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Seven Types of Creativity: looking for insights in data analysis

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ABSTRACT *This paper is a preliminary attempt to address the issue of what has been called the 'research imagination'. It argues that much of what we count as research does little to foster innovative ways of handling the issue of data analysis. It adopts a position of anarchic disenchantment with the rigidity and conservatism which constrain research activity. Research, it is argued, like other forms of literature, can enlighten, destabilise and enhance critical discourse. To do so requires a reflexivity concerning its own operations and frames of reference. Some practical suggestions on how to be more innovative in research are offered as a starting point.*

It may be said that the business of analysis is to progress from poetical to prosaic, from intuitive to intellectual knowledge; evidently these are just the same sort of opposites, in that each assumes the other is also there. (Empson, 1930)

Recent Context

One of the more provocative British Educational Research Association (BERA) debates at Stirling University in 1992 took place in the symposium concerning qualitative data analysis. Its substance revolved around the messy world of qualitative research. Contributors such as Hammersley, Burgess and Rudduck aired in public some of their concerns with grounded theory approaches to research. Judging by the effect on some of the audience, it was unsettling in the extreme.

Among the speakers there were those who admitted that they retreated from grounded theory into forms of hypothetico deductive logic when the going became too desperate. That quantification provided answers, at least to the problem of satisfying the funding agency, when qualitative data had seemed to provide a permanent regression of questions. There was a startling account of wholesale confirmatory qualitative data from East Germany, which subsequently amounted to an entire teaching profession's conspiratorial lie. And, for this author, the emergence of a theme which continues to seep into the debate concerning data analysis but which is rarely admitted as a major issue. What

was intimated was that the difference between hack research and research which might make a difference to its field of understanding, or its immediate audiences of actors, often resulted from the imagination of the researcher—not from the painstaking reordering of indisputable facts but from the creative mind. This, it was felt, might be true equally for the quantifier and the naturalistic enquirer.

This invocation of the 'research imagination' has striking resemblances to explanations of other mysterious cognitive processes which the skills and competencies curriculum cannot tie down in materialistic or behaviouristic language, those aspects of teaching and learning which, in their implicit ways, transform individuals in the classroom but defy theory and even, sometimes, speculation. It was comforting to know that our leading researchers fall back upon something akin to the classical thesis of the muse, the divine effluvia, when self-analysis fails to secure for them a theory of what constitutes quality in data analysis. Nor is this intended to be cynical or satirical. Textbooks rarely contain accurate accounts of how little in research is utterly systematic when it comes to transformative acts of data analysis.

Yet BERA symposia may be seen as living textbooks. Many come merely to learn, passively from their peers. Presentation as text is these days central to our postmodern gatherings, reception theory an explanatory form for audience engagement.

Why did people come to this particular symposium? Some because they wanted to know how to practise data analysis, utilising grounded theory. A few because they wanted to be reassured that there were not any certainties of approach. This impression was seemingly triangulated across individual paper sessions and other symposia. There were those who were desperate to know how things should be done and those who were happier having mud baths in the mire of ambiguity.

In many ways the problem is more typical of qualitative than quantitative research. When we hear the term 'qualitative', all the associations which tend to follow it, like the trail of a snail, suggest ambiguity, compromise, pragmatism, Wittgensteinian games, subjectivity and relativity. It is often easier to attack and caricature the comatose body of positivism than to show how naturalistic enquiry is a breathing, authentic reality. So the question of how data analysis can be conducted, utilising grounded theory approaches, foundered in the dialogue between those suburbanites wishing for order, street lamps, and the security of a pavement, and those ruralists, eschewing safety, who preferred the topography of the wild moors.

Imagination and Codification

Taking up some of the issues of this debate, this paper examines the process of analysis. It is not assumed that analysis is a summative operation, that it happens at the end of intensive data gathering, a fitting together of the pieces as in detective fiction. Some researchers do it that way, of course, claiming that interpretations would be pre-figured, otherwise. They claim that in the interests of neutrality, they avoid interpretation to the end. Others take the opposing view that the researcher analyses as s/he goes and is best served by making this formative interpretative process explicit. The former falls foul of the implicit theories and experiences within the researcher's biography which blinker or channel perception (Reichenbach, 1938). The latter commits the possible sin of a too premature justification of interpretations, leading to a mind-set which cannot see alternatives thereafter.

Whatever the approach, there are problems inherent in the way that data are utilised in explanatory accounts. Within research and evaluation projects data are categorised,

schematised, patterned, weighed and prioritised into 'plausible stories' (the term used in the BERA symposium). The continuing running battle between the scientific view of research and the hermeneutical view of research spills out in any debate on the quality of data analysis. The greater the use of the imagination, it is contended, the less rigorous and valid the interpretation; the greater the use of strict patterning, according to well-developed and explicit criteria, the more valid the end finding. The opposing view is that highly interpretative accounts may be seen to be closer to the spirit of the times and the prevalent understandings under consideration. Strictly controlled attempts to codify and categorise the research process lead to stilted and lifeless renditions of the human conditions.

Strauss & Corbin (1991) represent one end of the qualitative spectrum with a framework of careful and comprehensive codification. For them, data are broken down into categories and subcategories which can then act as units for reformulation into new interpretations. At the other extreme, researchers such as Moustakis (1990), Winter (1986) and Walker (1982) operate much closer to research journalism. Here, the attempt is to maintain a holistic correlation between data and rendered account, either through phenomenological acts such as empathy or through the power of metaphor to portray more closely, likenesses.

We must accept at the outset that in analysis the optimum that can be achieved is partially prefigured by research design and research methods (Burgess, 1992). It would simplify greatly the coherence of this paper to concentrate upon what happens after these phases, when you try to make sense of what you have gathered, whether on the day, or several days later when the mound has grown intimidating in the researcher's data store. But these relationships need exploring. Research remains a composite and interrelated set of activities, riddled with persistent ideological and epistemological assumptions.

The central question in research design and research methods, as far as their impact on analysis is concerned, relates to whether these aspects are seen to be causally connected to analysis or whether analysis is merely in a contingent relationship with them. In other words, if, as with Strauss & Corbin, grounded theory depends upon a set of logical relations between research conception and research outcomes, then analysis is already pre-figured within the process. The whole process may thus be akin to painting by Stanley Spencer, starting with the shapes, drawn in and filling in the colour, later.

The less mechanistic the approach to design and data gathering, the more the data at the end of the day create coherency problems for the analyst. Keeping all the variables screened in maintains a holistic integrity in the data but presents the analyst with complex multidimensional possibilities which deny simple or linear explanations. A middle ground between these approaches utilises progressive focusing, whereby the boundaries of research are drawn wide at the outset and are then tightened, like a noose around what is imagined to be the significant neck of the data.

A question which arises here is the critical posture of the researcher. This determines the essential scepticism with which the data are regarded. Data can have levels of intrinsic significance to any researcher, depending upon theoretical leanings, personal needs or cultural imperatives. The question usually concerns representation. In other words, of what is the data a representation? Are the data representative of everyday reality (Bhaskar, 1975). Are they representative of the social, psychological and political forces which influence actors' beliefs and perceptions (Habermas, 1974)? Or are they representative of an epistemic level beneath even the latter, the regulatory mechanisms which give rise to the language and concepts which help determine the way that actors and researchers, separately, and together, theorise in the first place (Foucault,

1974)? Where you feel yourself to be on this spectrum will determine how you use data. For the naturalistic enquirer it is usually enough to frame everyday reality, posting merely the perceptual understandings of actors within the case. For critical theorists, there is a need to determine the degree to which these actors are consigned to their perceptual fate, by developing social and political exegeses to explain their behaviour.

For the postmodernist language philosopher, data are arbitrary and are therefore vulnerable to a wide variety of analytical operations. The authorship of the data, in the form of actors' statements, may be denied and the entire process of data gathering, together with the data, seen to be a composite artifact regulated by arbitrary historical currents. In this extreme view of data, even intersubjective reality is an effect of epistemic underwriting. The value of such anarchic dissection remains, however, more philosophical than practical. Whatever the false consciousness, the blinkered conditioning, the passivity in the face of endemic cultural power conflicts, research in its applied forms remains substantially locked in the predicament of the everyday. At most, the underlying or inherent forces operating on or within individuals may be noted but it is to more prosaic relations between actors and actions that researchers are forced to turn in order to maintain their livelihood.

The debate between these views of data comes down, therefore, to the degree to which data are accepted as authentic indicators of life as lived. Eagleton (1983) put it pithily, as follows: "An interpretation upon which every one is likely to agree may be regarded as a fact". Even accepting, at the extreme, that they are the outward signifiers of an arbitrary melee in which we struggle, creating meanings as we go, nevertheless they are all we have. To some extent we have to remain within our frames of accepted behaviour in order to survive. These may be seen to be active discourses *à la* Habermans, language games *à la* Wittgenstein or paradigms *à la* Kuhn.

Research for Action

The world of those we research needs to be re-presented by researchers to actors in accessible and recognisable forms. Researchers may then tug critically at the fabric of that reality with interpretation, recommendation, imported understandings, wider portrayals in which that reality is embedded, both historical and social, and through the use of language, itself. The discourse in which actors are embedded when the researcher finds them, is disrupted by contagion with the research discourse—however that becomes manifest. If the gap between them is too great, the research discourse will be rejected or, worse still, remain inaccessible owing to its lack of familiar feature. In terms of research having the means to generate action, it must accept some of the conventions of its actors. Another way of expressing it is to say that it must obey, to a sufficient degree, the social constructs of the population being studied—the prevailing paradigm.

Because of rapid changes of philosophic outlooks this century, the present-day consensual view of reality of the person in the street seems largely a mixture of prevailing scientism and a weak form of relativism. Research work, consequently, faces mixed demands for validity, relating it to objectivity and generalisability, whilst also requiring some evidence of plural viewpoints. Thus, qualitative research defends itself by invoking justificatory processes such as triangulation, mutuality, cultural agency, reliability, trustworthiness and reflexivity. Rupturing this context, in order for the light of new understanding to enter discourse, is the art of research. It is sometimes this process which becomes labelled 'creative'. For Kuhn (1970), the accidental, premeditated or cumulative fracturing of existing paradigms is the only way that science truly advances.

Creative Analysis of Qualitative Data

Strauss & Corbin (1991) allow creativity into a very orderly scheme of analysis by suggesting that manipulation of categorised data is, itself, a creative enterprise. However, this seems a distant relation of more popular understanding of the term creativity. Their view conflates creativity with 'theoretical sensitivity':

Theoretical sensitivity represents an important creative aspect of grounded theory. This sensitivity represents an ability not only to use personal and professional experience imaginatively, but also literature. It enables the analyst to see the research situation and its associated data in new ways, and to explore the data's potential for developing theory.

They walk the careful line between wanting their approach viewed as science whilst accepting that creativity is, nevertheless, a formative ingredient. They deal with the latter by application of formal procedures, to ensure that the creative elements are systematised. There are computer programs now which can sweep through qualitative data and help the researcher pattern and cluster words and phrases. Are they, therefore, in Strauss & Corbin's terms, creative?

Giddens (1991), more typically, pays faint scientific compliments to Strauss and Corbin's creative imagination by demoting it to a skill in sociological research: "A large part of the skill of identifying worthwhile sociological research consists of correctly identifying puzzles". Again, the theme of undue respect for scientific convention is apparent. It is mainly in very general philosophic statements that writers on methodology accept a fuller view of creativity in the analytic process: "Imagination is our means of interpreting the world" (Warnock, 1970). A strong critique of the orthodox delimiting of creativity in qualitative (and other) research would suggest that its rewriting as puzzle solving, or mechanistic ordering, is the result of a regulatory power principle which seeks to justify research institutions' hegemony within society. Accepting the essential anarchic presence of creativity within research liberates discourse in unpredictable ways.

Bohm & Pleat (1988) explore this issue by looking, as Kuhn did, at how new knowledge comes into being. They draw a distinction between the reordering of knowledge, "endarkenment" and insightful change, "enlightenment". The reordering of knowledge remains part of the hidden conservatism of research discourse whilst insightful processes remove blocks and fixed conceptions about the world we inhabit. The former is a passive, abstract knowledge waiting to be used and reordered in our data stores whilst the latter is active and, similar to Polanyi's (1969) notion of tacit knowledge, is an uncontrolled but vital part of us which can be let loose in our interpretations of the world. Famous examples abound regarding the way in which imagination has pointed the direction of new knowledge; Newton's prefiguring of gravity, Einstein's of relativity, Kekule's vision of the snake eating its own tail giving him the key to the benzene ring. The visionary experience in all cases was prefaced by intense periods of concentrated work. The vision paved the way for a third phase, that of developing the insight as a hypothesis which could be developed into formal, logical structures of knowledge. Without these imaginative leaps, formal structures continually lead us back into what we know already.

The difficulty for qualitative research is that, unlike the work of the eminent figures cited above, the researcher is not trying to solve highly focused problems. Rather, the field tends to be a diffuse, implicated set of interrelated issues which include the researcher, the impact of the research and a process of continual contemporaneous change. Whilst imaginative responses to problems abound at every level and phase of

research, they never appear as significant as the above examples from the history of scientific ideas. However, drawing together personal experience, the literature of the imagination and some trawling of the research literature, what follows are seven ways in which mundane research might be able to transcend its role as a conservative mirror of the field of study. They may represent a way towards paradigmatic erosions and shifts which are vital to the critical movement of thought and action in both the research community and for the person on the street. Needless to say, what follows can be used as much to obfuscate critical thought as to illuminate it.

Seven Types of Creativity in Data Analysis

Seven types of creativity are included here. They are not the complete set, obviously, nor are they mutually exclusive but it was with Empson's book (1930) as a starting point, quoted at the beginning of this paper, that I was led into its writing. Rather than see them as separate approaches or strategies, it is better to accept them as having some distinct characteristics and some degree of overlap.

1. Labels and Categories

The commonest technique in drawing attention to a problem, be it old or new, is by introducing a label which contains novel metaphoric characteristics. Thus, terms such as juvenile delinquency, maladjustment, progressive schooling, student-centredness, sink and magnet schools, democratic evaluation, action research, thick description, a snapshot in time, illuminative evaluation, paradigm, may precipitate and enrich initial debate; but only initially. Labelling and categorising is an intensely competitive business. Without substance to underpin new language, it can lead quickly to endarkenment. The hit parade of 'in' terms changes rapidly.

In an attempt to offset researcher domination of the 'naming of parts', John Schostak and I (Sanger, 1989a) appropriated the labels and categories that teachers invented or commonly utilised in their discourse, to guide us in finding significance in data. Terms such as agenda, disconnected question, negotiation or social chat, produced vital new directions for the action research team, a power-sharing over language and new ways of constructing consequent explanations of classroom experience.

Disconnected questions, for example, led us to follow up any questions from students which seemed unrelated to the content focus of teaching and learning. Teachers tended previously to discount, evade, ignore or not hear such questions. By following them up, the researching group were afforded entry into students' learning strategies, learning hierarchies and agendas of concern to which they had previously been excluded.

2. Methodological Imports

The introduction of methodological approaches from other fields is a common procedure in energising the research process. Whether such imports are being used as explanatory metaphors or as strategic models, the effect on the way we see data can be, at the least, cathartic. Thus, educational research and evaluation discovers literary criticism, connoisseurship, therapy, action research, a range of sociological variations, fiction, biography, feminist distrust, reception theory and so on.

Two examples that have affected my own practice are homoeopathy and Roland Barthes's musing on photography. Studying the way that homoeopathy is said to effect

cures, in contradiction to mainstream or allopathic medicine, provided an insight into a way of conducting evaluation. Essentially the homoeopathic practitioner attempts to treat the whole person by providing a poison which elicits the total range of symptoms that the patient is presenting—albeit in extraordinarily insignificant dosages. These tiny doses can be ‘read’ by the body, which raises its armies of immunity to the poison—and thus to the prevailing illness, *which had, hitherto, completely besieged the body’s power to diagnose what was wrong*. Utilising this model in social settings led me to re-present small, representative examples of the worst excesses, problems, concerns, interactions, decisions to individuals and groups, for their reflection. Wholesale re-presentation of data could lead to a spiral into further trouble. The art became to find the right dose, the perfect selection from the data. For individual teachers it might be a speech pattern, an element of body language, one aspect of classroom management; for organisations it might be the setting for meetings, an assumption about democratic representation through use of working parties or the prevailing metaphor staff use to describe it. Utilising the homoeopathic model has helped me ration and refine evaluative feedback—in other words, analyse what might be therapeutic in data.

Roland Barthes in *Camera Lucida* (1982), utilises a similar technique but for personal, therapeutic, illuminative purposes. By searching photographs for two methodological elements, which he calls the punctum and the studium, he raises his critical interest in those photographs which have explanatory or generative power. The studium is the term he uses for the field to which the photograph belongs, e.g. family portraits, nudes, war, landscapes. The punctum is that, usually singular, item within the photograph which creates a focus of disturbance in the observer. It might be a shirt, a belt, the sheet being carried to cover a body in a street or the way a hand is flexed. For me, it has raised awareness of which data I might be drawn to in my own studium (the classroom, the canteen, the playground, the shop floor); and the elements within each studium which arrest my attention, cause a frisson—and why. Thus it is that data become signified at the outset which have an explanatory power through their capacity to disrupt the field of understanding—or that are discovered later to have the Barthian gift of generating insight (a notice-board, the placing of the teacher’s desk, the organisation of the reception area in a school, the way hands are raised in a particular classroom). It leads us back into the familiar, with the presence of mind to try to review it as possibly exotic.

3. Theoretical Imports

Being challenged critically by theories and philosophies has its effect upon the way we see the world. Even in the act of repudiating theory, we are forced to articulate more clearly what is that we do hold dear. Reading beyond the substantive focus of research can stretch our models of inquiry, even to breaking point. Naturalistic enquiry, for example, for those who trace the lineage to Gadamer (1975), may be seen through the light of cultural materialism as evidencing a cosy meritocratic glow of liberal humanism, at once patronising, club-like and conservative. For those obsessed with the current cult of autobiography as a research method, a decent leavening of Derrida’s literary theory (1978) would make them examine assumptions about personal histories, whose they are and what data they actually provide to the research community. The conception that a history can be *personal* is held up to question. Its institutionalisation as an aspect of academic endeavour severs further its credibility in offering a way towards tacit understandings. Husserlian bracketing (1964), Habermas’s (1971) critical discourse or Garfinkel’s (1967) ethnomethodology may each be introduced to destabilise our precon-

ceptions in ways similar to approaches the Russian Formalists explored in literary criticism. In order to write this paper, which can be seen as an autobiographical text, carefully selected incidents and carefully chosen literature combine to construct an event for an audience. Premeditation has already given way to the 'excess' which Derrida avers will always seep out of my attempt to tie language down. Intensive reading across a wide range of literature undoubtedly leads the writer to just such excess. And in it the researcher may find novel insights and unusual workings of the imagination.

And even though Strauss & Corbin (1991) prove, at the end of the day, too mechanistic in their methodology for this author, their data manipulation may well be the external force other researchers need, to gain new handles on their research enterprise.

4. Novel Methods

A way of guarding against endarkenment is by the invention of data gathering methods to suit the circumstances. Just because they do not appear in textbooks and have not been evaluated for their potential robustness, does not mean they cannot provide insights that defy the sweep of formal methods. Too often, researchers remain faithfully within their methods mind-set and (for example) interview, observe and analyse documentation. Data, however, may be generated via more interventionist researcher actions, without necessarily influencing the complexion of the findings. Since teaching and learning is the subject of much of my work, I turn to teachers and learners often to aid me with methodology. Here are some examples:

- asking children to mark pieces of work as though they were the teacher and recording their logic in doing it (researching learning within the marking process);
- asking pupils what their mark is going to be and what comments they expect to find in their work, before their books are handed back (researching learning within the marking process);
- use of drawing, cartoons, metaphors, colour spectrum (see 6, below);
- having teachers and students discuss their class by analysing a videotape of it (similarly with groups of teachers and curriculum meetings, interviews for new posts etc.);
- new kinds of check-lists as, for example, one a teacher produced, to use while she walked round her class (see Fig. 1);

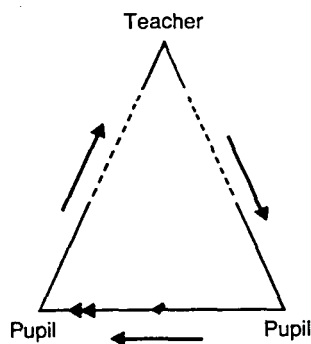


FIG. 1.

- feeding back transcripts as stories—having respondents edit them; and

- creating critical incidents in case study form, to discover cultural responses to moral issues.

What is at issue is the means by which the researcher can transform etic enquiry into emic. The researcher may often need to produce some destabilisation in the normal flow of the research field, in order to enable participants to reflect critically upon what they regard as 'normal', habitual or ritualistic.

5. Reporting

There is a cliché in research which roughly goes, 'writing yourself into knowledge'. It is based on what has been stated above. The act of writing is an act of analysis. The ordering, weighing, listing, juxtaposing and bridging of information changes the nature of that information. If the writer falls into metaphor, then the process is exacerbated. Attempts to clarify what the researcher thinks s/he knows result in discoveries of nuances which had lain dormant hitherto. Most researchers write throughout the various phases of research. They make plans, called designs, they make descriptive notes, they transcribe, they analyse and they report. At any of these stages, a deliberate alteration in 'the moving finger', writing can begin a process which leads to different and sometimes new conceptions. For example, if the researcher determines to complete every sentence during observation, rather than make shorthand accounts, the data are less malleable at a later stage because sentences and paragraphs are less tractable and often have a holistic unity.

Interpretations of data at each of these stages may be closed or open. Do we, self-consciously or unconsciously leave enough open to ease the clear up at the end? The tying of knots? If we believe the world contains contingent rather than causal events, why do we look for overall coherence? Why are our research reports so logically ordered? So causally driven?

My own experience suggests that papers and reports I have written inform me most when I don't plan them. But the result causes problems with the academic publishers. Their business, after all, is not about education but about sales.

6. Metaphors

Look at the metaphors in the data and you begin to comprehend the internal critical tensions of the population under scrutiny. It is a form of content analysis. In an excellent feminist critique of Peter Berger's much used textbook, *An Invitation to Sociology*, Reinhartz (1988) literally unhinges any notion that Berger is free from some deep-seated chauvinist attitudes to half the population he studies. This reputable and highly influential writer calls women "station wagons", says that sociologists as small boys may have become sociologists after peering through keyholes at maiden aunts undressing and compares heroic bomber crews to mindless women shoppers in supermarkets.

In an analysis of the conversational data in a classroom of gifted children in Canada, I turned from my usual pursuit of analysing processes and began examining the metaphoric content of pupils' talk. Suddenly, there appeared before me (and a group of teachers I was leading in the analysis) a torrent of strange, dark images of death and disease. My synopsis of this torrent was as follows:

So I looked at the content. The poetic image of a sick fly with its many literary and film connotations from Blake to Goldblum, caught my immediate attention.

I began to note the words and images which seemed linked to the metaphor of the sick fly.

fly, sick, die, unnatural causes, old age, sickness, disease, heart attack, shot, Aunt and Dad dropped dead, virus, bacteria, foreign, injury, afflicted, germ warfare, skin, infection, ill, vomiting, nauseous, disgusting, insane, heart disease, alien, fester, blood, germs, carriers, haemophiliacs, hospital, stick a knife into Marie. (Sanger, 1992b)

The point needs to be made that neither the teachers analysing the videotape of the class, nor I, were aware of this level of language use on a first viewing. The data were suddenly perplexing. There was a sense in which the language content was providing an eerie critique of selective schooling for gifted children. To be gifted in that class may not have led to the quality experience some would have wished when providing their special education (Sanger, 1989a). Yet other ways of interpreting the classroom had not suggested any threat to a vision of a group of motivated and stable pupils. The class was student centred, pupils grasped the agenda, obeyed the rules of philosophic discourse, listened carefully to each other and treated the teacher as a resource.

Currently I am working with a group of headteachers who have asked staff to describe their work in drawings, verses or other word images. These seem to provide more poignancy than conversation normally produces and offer an immediate starting point for in-depth discussion of the way that the personal informs the professional (Sanger, 1992).

7. Alien Structures

There is a pile of data in front of me. I can set about the sometime endarkening process of looking for patterns, and developing by induction, reasons why individuals and groups seem to be doing this or that. But supposing I adopt some external structure in which to fit the data? What happens? The data begin to lose their familiarity, and even their mundaneness. These structures may be the classifications used in the field by participants (See 1, above), ways of seeing adopted by other fields of enquiry or simply frameworks that make the researcher think in new ways.

When I adopted an A-Z of issues in information handling (Sanger, 1989b), in order to give analysis more accessibility, I was presented with a puzzle over several of the letters in the alphabet: X for example. The word which was elicited from the dictionary was xenogenesis—the capacity of the parent to produce offspring unlike itself: just so with teachers—the capacity to produce learners unlike themselves, an absolutely essential ingredient in student-centred learning. It was a key concept, but one which arrived at the analytical level because of the structuring of the issues emanating from the action research data. The whole A-Z with its 26 categories of issue, made me think comprehensively about the data, logically, in terms of whether each was a separate category or subset of another, and creatively, in terms of what might be there in the data for which I had not accounted.

Within the same action research project, a teacher analysed his mathematics classroom interactions in terms of primary colours and mixes to produce further tones (Whittaker, 1989). Warnock (1970) says that our imagination may “render our experience unfamiliar and mysterious”. Thus it becomes data rich and capable of producing new insights.

Conclusion

What has been described above is a practical beginning to the debate about how we might utilise creativity in data analysis. Much more needs to be done in analysing how we come up with novel ideas, strategies and hypotheses. Koestler (1964) sees structural resemblances to the QED in mathematics and the punchline of a joke. Essentially it concerns putting knowns together and coming up with a striking unknown which makes new sense of what precedes it. Much of what has been covered above contains Koestler's structure. Research would, no doubt, be much better for the discovery that its processes resemble, structurally, good jokes.

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