

Problems and paradoxes in fine-grained qualitative research: an exploration of 'context' from the perspective of complexity and dynamic systems theory

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Recent years have witnessed a growing interest in extending conceptualisations of learning in higher education (HE) beyond the established parameters defined by the phenomenographic¹ tradition (see Mann, 2001; Ashwin & McLean, 2005). This is not because phenomenographic approaches have 'failed'; they continue to be highly influential, and are still being developed in a range of different ways. Nonetheless, it is increasingly being recognised that such research represents a particular way of looking at student learning, and that developing other, different types of approach might also be useful.

Compared to the history of the development of ideas about learning in other fields of education (for example, in schools, adult education, or work-based learning), there is not only a limited range of theoretical approaches in this area, but also a somewhat limited debate in relation to these areas. Until quite recently (see, for example, Clegg, et al, 2003), and with some exceptions (eg Webb, G. 1997) there has also been a relative lack of reflexivity in the field in terms of engagement with the critical perspectives which have been developing in other areas of humanities and social sciences. These critical perspectives include engagement with debates stimulated by feminist, post-modern and critical pedagogy perspectives, which focus on issues such as identity, experience, emotion, gender, and power, particularly in relation to discourse and the dynamics of pedagogic encounters.

In terms of the framing and focus of research, there has been a strong theoretical shift in the social sciences towards a recognition of the limits of psychological and psychometric approaches (though this is not to say that these perspectives are not still strong), resulting in an increasing concern with the problems of understanding the local, the specific, and the contextual. In the HE literature², however, there is still a fairly limited amount of

¹ Deep and surface approaches to learning (Prosser & Trigwell, 1999)

² By this I mean journals, reports and conferences which are focused specifically upon Higher Education. There is quite a lot of critical research about HE within the field of Adult Education (see for example,

research which focuses in more qualitative ways on HE learners as people within specific contexts. Though phenomenography is concerned with context, its focus tends to be limited to the context of the institution, or to context in the sense of the development of conceptual understanding in specific disciplinary areas. Phenomenographic work, though changing and developing in response to contemporary contextual concerns (eg Entwistle, et. al. 2006) still focuses primarily on the cognitive, and on its original intention of trying to identify structures within phenomena which go beyond the individual case.

Problematic aspects of the shift towards situated perspectives

The shift in the social sciences towards an interest in issues of context and specificity, however, is not without its own problems. When people do engage in more interpretative, context-bound types of research (such as interview studies, for example) questions continually arise in relation to the meaning and use of the results of such approaches. For example, how are the results of local, specific types of investigation to be understood in relation to other local, specific situations, and how do such investigations help in the building of theory and wider understanding? Although some researchers feel comfortable ignoring the imperatives inherent in these questions, on the basis that their philosophical starting point and research intention do not concern themselves with such issues, many researchers (and many funders of educational research) find them difficult to ignore.

Furthermore, although the importance of a recognition of context may be discussed theoretically (particularly in relation to concerns about inequality and the recognition of difference) it is not easy to find examples of analytical strategies, or associated epistemologies, which coherently enact such concerns. There is theoretical justification for a focus on the contextual (eg. interpretative approaches; a focus on meaning rather than quantification; the idea of thick description etc.) but the ways in which data is actually analysed, and the nature of the discussions which take place in relation to such analysis³, are arguably often framed in relation to profoundly non-contextual imperatives (Thomas, 2002; Law & Urry, 2003).

For example, although sometimes declaredly pursuing an interest in ‘giving voice’ to individuals, or representing individual experience, interview data are very often analysed cross-sectionally, in order to produce themes or categories which represent things which are *common* to the different narratives. This is so normal that it is rarely discussed or even commented upon (and it is clearly an extremely productive approach to analysis). Such an approach, however, is not, as often assumed, the only way of making sense of narrative data. It is one approach, and as such creates a particular type of knowledge or interpretation. Cross-sectional analysis arguably reflects assumptions about subtle forms of deep structure, which are conceptualised as underpinning or transcending the variety and difference manifest in the narratives (see Haggis, 2007a).

West, 1996, Brookfield, 1995.), but this research does not very often make its way into these journals or conferences

³ For example, the perceived need to connect the results to other, different contexts, which, although not framed as ‘generalisation’, responds to an imperative to make some kind of linking which is remarkably similar to generalisation

The limitations of this type of approach are, again, so obvious that they are not usually discussed. Theme-seeking, by definition, has to leave out what isn't amenable to description in terms of variables and categories, and it has to leave out what isn't amenable to some form of counting or measurement. Accounting for the ways in which things are different from each other is difficult; many aspects of the original context become lost; and anything which cannot be defined as 'key' also disappears. In addition, there are difficulties accommodating time and process, and the whole approach is premised on an attempt to discern traces of causality, even though causal processes are usually impossible to articulate. Although all of these aspects of phenomena are usually ignored, however, they are still 'there', in the sense of still being part of whatever it is that the researcher is looking at; but there are currently few conceptually robust ways of making such aspects of the data part of a research picture. It is here that complexity and dynamic systems theories may be able to help, by reframing some of the assumptions which underpin many forms of educational research.

A dynamic systems ontology

Complexity theory challenges the nomothetic programme of universally applicable knowledge at its very heart – it asserts that knowledge must be contextual.

Byrne, 2005a:97

'Complexity theory' (Cilliers, 1998; Byrne, 2005a), sometimes also referred to as dynamic systems theory (Fogel. & Valsiner, 1997), or as theories of emergence (Goldstein, 2000; Johnson, 2001), does not refer to a specific body of literature. Originating in the mathematical sciences, its ideas have been taken up in fields as diverse as archaeology, law, philosophy and management. Richardson and Cilliers (2001), in an overview of the many uses of complexity theory, define what they call three themes, or communities, in the literature: 'hard, reductionist complexity science' (which aims to understand the principles of complex systems), 'soft complexity science' (which uses complexity as a metaphorical tool to understand organisations) and 'complexity thinking' (which considers the epistemological implications of assuming 'the ubiquity of complexity'). More recently Byrne (2005a) has distinguished between 'simplistic' complexity (similar to the first of Richardson and Cillier's categories) and 'complex' complexity (which seems related to Richardson and Cilliers third category, discussed in the context of research methodology).

Not everything that is complicated is seen to manifest features of 'complexity'. Cilliers (1998) distinguishes between 'complicated' (having many parts, but each part can be explained – eg. a mechanical engine) and 'complex' (having many parts, but not all of which can be named, and not all processes involved can be tracked or described). With regard to the complex, Johnson (2001), following Weaver (1948 in Johnson, 2001), suggests that there are three types of scientific enquiry. The first deals with problems involving very limited numbers of variables, and concerns issues such as the movement of the planets around the sun (the approach underpinning Newtonian mechanics). The

second approach deals with problems which are characterised by ‘millions or billions of variables that can only be approached by the use of statistical mechanics and probability theory’ (2001:46), which he calls ‘disorganised complexity’. He suggests, however, that there is a field between these two approaches which deals with a still substantial number of variables, but with one crucial difference:

...much more important than the mere number of variables is the fact that these variables are all interrelated... these problems, as contrasted with the disorganised situations with which statisticians can cope, *show the essential feature of organisation*. We will therefore refer to this group of problems as those of *organised complexity*.

Weaver, 1948, in Johnson, 2001: 47 (italics in original)

Much large-scale social science research could be conceptualised as attempting to deal with ‘disorganised complexity’. However, although the complexity of the social world, taken as a whole, could be conceptualised as being characterised by ‘millions or billions of variables’, such complexity could also be conceptualised as consisting of a large number of smaller, overlapping types of ‘organised’, but open, dynamic systems. Cultures, discourses, practices, social groupings, institutions, and individuals could all be seen as ‘open systems’ which manifest different types of organisation.

A dynamic system is seen to consist of a large number of components which are interacting dynamically, at a local level (Cilliers, 1998), in response to the environment. The purpose of such interactions is to ensure the system’s continuing survival. The multiple interactions involved are non-linear⁴, involving complex feedback loops which continually adjust and modify both the ‘parts’ of the system, and the system itself. As the system is open, the interactions can also affect the boundaries of the system itself, and indeed have effects beyond it. The interactions, however, are always local, so that such effects are distributed, rather than emanating from any central cause (Osberg, 2002; Johnson, 2001).

If there is a sufficient number of these interactions, and if they take place over a sufficiently long period of time, specific forms of order⁵ will periodically *emerge* which benefit the survival of the system (Johnson, 2001). The behaviour of ants, for example, is believed to come about not as a result of the directions of a queen, but as a result of simple forms of chemical communication between individual ants, which relay information about local conditions. The sheer size of the number of interactions, and the fact that these take place over time, result in emergent behaviour at the level of the colony (moving away from danger, for example, or towards food). Similarly,

⁴ The interacting elements ‘are not connected in a linear sequence with a beginning and an end, but are rather interconnected in a web-like or non-linear fashion. This web-like arrangement means that information can be fed back on itself’ (Osberg, 2005). In other words, a) does not necessarily lead to b), and a) can affect itself

⁵ Weaver’s ‘organisation’; see above

neighbourhoods within cities organise themselves around social class, and cities themselves continually change and adapt, in ways that have not been planned.

Discussion of the unpredictability of emergence in this kind of description of dynamic processes is often misunderstood to imply randomness, chaos or non-determinism. Non-linear systems, however, are in fact understood, at least in some ways, to be deterministic, although the idea of determinism is perhaps differently nuanced in this context. There is causality, but not of the ‘a causes b’ kind. For some writers properties ‘emerge deterministically from non-linear rules of interaction’, and are thus ‘merely *unexpected*’ in relation to ‘the principles governing the lower-level domain’ (Osberg, 2005:169). For others, however, emergence suggests a more radical kind of novelty which cannot be traced back to antecedent conditions, however well these conditions may be understood (Goldstein, 2005).

Complexity theory is often misunderstood as seeming to suggest simply that ‘everything is very complex’, which ignores the crucial notion of emergent *order* as the sustaining feature of complex, dynamic systems. Here the difference in ontology is important, as order perhaps more usually implies deep-structure regularities which transcend the individual example (and which often can only be perceived by a researcher). Order in a dynamic system, however, is specific to that system, and is a part of its (constantly evolving, adaptive) structure; it is a dynamic system precisely because it has a coherence, an identity. Again, the notion of ‘coherence’ and ‘identity’ commonly imply static types of structure, with generative causes. The coherence and order of a dynamic system, is, by contrast, in continual formation, and is not the result of any central, determining cause. There is no gene, no heart, no key driver; only local interactions, responding to each other, periodically giving rise to changing forms of order which function to ensure the survival of the system. Emergence, order and coherence, however, also have to be understood in relation to the specific *constraints* of each situation, without which emergence cannot take place (and constraints are as much internal to the system as they are external; see below).

An institution, a culture, a group, a class or even an individual, could all be thought of as dynamic systems. Any such dynamic system has a particular starting point in time⁶, and a unique and particular history of interactions through time which has resulted in emergent properties which are specific to that system. Because of this particularity, the system itself is, in some important ways, always unique. It also, however, has multiple ‘presents’ at any one point in time, in the sense that such a system is always embedded within other dynamic systems, both larger and smaller than itself (see fig 1.).

An individual system is, at any time, partly constituted by interactions which are part of the dynamic structures of other, different systems. These other systems will have their own interaction characteristics, which, in the case of larger systems, means that different smaller systems within these larger systems will all be sharing in the same larger system interactions. Fig 2. attempts to show this as a diagram. Here, patterns of gender relations

⁶ The idea of ‘sensitive dependence on original conditions’ means that even small changes in original conditions can result, over time, in the emergence of very different types of system

are an example of one aspect of the interaction characteristics of larger societal systems. Such larger-system interactions themselves partly constitute the smaller system (in this case, an individual person), and act as a form of constraint upon that system's nature, and upon its future possibilities. As well as affecting and constraining the dynamics of the smaller system, however, larger system interaction characteristics are also *transformed* as they become part of the interaction patterns of the particular, smaller system. As the different types of interaction combine within the smaller system in specific and unique ways, patterns and forms of order will emerge which are unique to that system, and specific to its survival. This offers a way of understanding why larger system dynamics play out differently in each individual example.

Dynamic systems and educational research

Conceptualising research into the concrete and particular

This point of view not only accommodates an interest in the study of individual, specific systems through time; it arguably suggests an imperative to research and try to understand such systems further. In the absence of key drivers and underlying principles, Byrne (2005b) has suggested a need to shift from a focus on causes (which can never be observed) to a focus on effects (which can be).

Focussing on observable interactions and their effects within specific systems, however, implies both a different *position*, and a different *role* for the researcher. In most approaches, the researcher usually attempts to describe general patterns which in some way transcend (and thereby conceptually unite) manifestations of difference:

As Ely et al. (1997) describe, qualitative analysis and interpretation of data is similar to climbing a mountain. One gradually achieves a broader view of the data which is likely to be wider than that of the participants themselves.

Ridley, 2004:94

In this approach, the researcher is positioned not only as having a superior perspective, but also as always in some sense outside of the objects of analysis⁷. In attempting to create contextual knowledge from a complexity perspective, however, it has to be acknowledged that the researcher, whilst apparently outside some of the systems of interest, is nonetheless also *within* many of the systems which are relevant to what is being studied. Furthermore, even in a study which focuses on systems which appear to be clearly 'other' (individual people, for example), it is only possible to gain access to these systems by interacting with them. Both narratives and survey responses are *co-produced* by the respondent and the researcher, with what is commonly presented as 'data' could be seen, from a complexity perspective, as an emergence from the various sets of interactions in which the researcher is fundamentally implicated.

⁷ Though awareness of these limitations is well-established, it is not always easy for qualitative researchers to see that such limitations often apply as much to their own work as to the more 'scientific' approaches which they may be trying to counter.

This position within, and/or in interaction with, some of the different systems implicated in a study also implies a change of role and purpose. Instead of attempting to deduce underpinning or overarching general principles, the complexity-based researcher might be trying to define some of the interacting elements of the system, some of the patterns and types of interaction which are taking place, and/or the emergent effects of such interactions in the form of concrete outcomes. He/she may also be interested in looking at histories, and at evidence of different kinds of change through time. This change of position and role makes the researcher an integral part of the interactions which are being studied, distinguishing a complexity standpoint from phenomenological attempts to 'get inside' things which are other (premised on the possibility of researcher distance and an assumption that it is possible to 'bracket out' the researcher's involvement).

Where Byrne suggests that complexity implies a need to focus on effects (eg. what emerges from the interactions), Goldstein (2005) suggests a need to focus on the *conditions* which lead to particular forms of emergence or outcome. This is a subtly different from conventional approaches to cause and effect, in that the recognition of a relationship between conditions and emergent properties does not attempt to define any of the causalities involved. Causal relationships are regarded as either beyond reach of the researcher, or irrelevant, in the sense that emergence *simply cannot be tracked back to any particular antecedents*.

Combining these two approaches, the researcher's task could be seen as being a) to observe and note conditions (initial, historical, present, and interwoven with other systems) and b) to observe and note what emerges from such conditions. The path from conditions to effects crucially consists of c) multiple interactions. The principles of complexity theory (particularly in relation to the idea of emergence), however, suggest great caution in terms of trying to map or describe these interactions with any kind of precision (let alone in relation to 'key' aspects). One possible response might be to make no attempt at all to speculate about the links between these two aspects of the situation, and to focus solely on the nature of the conditions and the nature of the emergent effects. Though this may at first seem to be 'merely descriptive' (usually a criticism, in research terms) if the research is focused upon trying to map/understand a particularity within its own frame of reference (ie. in relation to its history, and its multiply connected 'presents'), then simply noting what kinds of conditions occur with kinds of emergent effects might be illuminating. Alternatively, the research might also attempt to analyse some aspects of the nature of the observable interactions. This would still be quite different from conventional attempts to deduce causality, or identify 'themes in common'.

Problems with the conceptualisation of context

Before looking at some early results from a research project based on these ideas, it is necessary to briefly examine one other problematic area to which this perspective might make a contribution. This is the conceptualisation of context.

I have argued elsewhere (Haggis, 2007a; Haggis, 2007b) that context, as a concept, is often vague and problematic, not only in terms of how specificity is supposed to link up to generality, but also in terms of the potential confusion caused by the conflation of the

different dynamic systems involved in a case. For example, interpretative studies which aim to elucidate ‘meanings in context’ will often attempt to do this, as discussed above, by means of a cross-sectional analysis of individual narratives. At the level of the individual transcript, ‘meanings’, however, do not so much relate to the group or class which has been defined as the case, but rather to the local contexts inhabited by the different individuals who have been interviewed. In terms of generative forces, it is arguably these individual contexts (which include but also go beyond the membership of the defined group or class) which have created the meanings expressed in the narratives.

When these individual ‘meanings’ are analysed cross-sectionally, however, the theme, or group of themes so created does not relate to individual life contexts, but to the context/group which has been defined as the case⁸. Paradoxically, however (given that individual contexts are not considered in the analysis), the theme is far more likely to be presented as information about the individuals as some kind of ‘type’ (e.g., ‘these adults are all motivated by career prospects’) rather than in terms of the context of the case (e.g., ‘this university setting, in the context of current political and cultural agendas, encourages these adults to talk about learning in terms of career prospects’). A cross-sectional category is not problematic as long as it is clearly referring to the dynamic system which has been bounded as the case, rather than the individuals within the case. But if the researcher is claiming to be trying to understand individual experience (in some cases, to ‘give voice’ to individual perspectives, though the idea of ‘voice’ itself has additional problems), then a comparative analysis of interview texts seems to contradict this intention.

Thinking of people and social/institutional/cultural contexts as complex, dynamic systems allows for the separation of at least three distinct types of context: 1) the contexts of the wider lives and histories of those being interviewed within the case, 2) the context of the case, and 3) the dynamic systems of culture and society within which the case is embedded. Anything which can be legitimately bounded as a dynamic system⁹ will have particular initial conditions, specific interaction histories, and will be interacting dynamically with specific and multiple ‘presents’, so that in any case study there will be *specific* manifestations of each of these (and other) types of context. Conceptualising these different types of context as dynamic systems allows the researcher to think about conditions and effects relating to the individual histories and current conditions of each different type of context, whilst at the same time recognising that all of these systems are implicated in each other, in terms of currently manifesting interactions.

⁸ Which includes the researcher, as well as the themes themselves reflecting the researcher’s conceptual framing

⁹ Discussion of this is beyond the scope of this paper. From one point of view, what is bounded as a dynamic system is the creation of the researcher, underscoring the point that from this perspective the researcher is conceptualised as being an integral part of the study in a way that is not recognised by many other epistemological approaches. However, most discussions of dynamic systems do provide certain criteria which would have to be met in terms of a definition (see, for example, Cillers, 1998); only certain types of phenomena could be described in this way.

A study into learning in higher education

This conceptual framing forms the basis of a longitudinal study into learning in HE which was carried out between 2000 and 2005. Situated in a perceived gap between academic literacies research (focussed on students learning to compose academic texts; see Lillis, 2001; Ivanic, 2001), and research into the learning of mature students in HE (focussed on the student experience in general terms; eg Webb, S.1997), the study was framed in relation to the following questions:

- How do Access students talk about learning, teaching and study when they come into higher education?
- How do they talk about the purpose of learning at university, and about their role as learners, and the role of their teachers?
- Does the way they narrate their understanding of learning and purpose change as they move through the system? If so, how? If not, why not, and what are the implications?
- How do narrated understandings and experiences relate to the development of academic literacy?
- Are current models of learning in HE sufficient in relation to the answers to these questions?

Each participant is conceptualised as a dynamic system with particular ‘initial conditions’, histories through time, and ‘multiple presents’ (context type 1), in terms of being embedded within and connected to many other dynamic systems. The participants are also seen as being dynamic components of various type 2 contexts. For example, they are members of a particular Access cohort, and they are in a specific higher education institution in the UK. When they join their undergraduate programmes they also become part of the various dynamic systems which make up specific disciplines (eg, history, psychology, politics, English). All of these different type 1 and type 2 contexts are themselves partly constituted by the interactions of larger cultural, social and linguistic dynamic systems (context type 3).

Though some results have already been published from the first phase of the project (Haggis, 2004a; Haggis, 2004b) the analysis of the overall project is still in progress. This paper will focus on the patterns emerging in the analysis of context 1: the contexts of the wider lives and histories of those being interviewed within the case. However, the analysis is also considering the ways in which individual narratives and written texts might be seen to be carrying traces of some of the interactions of contexts 2 and 3, in relation to the idea of conditions and effects.

The main sources of data were individual interviews (three carried out during the access course, the first of which took place before the course began, and thereafter once a year) and samples of written texts (all of the essays produced on the Access course, and a further two samples per year thereafter). Interviews were also carried out with Access tutors (many of whom were also lecturers on undergraduate programmes in the same university), some participants kept diaries, and there were a limited number of focus groups.

In terms of the analysis of context 1, the interview narratives were analysed longitudinally, focussing on patterns of language in the form of use of metaphor and imagery. These patterns were then considered in relation to a longitudinal analysis of the development of the structure and clarity of written texts. In addition, the analysis is

considering the narratives and written texts in relation to verifiable ‘facts’ about both past history (eg. parental occupation, post-school learning episodes, employment history etc) and the ‘multiple presents’ of each person’s wider life (eg. events such as being evicted, losing financial support, or breaking up from a partner; and conditions such as the nature of employment, or caring responsibilities).

Emerging questions from the longitudinal analysis of individuals as dynamic systems (context 1)

Looking at multiple forms of data relating to these individuals through the five years of their Access and degree experience suggests the following initial observations:

- It may not be helpful to talk generally about ‘learning’
- People may be far more different than researchers often tend to suggest
- In terms of understanding learning in HE, it might be productive to think of learning in this context as something dynamic, idiosyncratic and individual, rather than in terms of categorisable approaches (eg deep, surface, strategic etc) or as a collective activity (as implied, for example, by theories such as situated learning)¹⁰
- Re-considering who has ‘ownership’ of learning in institutional contexts may suggest new ways of framing lack of engagement or ‘poor’ learning outcomes

‘Learning’ and difference

The shift from individual/cognitive to social/participatory models of learning has created a much-needed space for the recognition of collective and interactive aspects of learning, which were clearly neglected by previous, largely psychological, models. This move could be used to talk about ways in which the different conditions and cultures of higher education may be working together to produce particular forms of learning. However, currently dominant versions of socio-cultural theory appear so far to have had limited effectiveness when applied to higher education.

As I have argued in relation to the model of deep/surface approaches to learning (Haggis, 2003), in this context theories such as situated learning may offer a way of thinking about how many *academics* conceptualise university learning, but may perhaps be less useful for trying to understand other points of view, such as that of students. Situated learning, however, may also be useful in a negative sense for articulating how conventional assumptions and attitudes may be producing various forms of miscommunication, or even non-learning, in the academy. For example, an academic may well see a student as a ‘legitimate peripheral participant’ in the community of practice associated with a particular discipline (Dysthe, 2006), but the student may have an entirely different understanding of university learning, which might not even recognise the existence of what academics see as ‘the discipline’ (see Haggis, 2004a; Haggis, 2004b).

¹⁰ ‘Dynamic’ and ‘idiosyncratic’ are themselves categories, but of a different kind. The point here is not to try to eliminate categorisation, but to question the basis on which many categories are formed, and to experiment with categorising in different ways, on the grounds of a different ontology. ‘Dynamic’ and ‘idiosyncratic’, as categories, also raise questions about the kinds of action/practice implied by research.

Socio-cultural models such as situated learning have a tendency to more or less eradicate individual subjectivities, and, by extension, to eradicate agency. In addition, the current dominance of particular forms of socio-cultural approach seems to suggest a continuing desire to find ‘the’ theory of learning, indicating an ongoing assumption that ‘the processes of the world’ are ultimately identifiable (Law, 2004:5). This search for an overarching metanarrative of learning arguably contributes to the continuing idea that learning is a kind of *mechanism* which can, at least theoretically, be described generically. And yet the data from this study, at least, suggest that when learning is studied longitudinally, on the basis of a dynamic systems ontology, not only is it profoundly individual, but the particularity of learning in each case is irreducible to any kind of general principle.

When viewed in relation to the ‘initial conditions’ of their lives (place, class, gender, parental occupation), and in relation to their specific histories (schooling, post-school learning experience, work history), the participants in this study were *profoundly different* from each other; far more different than might have been anticipated. It was, of course, possible to analyse the data in a way that could smooth out these differences and create patterns of potentially useful similarity (see Haggis, 2004b). However, looking from a dynamic systems perspective made it possible to see how this type of analysis would also obscure what were arguably important areas of difference in relation to individuals.

Furthermore, when the participants talked about ‘learning’, this was often framed in terms which were quite different from those used by researchers or lecturers. Though it might have been hard to understand this talk about learning if it had been analysed cross-sectionally, it became much easier to understand the nature of each person’s engagement with learning when considered in relation to their own conditions and history. Interestingly, though, at the moment that the nature of engagement with learning suddenly began to become clear, ‘learning’ seemed to disappear as any kind of recognisable generic entity. Learning only appeared to make sense in relation to each person’s overall engagement with life, and in these cases learning was always *subordinated* to this engagement with life.

Dynamic, idiosyncratic and individual; people in continuous formation

Another surprise was that although the participants were extremely different from *each other*, there was an unexpected degree of similarity *within* each longitudinal story. The participants were, in particular ways, surprisingly consistent within their own trajectories. This is not meant to imply that they had ‘stable, never-changing selves’¹¹ (Evans, 1999 in Knight, 2002), or that there was no evidence of change and development. The change and development, however, seemed to be framed within a remarkable consistency of metaphors and images over time. This consistency will be called ‘orientation’. ‘Orientation’ is a stance in relation to life, rather than ‘learning’; a particular and individual framing for the ongoing process of constantly repairing and creating a sense of coherence (meaning, purpose) in the face of change.

¹¹ There is no ‘core’ self in a dynamic systems view of the person, only an emergent ‘sense of self’, which is in continual formation

'Orientation' has some similarities to disposition/habitus (Bourdieu & Wacquant, 1992; Bloomer & Hodkinson, 2000), or to even to the very general idea of 'motivation'. In relation to disposition/habitus, the idea of orientation could help in creating a clearer articulation of habitus, which 'according to some critics is... notoriously elusive' (Marshall, 1998). But it may also differ from habitus. Although Bourdieu presents a subtle description of the interplay between habitus and field, and between agency and structure (Colley, 2003), this subtlety often seems to become lost as others take up his ideas. Habitus is often presented as being the creation of forces of wider social structures, and Bourdieu himself has been accused of structural determinism (Jenkins, 1992 in Bloomer & Hodkinson, 2000).

Orientation, as used here, is not the embodiment of any kind of structure, whether social, cultural, or 'deep'. It continually emerges (in the 'radical novelty' sense of emergence) from the interactions of the various interlocking dynamic systems which make up the practices and awareness of the individual. The interactions of larger social, cultural and linguistic systems neither 'impact upon' nor are 'deposited within' the embodied individual, as the individual is themselves partly *composed* of interactions which simultaneously form part of the larger dynamic systems within which they are embedded. Within the dynamic system of the person, the interaction characteristics of larger social and cultural systems manifest as forms of constraint which limit the nature of the continually-emerging orientation. The orientation itself, however, is always unique to the specific system, because of the particularity of its conditions and history¹².

Of particular importance to this discussion is the observation that each person's engagement with learning was consistent with their overall orientation towards life, as expressed through metaphor and other linguistic forms. To look briefly at two examples: Sheila's orientation was defined as 'tentative exploration'; a desire to reach out and know more, but a reaching out which was restricted to a kind of refinement, rather than a desire for any kind of radical reconstruction of her world. Patricia, on the other hand, seemed to be driven by a determination to overcome a sense of alienation and exclusion which she had felt for all of her life; though she did not present this as a reason for sympathy or pity. She made jokes about how she learnt to defy her own social

¹² Orientation is dynamic, and furthermore may encompass a great deal of variety. Such variety is often described as being 'contradictory', leading to ideas of 'multiple selves' and of individual fragmentation (pomo ref). The idea of contradiction, however, reflects an expectation of coherence and stability. From a dynamic systems perspective the person is not stable but is in constant flux; he or she may hold opposing views simultaneously, or express opposing views at different times; juxtaposing a wide variety of different elements in different ways, for different purposes, according to the physical and social contingencies of the present moment. In the face of the ongoing change and contingency of experience the interactions that make up the person-as-dynamic-system continually sort and organise themselves into the arrangement which works best to survive the present moment. Orientation is thus not any kind of genetic or personality blueprint, but rather the shape of individually patterned tendencies of action and response; habitual pathways which have been laid down through time ('path dependencies' Law, 2004), and which have proved to be functional in terms of helping the system to maintain itself. From this perspective, the person does not 'consist of multiple selves'; rather it could be said that 'sense of self' is a dynamic process, which is constantly working to maintain and create a sense of its own coherence (meaning, purpose) in the face of change.

positioning, and to take control of social and employment situations on her own terms. These overall orientations, in each case, framed the many discussions about academic engagement (in particular, learning to write for assessment), which took place over the five years.

Sheila ('tentative exploration') starts off hopeful and excited about what she feels she is going to learn. As time goes on, however, she finds that the difficulty of trying to 'work out what they're looking for' becomes quite dispiriting, particularly in the context of the changing demands of her family (her daughter has a baby and begins to need more of her time). Her ambitions to answer her own philosophical questions, and to become more 'knowledgeable' and authoritative in social conversations gradually become reined in as she takes a more strategic approach to simply surviving and trying to maintain her grades. Patricia, on the other hand ('determination to overcome alienation and exclusion'), maintains her humour and resilience throughout five years of full time study during which time she leaves her husband, learns to live on her own, and fails a succession of exams and a social work placement. Determined to conquer what she describes as 'psychological hang-ups' about writing (which she feels go back to her catholic education), she is driven by a conviction that facing up to her problems with writing and education will help to uncover a part of herself that has always been obscured¹³.

Whilst orientation offers some possible explanations about the nature of academic engagement (which may have implications for retention and progression), however, it only goes part of the way towards making sense of the actual outcomes of learning, in terms of the participants' essays and grades. Discussion of this will form the basis of a further paper. In brief, despite tremendous tenacity and hard work, and in some cases quite high levels of literacy, the written outcomes of the participants' very different experiences and practices of learning were often surprisingly limited.

Whose definition of learning and change?

As has already been mentioned, the way that these students define learning, and their own sense of whether or not they are being successful, is often framed in terms that are very different from the ways that either researchers or lecturers would describe learning or success; leading to questions about who has ownership of definitions of learning. There is also a question about whether or not the types of learning and change which were evidenced in the data (both in participant talk, and in relation to writing) would have been recognised by the university. For example, if some lecturers do not recognise (or, perhaps, accept) that a number of students now enter HE with very little experience of reading the dense genres of academic text, or of structuring even the simplest forms of extensive writing, how might development in either of these areas be recognised? Patricia, for example, moves from being paralysed with fear in relation to any kind of writing, to being able to hand in an essay without going into an almost catatonic state for a number of days afterwards. The institution has no way of (and no interest in?)

¹³ Extremely resourceful, she works with a local literacy tutor for years, before finally taking herself to be tested for dyslexia in her final university year. In spectacular example of the failure of context 2, the university system, her dyslexia is confirmed just at the beginning of her final semester.

recognising this kind of development. In another case, Will expresses continuing frustration about not being able to get what was in his mind 'out onto paper' in the way he wants, despite the fact that his essays are passing with average grades. Here, the development that he is seeking is not occurring, despite the fact that the institution appears to be telling him that his work is relatively successful.

'Learning as use?'

In terms of agendas for learning, it is teachers, disciplines, and sometimes policy-makers who define what is to count as learning in a given (institutional) situation. Teachers want students to engage in the ways that they think are useful, and it is they, and the curriculum, who dictate the nature of the use to be made of the experience and the material (this is seen as the purpose of education). And yet, in this study, it could be argued that the participants are using institutional opportunities and practices for *their own* purposes; that participation in higher education is an act, and an ongoing commitment, aimed at making sense of, or sometimes even making, their own personal and social worlds. HE is being used to make something better (I want a degree because I want more money; I want to do something more interesting); to reframe, or re-construct (I've lost my partner and I need to find a way out of my depression; I'm lost to myself, and I want to understand why); to explore (I've always wanted to know more about this); or to survive, in a philosophical, existential sense (I'm going to go mad if I can't find somewhere to talk to about the Buddhas of Bamiyan when my co-workers just talk about the tabloids). In contrast to Sfard's (1998) idea of 'learning as acquisition' or 'learning as participation', this could be thought of as 'learning as use'.

Taking the idea of 'learning as use' a little further, perhaps some students are actively engaged in a *refusal* to 'use' HE, or to use it as little as possible ('resistance?'); or they might be using it strategically because of other, more pressing commitments. Even an apparently disengaged learner may be, in this sense, 'using' their course of study, but perhaps in a way that either makes no sense to teachers or researchers, or that makes *different* sense to that which educators had in mind. Alternatively, and this relates to the relatively minimal progress in writing exhibited by the participants in this study (and possible future areas for research), a disengaged learner may simply be *unable* to use what is going on in HE; either for their own purposes, or for anyone else's, because of certain features of context 2 (the interactions of the university or discipline) which may not yet be well understood.

In contrast with the idea of 'learning as acquisition' or 'learning as participation', 'learning as use' presents a view of engagement with learning as an act of agency on the part of the learner, rather than as a cognitive mechanism, or as a set of disciplinary or social practices (though, importantly, it may be all of these as well). 'Use' for these participants is not a disembodied, individualistic type of 'motivation', but a continuing process of engagement in a variety of dynamic webs of social process and practice. In terms of 'retention' in the system, these people-as-dynamic-systems appeared to remain academically engaged *for as long as the engagement continued to function* in terms of

making social, emotional and psychological survival more pleasurable, manageable, or possible¹⁴.

Understanding learning in HE

A general category such as ‘surface approach’ (Prosser & Trigwell, 1999) indicates that students are not learning in the way that tutors want them to, but it cannot say anything about *why* a student takes a surface approach, or very much about the detail of how this approach might manifest itself. Studying students individually and longitudinally, particularly in relation to the idea of orientation, however, appears to be able to answer both of these questions.

This longitudinal analysis of individuals through time also raises questions about the limits of describing students as taking a surface approach. In these narratives, aspects of discourse (and some features of written texts) which could be interpreted as indicating a surface approach were contradicted by other aspects of the same discourse, which suggested a deep approach. This was not problematic for the participants, but it raises questions about current understandings of the nature of students’ engagement (which go beyond the idea that different pedagogic contexts may ‘produce’ different approaches). Furthermore, when the data was analysed from the perspective of context 2¹⁵, language use which might in a normal, cross-sectional analysis be seen as an indication of a surface approach took on a different aspect when considered in the context of the additional longitudinal information. For example, talk about knowledge as *object*, *possession* or *output* may cross-sectionally suggest ‘a conception of knowledge as the acquisition of facts’ (Prosser & Trigwell, 1999). The use of this talk when considered in the context of longitudinal information, however, appeared to be more a discourse generated in relation to half-formed memories of school, rather than any meaningful representation of ‘the way the student sees knowledge’. More importantly perhaps, the use of this discourse appeared to be *the only strategy available* in relation to evidence of institutionally-created confusion.

The study also raises some questions about a second, more sociological approach to researching learning in higher education (see Archer et al, 2003; Reay et al 2002). Although intending to focus on the ways in which individuals are moulded and formed by structural features of *society*, sociological analyses often end up simply creating a different way of pigeon-holing and stereotyping *individuals* (a ‘working class woman’; a ‘black male’ etc). This kind of research also has a tendency to present research about specific groups (in this case usually those entering HE under ‘widening participation’ initiatives) as cumulative, appearing to suggest that it may be possible to define underpinning structures and principles which explain, if not the characteristics, at least

¹⁴ For two of the participants, who appeared to have no less determination than the others (but both of whom were part-time and had young families), a number of different things eventually worked together to produce a situation where the best possibilities for social, emotional and psychological survival lay in leaving the education system

¹⁵ Here a cross-sectional comparison is possible, in terms of the problems outlined previously. The longitudinal data is conceptualised as carrying traces of the interactions of the dynamic system which is the case (eg. this access course, in this university).

something meaningful about the experiences of certain types of groups of individuals¹⁶. Though attempting to draw attention to structural inequalities and the differential effects of power, this kind of work has a tendency to reify students as sociological types, or to label them in relation to certain sociological categories (eg possession or lack of ‘social capital’). These epistemological processes, and the ontologies which underpin them, can work to obscure what can also be important differences amongst students. For example, in the study being discussed here, there are two ‘working class’ men who come from a similar part of Scotland, are of similar ages, and who share similar social backgrounds. The way that the two men engage with learning, however, is extremely different. For one of them, learning to write essays is experienced as an enormous struggle; for the other, everything about university, including writing essays, is an exciting adventure.

Possible implications

Studying experience longitudinally, and in detail, is a reminder of the level of difference which may be hiding within generalised categories and themes, and of the dangers of over-application of any kind of research category (eg. ‘learning style’). The extent of this difference is particularly relevant in a market-oriented climate which suggests that it is both possible and desirable to diagnose and meet individual ‘learning needs’.

The implications of this study are in some senses paradoxical. On the one hand, it has been argued that when individuals are studied as dynamic systems with histories through time, the nature of their engagement with learning ceases to be mysterious. This suggests that, from a complexity perspective, there could be new reasons to try to understand learning as an individual process¹⁷. Not only is formal learning assessed individually, but, from a complexity point of view, the nature of individual outcomes, and the reasons that they manifest as they do, are likely to be particular to each dynamic system. In this study, a close investigation of this particularity made it possible to understand learning differently.

However, if people-as-dynamic systems engage with formal learning in ways that are to some extent always unique, then the logical consequence of this approach must be to accept that students are, in one sense, always unknowable. Although learning may, perhaps, *be* understandable, such understanding is usually *not available* in most situations. In this sense, the most important implication of this dynamic systems investigation of context 1 might be that it underscores the need to shift to investigations of context 2. This returns us to the possibility of examining how the different conditions and cultures of higher education might be working together to produce particular forms of engagement and outcomes of learning (a complexity re-framing of a socio-cultural approach).

¹⁶ Some sociological research could be conceptualised as the study of the interaction characteristics of larger social systems, which would be consistent with a complexity approach. But the focus on structure in this type of research often contains the assumptions that such structure ‘underpins’ social phenomena, and has a tendency to privilege social structure over human agency

¹⁷ With the individual, however, conceptualised in a very different way

This overall approach, and the questions raised by using it in this particular study, offer a particular framework for thinking about a shift which is being suggested in a number of current literatures concerned with learning. The academic literacies research in higher education (eg. Lillis, 2001; Ivanic, 2001), for example, is arguing for a move away from a 'study skills' focus on the individual towards an attempt to understand cultural discourses, attitudes and practices in specific disciplinary contexts. A similar move is being suggested in areas such as mathematics education. Keiran et al (2003:1), for example, have suggested that 'the language of mental schemes, misconceptions and cognitive conflicts' is 'giving way to a discourse on activities, patterns of interaction and communication failures'. More broadly, the idea that cultural attitudes and practices may themselves be considered as a possible cause of students' failure to learn (Haggis, 2006) could be seen as an extension of the principles of the 'social model' of disability (Oliver, 1983). This model argues that the conventional, 'medical' approach to disability constructs impairment as a deficit; categorising, diagnosing and trying to 'fix' people who are defined as different to a particular societal norm. By contrast, the social model suggests that it is the values, attitudes, and practices of society which create what is experienced as disability (Swain et al, 1993; Oliver, 1983).

In the context of higher education learning, these different perspectives all suggest a need to move from the current focus on individual types (whether psychological style, 'approach to learning', or sociological category) and their defined 'problems', towards a concern for a better understanding of some of the *processes of interaction* involved in the various contexts of formal learning (for example, the interactions which take place in seminar groups; the specific effects of particular institutional cultures and practices; effects of the social and cultural interactions of specific disciplines). In relation to learning, this move changes the framing of the 'problem' from a static, condition-based view of the individual learner to a more dynamic, process-based view which tries to identify problematic aspects of higher education discourse and practice. The question then changes from being 'what is wrong with this student' to 'what are the features of the curriculum, or of processes of interaction around the curriculum, which are preventing some students from being able to access this subject?'

The overall focus on process suggested by a dynamic systems perspective, and the possibilities offered by a complexity reframing of both 'context' and of 'the individual', appear to offer a way of conceptualizing and researching these new areas of concern on the basis of quite different ontological and epistemological assumptions to those of established educational research.

A shorter version of this paper was given at '*Challenging the orthodoxies: alternative approaches to educational research*' in December, 2005, Euston Hilton Hotel, London. A version of the paper was also presented at the '*Context, communities, networks: mobilizing learners' resources and relationships in different domains*', ESRC TLRP Thematic Seminar Series in June, 2006, University of Stirling and at the *Higher Education Close Up Conference* at the University of Lancaster in July 2006.

Fig 1
System trajectories

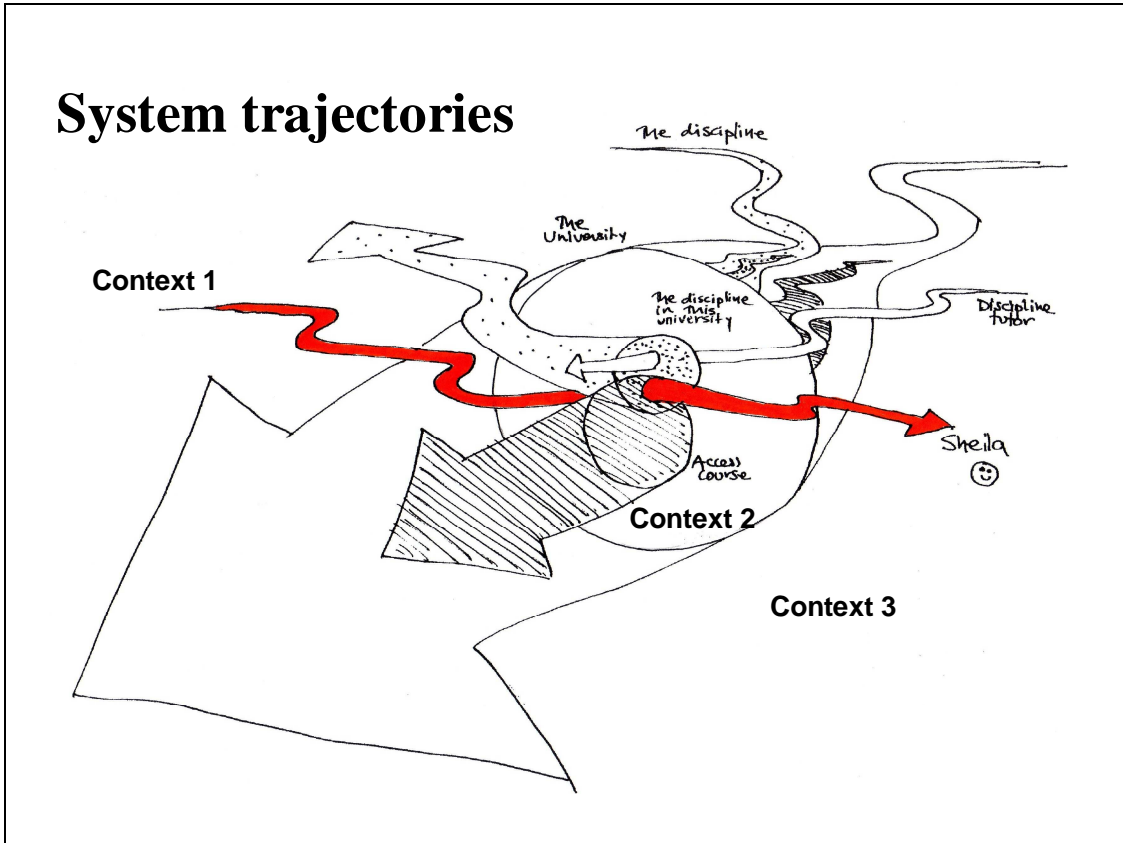
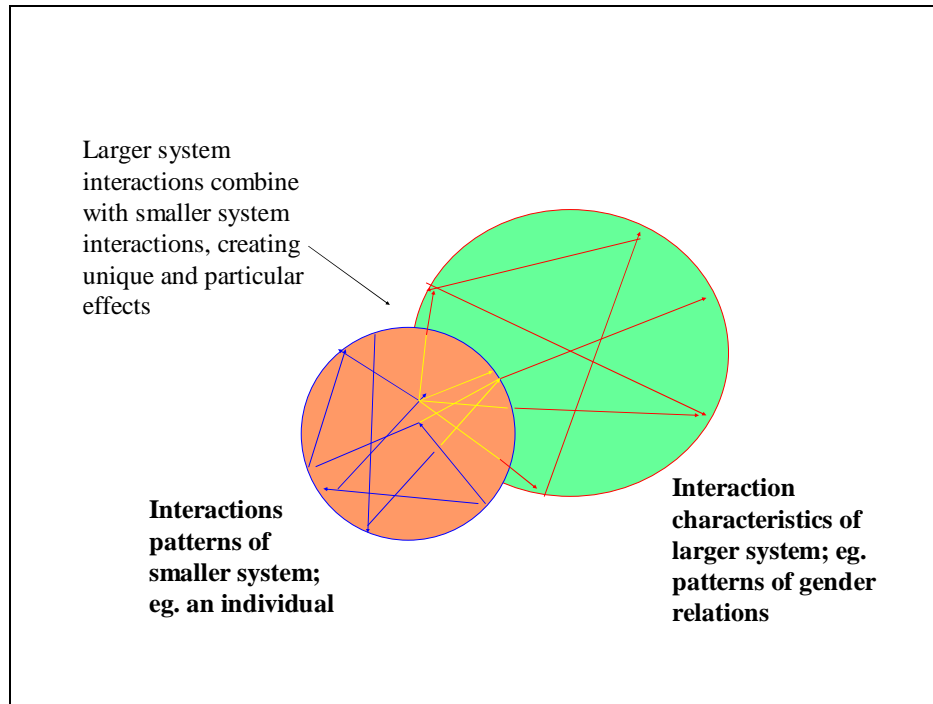


Fig 2

System linkages



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