inadequate and that students need explicit help in interpreting those experiences. I would claim that this does not go far enough and that students need assistance in detecting the ways in which knowledge is

constructed, including the role that their teachers play in this. Edwards and Mercer (1987) build their argument of how knowledge is acquired on assumptions of context and continuity. Context is seen as mental context which I believe bears a similarity to the concepts and constructs apparent in the mind maps. They are concerned with ways certain kinds of knowledge are 'presented, received, shared, controlled, negotiated, understood and misunderstood' although not how new knowledge is defined, discovered or created (ibid:1). They wanted to know how a shared, joint understanding, and mutuality of perspective is achieved and how shared understanding is pursued, achieved, lost or avoided (ibid:2). This of course raises the question of what is shared experience and the inherent ambiguity of the question 'what is getting shared?' Are contexts imparted, like knowledge? Are we talking about different codes in the Bernstein sense? The mental view of context provides the link between discourse and knowledge and relates to individual perception and memory. Edwards and Mercer have made me refocus on an earlier question: just how social is the written dialogue, and I would like to compare what they have to say about the oral lesson with the written mode of discovery. Firstly we need to examine the problem of maintaining continuity of curriculum knowledge, or in our case, theme. Lesson sequences are planned and similar ground is revisited in planned fashion. Our interaction is much less planned and sometimes merely repetitive or put into others

words to get our message across. We tend to crisscross the ground leaving markers and beacons for each other. It is easier for us to jump about, go back and reflect on issues already discovered and refocus. Sometimes we seem to be 'bidding' for the floor, as if we are putting up our own individual pieces of knowledge for recognition by auction.

Secondly we are not socially situated in the sense that we are both present at a particular event although nonparticipants could view the correspondence as a serialised event. This is why I like the way you talk of dialoguing across difference and distance. This way we do not lose sight of the distortions distance imposes. It suits the mapping metaphor to.

Thirdly, we are operating with decontextualised knowledge from the start and have to contextualise it. We have to establish the context, present the experience (selectively) before we share and negotiate the knowledge embedded within it. This negotiation process doesn't come through so far in Edwards and Mercer because they assume the teacher has the knowledge all along. We felt the need to ground the dialogue in a context (our differentiated teaching and research experiences) and to understand the different contexts from which we both come. We have experienced a need to understand our confusions, source them, live with them and within them, to suspend belief. Each of us has to understand what the other means whilst preserving the difference and without necessarily agreeing the meaning or forcibly obtaining a common meaning.

All this is what dialoguing across difference is. It involves dialoguing across potential difference in our case not a desire to remove them, but a way of showing how we live them.

Fourthly displacement and abstract generalisation mark the lessons observed by Edwards and Mercer. Whereas displacement was not such a marked feature of the lesson, it is much more a feature of our writing because we are continually displacing each other and redefining context. **WE WANT** to pursue difference, not simply transmit information although in our quotations and references we also do that, (although I suppose some differences are informative). There is no self-contained body of knowledge for us. The only assumption of common knowledge we can make is one of exponential difference.

Finally, in this regard anecdotes for us may be vital as is our incidental reading

which becomes anecdotal: interestingly enough, I find myself writing, or incidentally, coincidentally, by the way, I meant to tell you because it may turn out to be relevant, which is why dialoguing across differences provides such a striking contrast to common knowledge. Dialoguing across difference requires the presumption of uncommon knowledge. It provides for our potentially uncontrolled subjectivity rather than restricting us

to controlled transmission of the known. We are after a shared understanding of differences, not the establishment of a shared body of logocentric knowledge. We both take over the role of guide at different times because we have travelled particular paths before. It is of mutual and reciprocal benefit but we cannot afford the subject positioning that takes place in the classroom.

It might be valuable for us to look at the way we facilitate the sharing of knowledge through our dialogue by looking at the way we use language ourselves. How do we support and encourage each other in risk-taking and challenging analysis of what we have said? How do we mark knowledge as significant and joint? How do we treat our differences? How do we establish mutuality and reciprocity? How do we warn each other off claimed territory, and, in whose name have we claimed it? The whole intersubjectivity concept is fraught with problems and any suggestions you have there would be welcome. How have you approached intersubjectivity in the past? If you haven't consciously attended to it what intuitively do you take the term to mean? If we have multiple identities/selves which comprise our subjectivity, then intersubjectivity must be a very unstable concept which has to be constantly worked at and addressed in terms of which identity we inhabit at a particular time. I suspect we can really only talk of pure intersubjectivity with respect to individual dyads, otherwise it shades off into objectivity. Habermas postulates an exchange in which we attempt to make each other subject and in which the subject position keeps switching.

In their conclusions Edwards and Mercer refer to Bartlett's (1932) work on memory. What we are doing in beginning with the meaning maps is to consciously and deliberately turn them around, to construct them afresh. It's the interaction of extant memory (how we came to be what we were when we began the process), what the current charts tell us, what comprised our embodied knowledge, (the knowledge of the river boat pilot), resulting from our long apprenticeship in the social construction of knowledge, and our consciousness of this and future possibility. In this, the successive maps indicate not only the territory of social construction of knowledge, but our own zones of proximal development within it.

Ballarat, 3.9.92

<Dear Mike, I enjoyed your analysis of the potential multiple meanings of my comments on our referring to 'experts'. I think all of them fit, and that is a very good example of the complexity of constructing meaning. Unlike 'number' where there are assumed to be agreed meanings, our language frequently carries shades of different, and even conflicting meanings. In this instance I raised

the "objectification of knowledge" and, at the same time, the hope that it was an acknowledgment that there were some signposts and that we were not entirely on our own on this journey.

However in responding to my claims about forms of knowing which are difficult to translate into words I do not think that either your interpretation as Piagetian nonverbal or preverbal, or your ideas about intuition

are what I meant. Is this an example of what I mean, or just being a poor communicator? I will reinterpret, I hope. As I said, all experiences are multisensory. In some of my strongest memories there is the sense of touch, taste and smell, there is an emotional context, and a feeling of involvement. I have a sense of being there which I cannot convey in language because we do not have the words to describe and explain accurately some of those sensations. Guba and Lincoln (1989) also argue that we cannot tell all we know. They use the example of a motor mechanic who 'knows' what is wrong with an engine, but cannot explain how he

knows. None of what I have said here denies the point you make about the discursive practices adopted by some in order to position others, or to resist that process. That to me is another parameter, another dimension, beyond that which I was looking at in my map of the knower and the known.

The instances you are talking about include a great deal of contextual information which seems to create and enable assumptions of power. Perhaps they fit into your map on the social construction of subjectivity. I must state here that I am talking about the maps as though they were separate entities which were fixed. Even whilst I talk in this way I am recognising in my head that that is not so. Again one of the difficulties of a discourse which is set in linear time as well as unidimensional space.

You pick up on intuition as a form of knowing, you will see that it is situated similarly in my mind map but only as one of many ways of knowing and interpreting. You rightly ask what is intuition and how can it be separated from socially constructed learning. In the very process of naming such an entity we, I think, create separations which are at best transient and transparent. It is interesting that you have yourself given two meanings. In one sense you are connecting intuition with instinctive and biologically determined behavior. In the second way you are using intuition, as

social. There is something of a parallel here with Giddens (1991) *Modernity and self-identity*

where he talks about 'practical consciousness' as a 'nonconscious' and 'tacit' way of going about social activities, a cognitive and emotional 'anchor' for the 'ontological security' which is necessary for day-to-day social survival. This kind of knowledge crosses over into the ideas of a shared social reality which

being unfixed and infinite. I would hope that we (we as in collaborative) have established mutuality and reciprocity, provided that means that that does not inhibit moments of individual and independent creative madness. I do not believe that either of us have taken command purely for the purposes of power/control, but rather to find some space to explore. In terms of you challenging my 'taken as given' I think that this is particularly true when we enter the zones of subjectivity and inter subjectivity. (One of the advantages, against all of the disadvantages you acknowledged, for dialogue in the written form, is that it is easy to re-visit). Your Fax sent me back to your mind maps to check again the way in which you were thinking about intersubjectivity. And I must confess that your analysis is much more detailed than I have ever attempted to put onto paper. Having said that, I do not mean that I have not been aware of the many ways in which I choose to allow different people to understand me, and the multiple ways in which other people have positioned me. I am intrigued why you wonder whether that this then indicates an unstable concept, and I feel uncomfortable about your comment about inhabiting an identity at a particular time. I prefer the idea that I am all of my past and my present (if not in some sense, my future), complex, known and unknowable, fixed and yet constantly changing.

A view of subjectivity which I feel sure from your writing you have somehow make contact with, I found helpful here, was in Elbaz and Elbaz *Curriculum and Textuality* (1988, p.124) in which they talk about a new conception of subjectivity as comprising ideas of "suspension, or the constant renewal and non-finality of self; mediation, or the interplay of various personae in the self; and "fictionality", by which we refer to the nature of the relationship into which the self enters with the world around it". This latter Elbaz and Elbaz see as a multi-faceted relationship of the self with the world.

10 September 1992. Dear Wendy, I think your mind map on THE KNOWER AND THE KNOWN, with its focus on multiplicity and alternatives, is a significant contribution to our discussions. It conveys very clearly I believe the complexity of the terrain and the alternative routes within it. It warns us against simplification, reductionism and over-generalization and,

without being in any way mechanistic, supplies us with a powerful generic for the examination of difference. In some ways it acts as a legend for the interpretation of the earlier maps. I think we are in a position to demonstrate that writing on the social construction

of knowledge fails to consider the multiple connections and relations you have established and hence does not problematise the field. Hence, too many travellers have set out unprepared and have had to return to base or set up improvised communities where they were which have remained isolated and little visited.

Some observational questions: (1) should empirical knowledge be included in multiple ways of knowing or do we need a node embracing paradigms? (2) should we look at all sections of Johari's window under self-esteem bringing in the known to self/unknown to self and known to other/unknown to others dimension? (3) external/internal is a useful distinction. Internal takes us back to emotions and physical state as well as self, hence I would argue for self-reflexivity as distinct from reflection. This is more than mere semantics. I believe there is a significant difference. Reflection involves the self to varying degrees. I can reflect upon the moral injustice shown towards Aboriginal people in the Territory, but it is not until I examine my own complicity and my own practice that it becomes self-reflexive; (4) incorporeal has me a little flummoxed. Is this embodied knowledge? If so, why is it under multiple meanings or would you argue along semiotic lines? (5) I find your 'physical state' section very valuable because it speaks to subjectivity, irrationality, mood and so forth and I have some evidence from student writing of how physical state, linked to responsibilities of home building, parenting, mothering and providing sustenance affects attention and perceptions in the social construction of knowledge. (6) I find the link between multiple ways of experiencing and gender, culture, race and class tantalising. How are each of these involved in the visual for example? How do the experiences of Aboriginal people such as slavery, strychnine poisoning, sexual abuse, physical violence and torture recorded in Deborah Bird Rose's *Hidden Histories* (1991) and passed on through oral history influence perceptions and attitudes today?

Your re-representation of the forms of knowledge which are difficult to translate into words provides us with a good example, I think, of communicating about difference across distance. It relates to what I said last time about knowing how much to say and assessing relevance. I must confess to being delighted to see your mention of Giddens (1991) *Modernity and self-identity*. I would like to discover how this practical consciousness he talks about is formed and how it comes to differ across generations if indeed it does. If we accept a post-modernist position where there are no absolute truths and no transcendental beliefs then practical consciousness must change to meet new worlds of difference. The problem with many social constructivists is that they assume the social is shared and understood in a particular way, that there is only one agenda and that reality (i.e. the social world) is structured in a

particular way: theirs. The paragraph in which you deal with shared social reality should be central to our presentation. You have articulated something that I have been dissatisfied with for some time. A shared social view can provide a coherence and a group dynamic which is very strong but to assume that all social groups (at the level of a community or forum) will operate in the same way and produce the same knowledge is to introduce another transcendental reductionist element. Hence, the fragility of the concept. However, it must always remain possible for social groups or communities to extract from the multiple meanings and multiple ways of knowing a shared reality which either protects, extends and privileges their

interests, or increases their apathy, fatalism and docility.

In our own case it appears that I have given the impression that I thought the social part of our dialogue was being lost. That was not the intention. I was just trying to come to an understanding of what we mean by the 'social', trying to come to terms with when the intersubjective becomes the social, and conversely asking how the subjective emerges from the intersubjective.

None of this should be taken as denigrating or belittling the passion, desire and will which have nurtured and invigorated the dialogue thus far, for these are the things that comprise our subjectivity. You put this so well, I believe, when you talk about 'the many ways in which I choose to allow different people to understand me'. This relates to impression management, self-presentation and self-interest and poses a distinct problem for any deterministic view of the social construction of knowledge. Put the way that you put it with conduct and action motivated by deliberate intentional choice, then I would have to agree that multiple identities in no way threaten stability.

I have just been re-reading Antaki (1981) 'The psychology of ordinary explanations of social behaviour' in which Morris asks the question which cognitive processes are open to introspection and which are not. He criticises attribution theory for its assumption of the knowledge of consciously experienced motives, intentions, plans and expectations. Although I have argued for this in the past by using Habermas' theory of knowledge constitutive interests, I would claim that we do not have limitless powers of executive control and that we cannot consciously monitor all that we do. Perhaps there is nothing more to it than how well we know ourselves? I'm not very happy with what I've written in this section. I have the feeling I'm talking around the question without finding a way in. The question that

keeps haunting me is the one you ask in different words, from a different perspective when you say 'Perhaps we do have need for social structure. But does it have to be structured against social justice and equity?' In other words how do we preserve a sense of agency and build a tradition of resistance? How do we overcome the determinism lying beneath your question except by arriving at other determinations? How much of this is available to our consciousness and subject to our conscious control?

Ballarat, 13.9.92

Dear Mike,
There are a number of things which I want to talk to you about today. Some of these things are in direct response to you, whilst others are more to do with my own thinking and reading at the moment. First to respond to some of the issues from your last fax. I have been thinking about your view that we might now be in a position to critique much of the writing on the social construction of knowledge. I would argue now that much of what has been written in the name of constructivism, including that by Lincoln and Guba (and others), whilst claiming to be cognizant of multiple socially constructed realities, pay only lip service to the political power dimensions of those 'realities'. Here therefore I believe that we need to recognise a sharp distinction between that position and the views of social constructivists such as McLaren, Tabachnick and Zeichner.

Interestingly in recent writing Tabachnick and Zeichner refer to their approach as a social reconstructionist perspective (italics

are mine). I think that the first form of constructivism, because they see all truths as relative or relational, lay themselves open to the many forms of (mis)interpretation which we have previously written about. My argument here is supported by Firestone (in Guba, 1990) who said that the apolitical and relativist position of constructivism allows it to be interpreted in many ways and used for a variety of purposes. But, if we accept McLaren's view (1989) that knowledge is never neutral or objective, but is already saturated with, and deeply rooted in a nexus of power relations, when we come to know it, then this enables us to place a new lens on much of what we have been saying. For the lack of a better name at the moment I want to refer to this lens (microscope) as critical social constructivism (this is only a working title and needs to be investigated in some depth). This lens enables me to find an answer to my question in my last fax about how we come to understand a shared social understanding or worldview. The learning of such a shared 'reality' comes from the context of the learning relationships as much as the content. As McLaren stated

(1989, p.169) we do not stand before the *social world*; we live in the midst of it" (italics in the original). This wonderful statement reminds us that our constructions of the world are never pure or free from the shadow of past and existing power relations.

This is not to argue against what I said in my last fax about the fragility of the concept of shared social reality. I still see that our individual understandings, because they must be personally constructed, must always be in some way unique. I think what I am saying here has strong connections with Giddens' ideas of the relationship between agency and structure. It also links nicely with the three types of subjectivity which you set out in describing your mind map on 'subjectivity and the self' (August 14). You explained there that there is always movement between (and possibly within) those forms of subjectivity. Also in your mind map on the 'social construction of subjectivity', you demonstrate quite a lot of the limits and potentials for the impact of the "social reality" on the "individual reality", and visa versa. Your first question about empirical knowledge and its place in the map of the knower and the known is an interesting one. I think it depends on how you interpret empirical. If you take the dictionary meaning of knowledge based upon observation and experiment not on theory, (my *italics*) then yes that form of knowing needs to be added to my map. But if you take the meaning as being empirical in the positivist sense of the word, as based on other people's research, and therefore on theory, then it does not have a place on the map at all. I do not think that people store knowledge in the form of grand theories because that is not the way that they experience and interpret the world (I was trying to think under multiple meanings about the generic forms rather than the content). Perhaps here, almost accidentally, we have stumbled across one of the real problems of trying to get teachers, and student teachers, to change their ideas not theories not about their practices. If their ideas are not stored and identified as 'theories' then talking to them about theoretical positions might well be counterproductive in many situations. They may well store, or disregard, such approaches as just more theory (stored semantically), not empiric from their personal experience, and therefore irrelevant. I like your suggestion on the need to include self-reflexivity as well as reflection in ways of communication. From discussion with my students I am coming to see self-reflexivity is one of the most difficult forms of representation of the self because it can be so challenging and confronting. When I included incorporeal as a form of meaning I was searching for a word to represent the creative inventiveness of the human mind. The capacity of the mind to imagine and make meanings which seem to come from inspiration rather than from prior knowledge. I do not see this as

exactly. . .

the same as metaphysical which has connotations of abstract reasoning. In this sense the meaning I was looking for is quite different from the one which you attached to it. But in your interpretation you reminded me that I should have included embodied knowledge. It was a term I was searching for, but could not 'put into words' at the time. Your question of the relationship between experiencing and gender, culture, race, etc., raises a whole lot more complexities which are now just beginning to be recognised. We have no idea if such capacities are genetically or culturally defined. Your reference here to the kinds of knowing which have traditionally been thought to be part of the Aboriginal culture are well made. If it is part of the culture, how is it communicated? How do such forms of knowledge become part of the shared reality of a particular group of people? Perhaps because of our own cultural understandings we see language as a strong part of this. I am quite happy with your suggestion about multiple dimensions of discourse. You remind me of how all social interactions, including this one, have power dimensions. This is, I think, a set of dimensions which I frequently overlook until I deliberately focus on, and am reflexive about. Is my desire to treat my students as fellow learners naive? Am I playing a particularly insidious power game by overlooking the many layers of meaning which predefine so many of my relationships, especially with my students? Sometimes I need to be confronted with their perceptions before I am able to acknowledge the built in inequalities in which they understand their roles, and our relationships. So your questions about the discursive practices which we adopt I see as an important reminder that we need to be constantly aware that whilst a communication is always a shared experience we cannot assume that each person is experiencing the same messages. The fact that messages are always set within the socially constructed roles which we inhabit makes all information contextual. In terms of seeing teaching and learning as the communication of ideas within a relationship, I am sure that our primary teachers are much more aware of this than secondary teachers. But I fear that the way in which tertiary education is set up there seems to be little or no recognition of that at all. At the tertiary level it seems to me that too often "the lecturer as expert" and "the text as expert" leave little scope for shared construction, or even shared interpretation of knowledge. If that is true then how can we enable our student teachers to believe in the validity of 'beginning from what the learner knows, or wants to know; of learning as the shared construction of meaning; or of me trying to work within a 'community of learners'. Shor (1987, p.84) says that teachers need to surrender the "mystique of power and expertise, while using his or her conceptual understanding of reality to provoke critical consciousness in the students". But how do we do this with students who are comfortable with playing the game the way they understand it, and fear that we are replacing the game

they know with another one in which the rules are hidden? One of my student teachers has contributed greatly to my sensitivity here. He is at the end of his 3rd year undergraduate course and explained to me, after I asked him to tell me what he expects of me as his supervisor in his final teaching round, that he likes supervisors to tell him what they expect so that he can do that, and get an A. Not only is this a wonderful example of positioning and counter-positioning, it told me a lot about how he plays out and uses the power dimensions. We have both at times spoken about the process in which we are working through differences across distances. I want to add to that a complexity which I think we both recognise but I am not sure that I have given it a great deal of conscious attention until I read and re-read your concerns about talking past each other. I have been aware that I have not, in the past, nor will probably today, responded to all of

the issues and ideas which you have presented to me in our communications. (I think that this is part of what you mean by 'talking past') Part of the problem, I do not think, is that each fax contains a great deal more information than any spoken message. In what you send me there are many more strands of ideas, directions to follow, issues to respond to, than I can possibly interact with. And so, in each response I am selective in what I choose to respond to. That choice is determined by the reading and thinking which I have been doing in the immediate time. It is most likely therefore that if I received your fax at a different time I would have given priority to different issues. The time frame is the second and interwoven part of this complexity because the space between idea and response, question and answer, are so unlike face-to-face, or even telephone, dialogue. In some ways this has been good because it has given me time to give a thoughtful response. But I have also been aware that there has always been a risk that too much time between interactions could quickly diminish the quality of the communication. But I think that talking across differences is not unique to this particular setting. I give you some other examples, not by way of justification for our potentially haphazard communication, but more as a recognition of the endemic nature of the behaviour. Usually, I think, because those differences are not acknowledged as being important or relevant they are glossed over. I hope that our discussion might in some way contribute to the need to recognise the impact of differences. Some examples are (a) In the way in which constructivist ideas relate to teaching and teacher education. In much of what I have been reading constructivists argue that supporters of their approach should work consistently within that paradigm. This is the point where I have reservations. These reservations have been confirmed by Crandall (1990) who raised an

interesting point which I fear we, at times, forget in our 'academic ivory towers'. He wrote "it is unrealistic to expect most practitioners and policy makers to consciously articulate or embrace any particular paradigm". He argued that whilst most practitioners have been touched in some way by dominant paradigms, they are not aware of, or interested in, questions of ontology, or epistemology.

The recognition of different starting points was placed in a slightly different context for me when I re-read Griffiths and Tann (1992). They talk about what they called differences between the languages of personal and public theories. They say that there are multiple different languages which are appropriate to different forms of thought, and argue that teachers (and others) have a language which is admirably suited to explaining their practical actions, they also have a language which fits into the academic discourse of their profession. What Griffiths and Tann argue is that these languages need to be translated across the differences in order to make connections between the two. This certainly explains for me why in so many situations teachers and teacher educators give so little value to each other's knowledge. In this context who can be responsible for interpreting the languages? Is it possible to translate both language forms without distorting either? Constructivist approaches recognise differences in discourses but seem to avoid problems of translation by arguing for relational valuing. But this position, I now think, is sadly lacking in its understanding of the politics of the relationships which position the discourses and accord them greater or lesser value.

I found this 'difference in understanding the world' even more poignant when I read Lather. She talks (1990, p.329-30) with passion about the need to think "outside the structures of thought and consciousness that we have inherited, to avoid the 'masters' position" of formulating a totalizing discourse, seems to require more self-consciousness about the particularity and provisionality of our sense-making efforts, more awareness of the multiplicity and fluidity of the objects of

our knowing". Whilst what Lather is saying makes sense in terms of current directions in research and within the directions of where our discussions have been going, I know that what she is suggesting is not a comfortable position to work in. On a practical classroom level, it is hard to see how teachers could be convinced that they should operate in theoretical ambiguity rather than

making certainty. I think that they would say that their world is ambiguous enough. This is in no way to belittle the way that teachers prefer to work. What I am trying to say is that in this post-modernist situation in which we now find ourselves the differences in perspective, language, and view of the world, might create greater separation between teachers and 'academics' than before. I think that this danger in differences needs to be recognised and

acknowledged. -β

~√√14 September 1992. <~4~3<~~~~~3<~~~L~~~~~&<Dear
Wendy, √Ä/ <~5~3Á~~~~~3Á~~~W~~~~~&<E'KKEI have just read a paper by
Jane Gear (1987) on √ Attention, Affect and Learning. √Ä/ I couldn't
get <~~~3Ú~~~b~~~~~<E'8,,Eover how it kept touching on the kinds of
things you were saying in your last fax and which <~~~<E'KKEwere represented
in your mind map. I suspect that neither of us will have the time to
engage <~~~<E'ŠíEwith the paper in any depth. Essentially, Gear puts up an
interactive model of attention, <~~~<E'z'Eperception, memory and arousal
(APMñA). What impressed me was the recognition given to <~~~<E'ðàEemotion in
learning. She sees emotion as 'present at the very moment of perception'
and as <~~~<E'""Etherefore 'being intrinsic to cognition, to thinking and
knowing'. As so much of the work on <~~~<E'j"Ethe social construction of
knowledge deals with the individual's perception of phenomena
and <~~~<E'ôôEthe construction of a shared reality in which difference can
be maintained and provided for, I <~~~<E'âyEfind this concern with emotion
critical in establishing subjectivity. It also seems to
link <~~~<E'ÊfEclosely with the emotional intensity, anguish and suffering
which sometimes accompanies <~~~<E'mðEtransformations in peoples's attitudes
and beliefs. I also like the way she gets into the <~~~<E' unconscious or
'subñthreshold of consciousness'. <~~6~3Ú~~~~~<<~7~4Á~~~~~<E'ááEI think
you would find Gear's discussion of the senses in learning ties in with
what you are <~~~<E'33E saying of how the knower constructs different kinds
of knowledge. I think there is a very <~~~<E'íIEimportant links with what
Giddens is saying. For example, without getting in too much
above <~~~<E'âyE my head, Gear cites the effects of sensory deprivation
experiments in which panic and <~~~<E';E disorientation ensue. I see these
findings as relating to anxiety which affects the
social <~~~<E'UUE construction of knowledge in two ways: (1) it prevents
knowledge acquisition, lead to <~~~<E'33E fragmentation, dispossession,
disillusionment and pessimism and (2) may accord others the <~~~<E'right' to
determine our experiences and the meaning of those experiences for
us. <~8~4á~~~~~<<~9~4%~~~~~<E'±EHow then, do we effect the social
construction or reconstruction of knowledge without harming <~~~<E'33E in any
way the individual students sense of self and individuality? Do we see
consensus and <~~~<E'...E agreement as an essential requisite of our
discussions with students. I would have thought we <~~~~~<E' can use our
disagreements to direct own own processes of critical enquiry. -β

~Ballarat, 16.9.92 <~<~5+~~~~~5+~ö~~~~

~~~&<Dear Mike, √Ä/ <~57~~~~~57~β~~~~  
~~~&<E' \$íE The point that you say Gear is making is one that I think we  
have tended to ignore for far too long, <~~~<E'NfE thanks possibly to the
work of the 'taxonomy people', behaviorists and even the
cognitive <~~~<E'""E psychologists who have all tended to focus their
research on smaller and smaller elements in the <~~~<E'q«E belief that that
was the way to learn about the whole. I hope now that researchers are
beginning to <~~~<E'>>E recognise that the whole person has always been much

and what the interrelationships are between them and 'approved' knowledge. As Britzman (1991) points out the value of experiential knowledge, associated with personal and embodied knowledge, has been taken for granted and the underlying structures and assumptions that authorise it have been rarely interrogated. Subjectivist accounts have been largely excluded and their place in internally persuasive discourse remains unexamined. But another ambiguous aspect of 'construction' deals with how knowledge is actually generated and comes to be socially shared, the actual processes that go on, and I have talked elsewhere about these. We have seen, I think, that, much that passes for the social construction of knowledge is in fact a disguised form of transmission, the perpetuation of a pedagogical fraud, with the effect that rather than being socially constructed, knowledge is routinised and reduced to a kind of game. One appropriated system of guidance is the process of scaffolding which parents employ with children in the language acquisition process. It seems to me that scaffolding can also provide nothing other than cued elicitation, a good example of which can be found in the Meno of

Plato (reproduced in part in Billig et al 1988 and also in Edwards and Mercer 1987), which is of more than particular interest because is an early example of an imagined or recreated dialogue used as a teaching device, although not one chosen to serve as a vehicle for research as in our case. In its original form, scaffolding appears to have focussed on the meaning potential of language and was progressively removed as the child's apprenticeship to learning continued. However, in its school-based, public form, its potential has been vitiated and subverted to a form of knowledge acquisition. Your reference to Tabachnick and Zeichner's use of the term reconstruction is interesting because I touched on this from the point of view of social change in my ISTE paper and was part of my initial confusion about constructivism. Tabachnick and Zeichner both maintain as Goodlad, that there is no point in trying to change the institution of the school unless there is a frontal, coordinated policy for social reconstruction generated by the community.

My reference to reconstruction of knowledge however, was of a different kind. If knowledge can be deconstructed to show its partiality in terms of historical context and constitutive interests, patriarchal and cultural specificity, then it can also be reconstructed in some worthwhile manner. We cannot engage endlessly in a process of deferral of meaning. To do so would be to paralyse both thought and action. So far we haven't really considered the central importance of the deconstructive process

as a necessary precursor of the reconstruction of knowledge or the imposed silences which surround the curriculum. Here is another ambiguity that lurks within the term reconstruction and that is its connection with construal, how things are construed rather than constructed. How we construe will determine how we construct or reconstruct, hence the validity of Giddens's remarks concerning projection into the future.

We both seem to have found our way to a consideration of ambiguity and how this is tolerated. Drawing on the phenomenology of Merleau-Ponty, Morrison (1982) maintains that ambiguity is part of one's existence and our shared experience with others. Billig et al (1988) in *Ideological Dilemmas* (to which I will refer later) and Davies (1990), present detailed analyses of studies which demonstrate how at the level of ordinary explanations people live with such ambiguities. However, I am somewhat concerned at the sanguine acceptance of ambiguity as somehow unavoidable, manageable and containable.

Once again, the perspicacity of your reference to the knower and the known (I noticed that Madeleine Grumet uses the same expression) is highlighted. Who is the knower and what is known and what do we substitute for these terms in each particular contextualised equation? What do our life experiences bequeath to us in knowledge terms? When does ambiguity bring about dislocation and fragmentation? A good place to begin, I believe is with your references to the expert, but before I do this let us look at some of the ambiguities, contradictions, conflicts and dilemmas that are faced by teachers as they are presented in Billig et al (1988). 'Native' intelligence and experiential learning. (The old nature/nurture debate). Cognitive developmental models of growth and transmission models. The individual and society including considerations of structure and agency, freedom and constraint. Expertise and equality involving concepts of authoritarianism and egalitarianism. Particularization and generalization (or universality) established through particular category systems. Now it seems to me that constructivism operates at the interconnection of each of the terms.

In this process the individual is joined to society but can never be totally absorbed without loss of identity. Constructivism allows people to circumvent ideological intransigence, irreconcilable differences and mutually exclusive conditions. This seems to me to be the boundary that we should be riding and which we need to make permeable. The situation is complicated, of course, by the origin and nature of difference in that we can encounter differences of interpretation, methodology, technique, and implication within paradigms, and differences across paradigms or constructions. I see a critical social

paradigm as coping with and providing for both kinds of difference. Is constructivism therefore primarily concerned with the paradigmatic, or the pragmatic. Cherryholmes (1988) asks the same question of postmodernism, and I interpreted your reference to Crandall's work as saying much the same thing. Or are we not in fact dealing with different forms of constructivism at different levels of operation just as we talk of constructing a friendship or constructing a theory? Isn't this what is really running beneath your concern with the potentially damaging effects, as far as students are concerned, of the representation of practical knowledge in theoretical language?

Billig et al suggest when they speak of an official 'philosophy of friendship' which operates in the ambivalent and paradoxical terms of 'unequal egalitarianism or nonauthoritarian authoritarianism' (ibid: 67).

The chapter in Billig et al on expertise and equality speaks directly to the problem of deciding how mutuality and reciprocity can be achieved within the school. As you are at pains to emphasise in your anecdote involving your third year student, our situated practice is marked by contradiction and conflict. The problem is that expertise, however constituted, circumscribed or expressed will not go away and cannot be ignored however deprecating, ambivalent or 'hunchshouldered' the form of authority which it takes. There seems to me to be no point in pursuing the fiction that the supervisor, if experience, knowledge, and qualifications count for anything, is there simply as a friend, even when divested of the role of assessor. I suspect this is to demean the role of friendship by professionalising its pursuit as Billig et al suggest when they speak of an official 'philosophy of friendship' which operates in the ambivalent and paradoxical terms of 'unequal egalitarianism or nonauthoritarian authoritarianism' (ibid: 67).

My data from the student conferences during the Practicum suggest that Billig et al are correct when they say that the 'modern relations between experts and nonexperts are characterised by ambivalence rather than egalitarianism'. I believe that this is, in fact, actively promoted by the Liaison Lecturers in my investigation, particularly in conjunction with the identification and presentation of alternative choices, so much so that in the end some supervisory staff appear to be saying nothing. As Billig et al say 'All too often experts are not applying a fully determined and systematised body of knowledge' and are 'more likely to engage in improvisation or a conversation with the situation' which as the heirs of postmodernism we should rejoice in. But do we, can we? What can we do then, live with the situation? I would say we need to refocus on subjectivity as you appear to have been doing if we want to produce charismatic, transformative, individuals capable of inspiring dispositional beliefs and creativity. What does the student want from the supervisor? What is the role of the supervisor for each individual student? If we are to have experts, let them be experts in constructivism who know how to empathise with students

and employ the cognitive belief systems of individual students to produce further learning. Do the students know how their own contradictory views of authority and egalitarianism are constructed? Are they able to manage and express their own feelings and emotions? Do they know how they can reciprocate? And what about us, the lecturers? How do they perceive us? In what does our

credibility lie? This is where I would come back to Johari's window which is something like a two-way mirror on constructivism for I think our students help to construct us and enable us to reconstruct ourselves, which in an intersubjective manner become their selves, in the sense in which knowledge becomes conjointly owned. Judicious use of the window permits us to move that which was unknown to us, lying as it does below the threshold of our conscious awareness, into full consciousness. Isn't this what is going on in constructivism, generally: the modification, adaptation, and extension of our cognitive belief systems which are affected by and in turn affect our interactions, a continuous dialectic between the general and the particular, the individual and the group, the subjective and the objective? As you say of our participation in the dialogue, when we go back to re-read the text at different times we obtain different readings. This is as we would expect if there are no grand designs, no meta-narratives, no transcendental givens and we can retain our essential subjectivity. However, I have the distinct impression that none of this answers your concerns about the students who insist on and demand certainty and those who, given freedom and the right to

emergence of totalitarianism, fascism and dictatorship. In an attempt to explore the power/knowledge relationship as a driving force in the creation of subjectivity and the social construction of knowledge, I have gone back to Walkerdine (1985),

Weedon (1987), Grumet (1988) and Britzman (1991). Both Walkerdine and Weedon are working with a view of subjectivity which emphasises the creation of subject positions. In spite of references to the need to consider affectivity and emotionality I find their work lacking in a consideration of these aspects of subjectivity. The effects of passion and desire on will, motivation and curriculum are never fully elucidated. Grumet and Britzman, however, go some way to redressing the balance. In her examination of how particular forms of language, supporting particular notions of truth, came to be produced, Walkerdine (1985) sees the 'autonomous agent' as aligned with a particular form of rationality which itself is part of the 'humanistic dream' in which power, struggle, conflict and desire are displaced and dissipated. Walkerdine maintains that

women, whose bodies, according to Freud, were thought to be incapacitated for reason, are the price paid for ensuring a stable, nurturant and facilitating environment to produce self-regulated, rational and autonomous subjects'. She proceeds to identify 'the working of a multiple and contradictory subjectivity in the surveillance of passion and the regulation of desire'. In the creation of multiple subjectivities and contradiction, power is not equated with authority over someone, neither is it eradicated by personal harmony, but is located in the every practice of teaching. It is an effect of the teaching process. 'Practices which produce subject positions are of necessity multiple and those positions themselves are often diverse and contradictory' (Walkerdine 1985:220). I believe this has been true of supervisory practices and the discourse of self-regulation and normalisation but that with our understanding of the different forms of knowledge and the way these are constituted differently, together with the emergence of a radical feminist movement, we are moving into a period where different forms of knowledge are increasingly valued. Weedon (1987) draws on Walkerdine's work and puts forward a theory of the relation between language, subjectivity, social organization and power and examines this relationship in terms of liberal, radical and socialist feminist theory. With Walkerdine she views language as

'the place where the actual and possible forms of social organisation and their likely social and political consequences are defined and contested... (and) also the place where our sense of ourselves, our subjectivity, is constructed... Language is not the expression of unique individuality; it constructs the individual's subjectivity in ways which are socially specific. Moreover for poststructuralism, subjectivity is neither unified, nor fixed... a site of disunity and conflict... producing conflicting subject positions (Weedon 1987:21).

Needless to say, Weedon's approach contains problems for my conception of agency which is linked to autonomy. Weedon speaks of the agents of change, permitted to act on behalf of others, rather than authors of change (ibid:25). Moreover she sees the terms subject and subjectivity as marking 'a crucial break with humanistic conceptions of the individual'. 'Subjectivity' is used to refer to the conscious and unconscious thoughts and emotions of the individual, her sense of herself and her ways of understanding her relation to the world (ibid:32). Humanist discourse postulates an 'irreducible humanist essence of subjectivity'. Poststructuralism proposes a subjectivity which is precarious, contradictory and in process (ibid:33), but nevertheless essential I would claim. In terms of our earlier discussion about maintaining and managing contradiction and conflict, is it possible to hold to aspects of

both views: a humanist view and a post-structuralist view?
 Weedon, like Britzman, sees the individual 'as always the site of conflicting forms of subjectivity'. For Weedon, the 'ways of thinking which constitute our consciousness... (and the) positions with which we identify, structure our sense of ourselves, our subjectivity' (ibid:33). She sees the attainment of full subjectivity as illusory (ibid:41), seeing the individual as complicit and compromised in a battle for status and power. 'Motivation and desires are themselves the effects of the social institutions and processes which structure society' (ibid:41).
 What Weedon is saying affects our/my understanding of the term experiential knowledge.

According to Weedon, experience has no inherent, essential meaning. In one sense this is incontrovertible, yet this will not stop people from extracting from their experiences the meaning which they see as inhering or extracting what they see as the essential features of a situation. This also forms the basis for group sharing and critical incident sessions during the practicum in which sharing the experiential knowledge of others becomes the focus. If this were not so, how else do professionals operate? What is reflection-in-action? Is there no store of experiences to draw on? If there is nothing inherent in the process, there must surely be some essential, agreed meaning which directs or influences our future action. Do we not apply previous learning to new situations, even if this is partial, generalised, incomplete and based upon a particular ontological framework as Weedon maintains (ibid:34)? What constitutes professional behaviour and professionalism? How do we go about setting up and interpreting a code of ethics if there is nothing agreed or 'essential' to our purposes?
 What I take from Grumet's work is the sense of new possibilities of expression and realisation which our own dialogue has provided. Grumet (1988:66) quotes William Erle to the effect that 'the "I" of autobiographical consciousness is an index to a subjectivity that is always open to new possibilities of expression and realisation'. This is a much more positive, celebratory and convivial notion than the restrictive, limiting, determining notion of an illusory subjectivity. It suggests that through our subjectivity we are able to influence, reject or accept our positioning.
 After reading Grumet, I have come to

appreciate our dialogue as the shared construction of individual autobiographical events in which we are both simultaneously subject and object, subjectively and objectively pursuing peculiar and partial truths. Subjectivity, then, in the sense of 'I', the subject, can be thought of as multiple and varied whilst still maintaining coherence, but is in no way dominated by a singular,

consistent identity. 'Objectivity, which relates to the, as yet, other than consciousness, also need to remain fluid and unclassified' (Grumet 1988:67). If you close out on the one, the other becomes static and inoperable and denies possibility. -B

-CONCLUDING REMARKS: &É AF AF _

-There are many sites that we have not mapped accurately and to which we have not been able to Ac |

return. No discussion of difference and differences would be complete without a consideration of the contribution made by Derrida. According to Kearney (1986), for Derrida there is intuition of timeless essences which calls into question one aspect of intuitive knowledge, Derrida's notion of difference comprising both the notion of differing meanings and the deferral of meaning, implies that presence is always deferred and that we are engaged 'in a play of

'otherness'. Meaning, then, 'is always other than consciousness... By deconstructing A±

transcendental subjectivity (our emphasis) into the spatio-temporal play of language, Derrida Aè

does not do away with the subject altogether... he simply opens the subject to its own desire for 'what is other than itself' which permits 'a ludic affirmation of self-differentiation'

Kearney (1986: 125). The dialogue as an exploratory research vehicle appears well suited to this kind

of approach. Constructivism has provided a centre for us, a point of reference in which many competing versions of subjectivity coincide, even if that centre is fractured, chaotic, confused, discontinuous, falling in on itself, a quark of the mind, with no fixed locus. It has provided for us a function, in Derrida's use of the term, something which allows us to concentrate the mind on this implosion, however shifting meaning is in time and space, otherwise we would have had no

point of contact. The endless shifting of signifier and signified has to take place somewhere: the play of interpretation must go on. B

What is particularly valuable in Derrida is that from what we have read so far, he helps us to escape from social determinism. The subject is liberated in Derrida's view: 'the subject is not some meta-linguistic substance or identity, some pure cogito of self-presence; it is always inscribed in language and this very inscription constitutes a form of liberty... the subject is not tied to a single identity or essence, but lives in language as difference and is therefore perpetually haunted by the 'other'... and late that 'deconstruction gives pleasure in that it gives desire... Without a certain love of the text no reading would be possible'. (Derrida, 1984, quoted in

Kearney, 1986:125-6).
In this view language and discourse constitute one particular form of subjectivity according to which individuals cannot be seen as passive constructions. Whilst problematising the nature of experience, which is often wrongly regarded as 'universal or transhistorical', (Gavey, 1989), we should not deny the authenticity of individual experience, nor the power of resistance based on shared experience of oppression. Nevertheless our encounters with constructivism suggest that Gavey is right in wishing to "decentre the subject". We need to replace 'the unified rational self' conceived in terms

of possessing 'a unique, essential, coherent and unified nature and subjectivity', with an individual who is not 'the origin and guarantor of meaning' but one who is 'fragmentary, inconsistent and contradictory' (Gavey 1989:495). Any constructivist approach to teacher education has to work from that position and enable students to become aware of these inconsistencies and contradiction. Another important example of constructivist work which can provide us, and our students, with examples of constructivist approaches to teaching and learning is the work of Donald Schon which we acknowledge as being part of our history, and part of our future direction but which we have not yet revisited. In a recent article by Schon refers to reflective teaching as 'conversation with the situation' (1992, p.126), a form of inquiry which is situational, transactional, open-ended, and social. Like Schon we view constructivist teaching as having the potential to be all of these. Our dialogue on constructivism is potentially unending. Features of the mind maps continually shift, disappear and reappear in different places. As one of us wrote:
Constructivism is thus about opportunity and possibility. It is about turning subject-object relations inside out and upside down, ensuring that categorical meanings are suspended. As Grumet maintains, (1988:67) autobiographical writing, which can be said to comprise an ongoing dialogue, 'mediates the categorical and the accidental, the anticipated and the unexpected, and the individual and the collective'. In our writing I have experienced the value of permitting 'the gaps, the contradictions, the leaks and explosions in the text' in order to 'invite a self-

interpreting and self-determining reading'.
In language which owes much to Grumet, we have been able to acknowledge the presence and the effect of contradictory realities, rather than privatise them, acknowledge our own dependencies instead of suppressing them, and support each other through our struggles rather than undertake them singly and alone.

The dialogue has made us examine more closely through a consciously self-reflexive process, the genealogy of our own individual 'knowledges' combined with our own individual subjective histories. There is still a great deal of work to be done on the different forms of knowledge but the complex relationship between them is beginning to emerge as we have crisscrossed the territory. Our discoveries have often been fortuitous or accidental. Many require further confirmation. Clearly, the social construction of knowledge is not as deterministic or as straightforward as is often assumed. We have discovered many forms of constructivism in our travels all of which are interrelated and have hidden and unexpected effects.

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