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Data Analysis: Getting conceptual

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Abstract

This paper will track my battle to 'get conceptual' in the production of a Grounded Theory. It will discuss early attempts at creating substantive codes through the process of open coding which, despite my best efforts, merely produced descriptive codes. It will illustrate the process by which these descriptive codes became more conceptual, earning the title of substantive code and how their presentation in essay form produced a perfect example of 'conceptual description'. It will then describe the slow dawning of the purpose of 'theoretical codes' as organisers of substantive codes and the emergence of a Grounded Theory.

Open Coding: The mechanics

The substantive population[1] of my study is adult online distance learners whose main concern (in descriptive terms) is finding the time to study. The process which addresses this concern is the *'temporal integration of connected study into a structured life'* (Scott, 2007 a, b). An overview of the theory and its structure is offered in the Appendix to this paper.

Participants were located all over the world, therefore most of the data for the study was collected online using email or chat[2]. Typically, the first emailed response from each person was the most detailed response with perhaps one or two emails received in reply to follow up questions. I would print and read the email or chat transcript for an overview. If I felt that I could understand what the participant was telling me, I started coding, otherwise I waited until subsequent emails or chat sessions improved my understanding. When open coding I had a piece of paper in front of me which asked:

- What category does this incident indicate?

[1] The area of interest is online distance learning for adults (from the perspective of adult online learners). Here I use the wording substantive population to mean the people in/of the substantive area.

[2] Collecting data online for a Grounded Theory study has its own issues which are discussed in a separate paper (in preparation).

- What property of what category does this incident indicate?
- What is the participant's main concern? (Glaser, 1998, p. 140)

I asked these questions of every *incident* that I perceived and I wrote the codes in the margin. In addition, I used coding cards and wrote the *indicators*[3] in full on the appropriate coding card(s) and referenced the indicator both on the printed, coded document and on the coding card. As a reference number, I used the initial of the person plus the incident number e.g. J-10. Coding to cards was cumbersome and time consuming but it helped me to get a feel for the process and to feel in control of my data. Actually I had too much control of my data; since I could record each and every code, the number of codes soon spiralled out of control. Thus the rhythms built into the method could not operate allowing the undesirable state of 'full coverage' over parsimony. Had I only coded in the margins, the relevant might have emerged more quickly, by the process of forgetting that which did not pattern out. Not yet understanding this, I would write the name of the code at the top of the card and in the body of the card write the reference number and the indicator. This was reassuring; as the cards became fuller, I could compare incident to incident easily. I could see how codes grew and became saturated. I could compare codes with codes and indicators between codes. I could see codes metamorphose into other codes and see the dimensions of codes emerge either across cards or within a card. For example, the coding card '*Compliance*' listed indicators of '*high compliance*' and '*minimal compliance*'. Indicators of '*reducing compliance*' emerged, then '*non compliance*' and then there were degrees of '*non compliance*'. Thus I realised that '*non compliance*' was an aspect of

[3] I understand an incident as a section of data in a source document/field notes. As an act in the process of coding, I label the incident. A label with only one incident does not earn the status of substantive code. It is only if other incidents join this incident under the same label that a code emerges. At this point of emergence, incidents earn the status of being indicators of a code. Thus not all that I label becomes a code. This matters later when I think I am overwhelmed by codes – many are not, they are simply labels!

The Grounded Theory Review (2009), vol.8, no.2

'*withdrawal*' which itself was '*partial withdrawal*', '*temporary withdrawal*' and '*permanent withdrawal*'.

The practice of using coding cards misled me into thinking that one allowed the relationships between codes to remain unwritten and subject to preconscious processing and that one sorted codes, whereas the stricture is to memo ideas about the relationships between codes and to sort memos (Glaser, 1978, p. 83). When I finally realised this, the relief was enormous and led to a flood of memos.

When coding, I was very much aware of having some experience in the field of online learning as a student, designer and facilitator. As advised, I interviewed myself (Glaser, 1998, p.120) which helped enormously; setting down my experiences and thoughts and coding them helped me to relax about what I thought I knew. If it was relevant it would pattern out, if not it would sink without trace. I wrote in a method memo[4] of my conscious effort "to follow the data absolutely. I am not coming outside of it and investigating how much of this is obvious or banal". I was therefore not judging the data, merely working with it. Thus in coding, I believe that I was successful in suspending my professional concerns; however, I recognise that the way that I understand the world determines how I interpret any given incident, where I fracture the data and thus the codes that I choose.

The Main Concern

After nine months of online discussions and open coding I prepared for a Grounded Theory Seminar in October 2004. My elaboration to the question 'Have you identified your core category?' is shown in Textbox 1..

Textbox 1. Attempting to identify the core category

Have you identified your core category? If so please elaborate.
I think I have several potential cores as follows: (categories shown in capitals).

Online Learning offers the opportunity of further study to part time adult distance learners. The property of Online Learning 24/7

[4] I used 'method memos' to record my tussles with learning and applying the Grounded Theory method.

AVAILABILITY, where the learning environment is open for business 24/7, means that I (as an online student) can develop the solution: I ADAPT. Both of these things together, means that for those with EXISTING COMMITMENTS to work and family, further study becomes a viable option. There is a process where the NEED for study is identified and (consciously or unconsciously) EXPECTATIONS as to outcomes of studying are formed. Where the outcome of the decision process leads to a decision to undertake further study there is a COMMITMENT2LEARNING (to various degrees). Committing to further study gives rise to the problem of when do I DO THE WORK? And the solution I ADAPT and find time in which to work: This can mean TIMETABLING TIME i.e. planning time; OPPORTUNISTIC USE OF TIME i.e. taking advantage of the spare moment; JUGGLING COMMITMENTS to free up time to do work; EXTENDING-THE-DAY i.e. working late/getting up early.

Equal to the opportunity offered by 24/7 AVAILABILITY is the problem of ACCESS: How do I overcome the barriers and gain ACCESS to the opportunities to learn? TECHNOLOGY is a barrier to entering the learning environment including issues of: the right to use the equipment (privately owned or publicly available), which is of an appropriate specification, having the right software and having access to an Internet connection which is fixed link/wireless. SCATTERED ACCESS where access is spread across machines, where learners use multiple machines, gives rise to problems in managing software and work files.

There is a relationship between ACCESS: TECHNOLOGY and the scope for ADAPTing.

Also: there are language barriers to access the opportunities to learn because of the reliance on dense text; Dyslexia is a barrier to access the opportunities to learn for the same reason. There are financial barriers to the right to enter the environment i.e. the cost of course

'Doing' THE WORK leads to an iterative ongoing process of EVALUATION of the RELEVANCE OF WORK, i.e. its usefulness, potential use or its inherent interest i.e. its VALUE OF WORK to me. A positive VALUE OF WORK to me leads to CONTINUED COMPLIANCE where work is undertaken. Low VALUE OF

WORK is of REDUCING VALUE and therefore results in REDUCED COMPLIANCE or NON COMPLIANCE AND WITHDRAWAL.

At this point I was searching for the point from which to 'hang' my theory. The sense of knowing but not knowing was infuriatingly tantalising until at last I realised 'Time is the problem for all my people.' (Textbox 2)

Textbox 2: Memo on time

Time is the problem for all my people. Time to develop competencies: knowledge domain competence (time to explore issues), technical competence (time to explore software, master technology), language competence either as foreign language speaker or as dyslexic (time to translate/understand, formulate and express ideas). Finding time/making time/stealing time to study (juggling existing commitments). Constantly evaluating whether the time spent studying is well spent - is the work relevant, valuable, useful. If yes continue, if no withdraw.

Access as an issue which eats time. 24/7 Availability of online learning enabling people to ADAPT and find time, making study possible. A tutor is someone who saves me time. Poor design (of work or of environment) wastes time.

Memo dated November 10, 2004

Conceptualising the main concern during the seminar had led to the suggestion of the 'Tyranny of flex-time as integrated into a structured life'[5]. This proved an extremely useful example of how to conceptualise a problem and showed me how to move forward though I was aware that it was not quite right. Eventually, I realised that the 'tyranny' was experienced by and captured the main concern of some of the participants of the study but not of all of them. Some did not experience the tyranny as experienced by others. The conceptualisation thus evolved over the next few months into the main concern of 'integrating study into a structured life', where the problem and its resolution eventually became as one.

[5] I am indebted to Judith Holton for this suggestion

Selective Coding and Theoretical Sampling

At this point I had almost all I needed to create a theory except the skill. My next steps were to selectively code incidents that related to 'time', to saturate those codes and to theoretically sample within the substantive population[6] of adult online distance learners for comparison groups. Glaser writes:

> The general procedure of theoretical sampling, as we now shall describe it, is to elicit codes from raw data from the start of data collection through constant comparative analysis as the data pour in. Then to use the codes to direct further data collection, from which the codes are further theoretically developed with respect to their various properties and their connections with other codes until saturated. (Glaser, 1978, p. 37)

I decided to begin selective coding by revisiting the data from the initial interviews being certain that I had not noticed all that there was to notice about the participants' comments concerning time. I conducted further discussions with students from two other postgraduate courses run online. Glaser writes:

> It [theoretical sampling] focuses questions more and more on the direct emergence of the theory (thus showing again, how interview schedules constrain theoretical sampling). Questions constantly change with the requirements of the emergent theory and theoretical sampling. (Glaser, 1998, p. 157)

Here, I found a tension between the constraints of the online data collection method and the Grounded Theory method. The questions deduced from the induced codes, at this point were:

- Was time a big issue for you?
- How did you fit in work and personal life and study?
- How did you decide what to work on and what not to work on?

[6] This meant talking to undergraduates studying online as well as postgraduates and to people studying on differing online vocational courses. I also sampled outside of the substantive area and collected data in person and in literature review on on-campus online learners, correspondence distance learners, and part-time face-to-face learners. For the purpose of my thesis the area of interest was limited to online distance learning although the resultant theory has relevance for all adult part time vocational learning.

- Why did you take this course?

I did ask these questions of one participant with whom I had corresponded earlier and who had not replied to my original questions but who had contacted me again. The response gained was extremely useful though lacked the context of earlier replies. I reasoned that since the original questions elicited useful responses and that since the earlier participants seemed to respond well to the approach of having their earlier comments quoted back to them and being asked for more details, that I would continue with this approach but code and follow up only on issues relating to the main concern and it's resolution. I made further attempts at writing useful memos and I found that I used memos to tease out thoughts about categories and that the memos showed my thought process but not yet the relationships between concepts.

In September 2004, I believed that I had the horrible amount of over 130 open codes[7] in which time was mentioned only three times:

- Allocation of resources – time
- Designed work – similar time/discontinuity
- Making time

At that point, I saw time as a flow, as a resource and whilst I had identified 'similar time' working, I had not yet recognised time as structure. By December 2004, I had achieved a step change in the way I thought about the design of a course and put aside Wenger's (1998) concepts of 'designed work' and 'designed environment' for the moment and started to think about the *'Time Design'* of a course. My observations had surfaced assumptions about the pace of work achieved and the timing of when work would be accomplished based on assumptions about learners' competencies, in particular language competence and also about learners' work/rest and wake/sleep patterns. My data collection process had shown me that learners have a range of competencies and different work/rest, wake/sleep patterns which are further complicated by different time zones; thus that the pacing and the timing of work is often different from that assumed by the course designer. By March 2005, I believed the categories of Personal Commitment Structure and Time Design to be as shown in Textbox 3.

[7] However, many of these were not codes but were one incident labels.

Textbox 3: Memo on categories

Personal Commitment Structure

Commitment type
- Work
- Family
- Social
- Learning
- Other

Committed time
- Structure points
  - By this time
  - At this time
  - Organisers (lunch break)
  - Fixed (children pickup)
- To commitment types
  - Work
  - Family
  - Timetabled study time
  - Spare
  - Sleep

Location time relative to base time

Patterns
- Wake/sleep pattern
- Work/rest pattern

Time Design

Assumed/implied typical learner profile:
- Assumed/Implied Personal Commitment Structure
- Assumed/Implied Personal Competencies

Attendance requirement

Course period e.g. 10 weeks

Study hours e.g. 80 hours

Core Period e.g. one week

Assessment period e.g. 3 weeks

Base Time (of course relative to UTC)

Focal Time (of local group or tutor)

Structure Points
- Start/end points
- Assessment points
- Organising points
- Emergent connection points

Connection Design
- Same time connections
- Similar time connections
  - Any time connections

Conceptual Description

In preparation for a Grounded Theory seminar in March 2005, I wrote per Textbox 4:

Textbox 4: Memo on core category.

Have you identified your core category? If so please elaborate:

GT Summary:
The issue for part time adult online learners – or CONNNECTED LEARNERS – is DEVELOPING COMPETENCE in the context of CONNECTED LEARNING ONLINE. The main concern that protagonists are constantly working to resolve is the INTEGRATION of the TIME DESIGN of the learning opportunity

into their PERSONAL COMMITMENT STRUCTURES. INTEGRATION causes TIME TENSION and for some learners TIME TYRANNY.

The warning was in the phrase 'GT Summary'. Instead of being able to state my core category as 'Integrating study into a structured life' my current understanding forced me to write a paragraph. The concepts are there but I am going for 'full coverage'. I cannot let any of my concepts go, I am wedded to them all. The working paper prepared for this seminar is a perfectly crafted example of 'conceptual description' (Glaser, 2001) an excerpt of which is shown in Textbox 5:

Textbox 5: Conceptual description

A CONNECTED LEARNER will commonly have commitments to, for example, family and employment and perhaps to other social commitments e.g. Church or sport. A PERSONAL COMMITMENT STRUCTURE will therefore comprise COMMITTED TIME to work, family, social organisations, self, sleep and to timetabled study time. Any time left over is 'spare' time. Thus Committed time plus spare time = Wake time. Wake time plus sleep time = All time.

A WORK/REST pattern relates to days, takes into account shift working (e.g. one month on, six weeks off) and an example of which is the 5 day Saturday to Wednesday working week and the 2 day Thursday/Friday weekend of the United Arab Emirates. A learner working with such a pattern will find it harder to work and connect within a CORE period designed around a 5 day Monday to Friday working week and the 2 day Saturday/Sunday weekend where work for the core is released on Saturday.

A WAKE/SLEEP pattern is over 24 hours, takes into account shift working and is relative to BASE TIME of the CONNECTED LEARNING OPPORTUNITY and the FOCAL TIME of a group of learners. A CONNECTION DESIGN which requires SAME TIME working e.g. tutorials or next-stepping group organisation sessions can either effectively exclude some learners or add to the TIME TENSION experienced. Figure C.1 shows how day time workers in the USA attending UK based courses are effectively excluded from synchronous sessions by their WAKE/SLEEP pattern relative to BASE TIME because most UK chat sessions are held when they

are asleep. Similarly, night shift workers in the UK can only easily attend chat sessions held during their evening.

'Theoretical coding' is needed to rescue the theory, to enable the theory to be brought into relief from the flatness of descriptive codes where "…theoretical codes implicitly conceptualise how the substantive codes will relate to each other as a modelled, interrelated, multivariate, set of hypotheses in accounting for resolving the main concern" (Glaser, 2005a, p. 11).

My memos show how I was desperately seeking the structure of my theory as I drew bubble maps and decision trees to help me see the patterns but they were one dimensional and I focused on either what was in the middle of the bubble map or at the top of the tree. The best that they could do was to capture my confusion and illustrate my struggle to identify the structure as I sought to understand how to model the theory.

Upping the Level of Conceptualisation

Two strands of thought collided. Firstly, 'How many Time Designs are there?' Since there are an infinite number of variations of timings of assessments, course duration etc., the idea becomes useless. How can one possibly account for all the Time Designs where the distinctions between each are all but indistinguishable? It is this question that led me to leave behind the descriptive properties of course period, study hours, assessment period and to abstract the implicit; that is, to recognise that there are start points and end points of courses and assessment points. Thus I moved from the descriptive to the conceptual. The second strand had to do with participants' comments about structure; that structure is helpful and that the lack of structure is problematic; that structure is linked to how learners organise their lives and integrate study that the beginning of the week is an organising point, where new work is required to be done. Together these strands led to the realisation that the descriptive properties of 'Time Design' (Textbox 3) were based on insight drawn from my experience as a course designer but that what really mattered to the learners were the structure points and the degree to which the points were fixed or moveable. Correspondingly, it was less relevant whether a commitment was to family, work, social life etc. and more relevant as to whether the structure point was fixed or moveable and thus that the whole issue for learners was integrating their structure points

into one life.

It is at this late stage that I can label *'Time Design'* as a category, having a property '*Structure Point'* where the dimensions of that property relate to the degree to which a structure point is fixed (or moveable). I can also label '*Personal Commitment Structure*' as a category having a property '*Structure Point*' having dimensions along a range of fixed to moveable.

Sorting and Theoretical Coding

For me, sorting and theoretical coding happened hand in hand, where I understood theoretical coding to mean the emergence of relevant theoretical codes as opposed to (as I had first envisaged) the active labelling of substantive codes as pertaining to a theoretical code, in the manner of open and selective coding. I had first sorted my memos in preparation for the working paper prepared for the seminar of March 2005. I sorted by code and wrote about each. This was an exercise in finding out what I knew and for me was a necessary part of the process – part of finding out what not to do, of finding out that this approach results in conceptual description and how a conceptual description reads.

In April 2005 **The Grounded Theory Perspective III: Theoretical Coding** (Glaser, 2005a) was published and offered invaluable guidance and discussion of 'new' theoretical codes. A memo of April 2005 is shown in Textbox 6 where I notice that several theoretical codes may be relevant.

Textbox 6: Memo on method

"I have too much; am blurring two stages. I don't have the proper 'story' about how people absorb learning into one life. I do have: juggling-integrating-evaluating." I should have this sorted before I start to identify theoretical codes. However, I think I need the theoretical code to help me make sense of the substantive!

I can see – as I read TC 05 – that many different theoretical codes might be relevant. Balancing, cycling, Basic Social Process (becoming a student).

I am having tremendous difficulty in seeing the theoretical patterns. I think I have 3 levels: strategic, operational, implementation with 3 level looping and spiralling and may have

two different spirals one for the successful and one for the unsuccessful.

But given that a TC is about the relationships between codes, I'm not really at that stage of identifying, merely sensitising self to same and playing with ideas."

All the theoretical codes in Textbox 6 are found to be relevant together with a few others and it will be helpful to define these. A 'Basic Social Process' (BSP) "processes a social or social psychological problem from the point of view of continuing social organisation. Irrespective of whether it solves the problem, to some degree it processes it. (Glaser & Holton, 2005, p. 6)

> There are two types of BSPs – basic social psychological process (BSPP) and basic social structural process (BSSP). A BSPP refers to social psychological processes such as becoming, highlighting, personalising, heath optimising awe inspiring and so forth. A BSSP refers to social structure in process… (where a) BSSP abets, facilitates or serves as the social structure within which the BSPP processes. (Glaser & Holton, 2005, p. 11).

Cycling "refers to going over the same path over and over. It also refers to going over and over the different paths in succession whatever the unit action. It easily refers to people's temporal order of work, eating, sleeping etc." (Glaser, 2005a, p. 24). Balancing "is handling many variables at once in order to start an action, keep an action going or achieve a resolution. One gets an equilibrium between all the variables. One can achieve stasis for a time." (p. 29)

Having sensitised oneself to different theoretical codes, it is then a matter of 'trying on' various codes while sorting memos to see which ones fit. In June 2005, I notice that there are many potential Basic Social Structural Processes appertaining to any one learner (e.g. parenting, studying, working). I confuse the theoretical code 'Balancing' with the substantive code 'Juggling' – a stage in 'integrating study into a structured life'. This is understandable since

> Balancing is an abstract model that also can be seen substantively or used as a substantive category e.g. the professional-client balance in a doctor-patient

> relationship. Balancing as such can also be used as a BSP, when it is worked or occurs in stages such as balancing out the factors in a divorce settlement or in resistance to change in organisation. Thus balancing provides it s own mix of TC and substantive categories. (Glaser, 2005a, p. 29)

I also wonder if those who juggle and those who struggle are defined by the integrating strategies they employ or the outcomes of their efforts to integrate. I make my first attempt at expressing the 'homeostasis of motivation' modelled on Thulesius' (2003) 'homeostasis of hope'. The homeostasis of hope has three variables:

> Existential hope (H) which is a function of the value of every lived moment (V), and expected time left to live (T); H=V x T. Existential hope is defined as the motivation and well-being required to live a normal everyday life. In the disclosure situation the expected time left to live (T) goes down and this reduces the value of the lived moment (V) and thus existential hope (H) drops very fast…. By increasing V and T the patient and the caregivers are trying to regain the homeostasis of hope. (Thulesius, 2003 p 158)

Thelusius captures beautifully the interrelationship of variables and the impact that a change in one has upon the other. In my study, at one point I had a huge and descriptive list of problems - which interfered with the integration of study - the negative effects of which were mitigated or exacerbated by the behaviours of the learners. The greater the learners' competence levels the less the negative effect. It occurred to me that an algorithm such as this might be helpful in expressing the complex inter-relationships between the variables in my study.[8]

At this point in the analysis, it felt as if all the categories were suspended above me, waiting to be told where to land. I was not threatened by them but there were a lot of them and they were beginning to weigh heavy. I remembered and was comforted by the comment: "Confusion? Rest in the confusion. Confusion is

[8] Eventually, the homeostasis of motivation emerged – as the propensity to study – to become the feedback loop of the BSPP 'Integrating study into a structured life'.

a really good indicator of something emerging" (Glaser, 2005b). I disentangled 'balancing' and 'juggling' realising that in this study, 'balancing' is not part of the substantive code 'integrating study into a structured life' but is a theoretical code, where the substantive code 'integrating study into a structured life' is modelled by the theoretical code, 'balancing'. On July 8th, I sorted my memos again and attempted to sort more intuitively. I had papers spread over two tables, a desk, the kitchen work surface and – dangerously – the cooker. I ended up with an enormous pile of memos under the heading of 'normal integration' and two smaller piles marked 'integration: step change – new study' and 'integration step change – not study'.

By the end of July 2005 and in response to the question 'What is failed integration?' (see Textbox 7) I recognised the theoretical code of type and that I have a typology of learners where "types indicate a variation in the whole, based on a combination of categories" (Glaser, 1978, p. 75).

Textbox 7: Memo on Theoretical Coding

Failed to Integrate

What does this mean? To what degree has someone failed to integrate? Not consumed enough work. Enough work as planned by self or time design? Failed to integrate today, this week, at all, ever.

Integration is about the long term integrating of structure points. On a day to day basis stuff gets squeezed out or squeezed in. It's at an Operational/ Implementation level.

Cumulative squeezing out …. And the relationship with propensity to study?

"I have yet to work out a routine that doesn't have me stressed out come exam time". The rest of his life is constantly tugging at his sleeve. His wife has the family to support – no time for him. Two people studying in one family. He is having time taken from him!!! Study is squeezed out because relatively other stuff is more important reducing his propensity to study – so he allows – reluctantly and stressily, study to be squeezed out. But the costs of failure are high. He has no life and suffers time tension/tyranny. Come exam time, as a structure point approaches, becomes an operational/strategic issue – P2S (Propensity to study) increases and for a while he studies.

This makes him a struggler. How do you cope? It's a struggle. Strugglers experience pain. They may complete or they may fade-away.

Passive Squeezing Out where study of low value and thus P2S is low.
Operating in avoidance mode and displacement activities allowed to intervene

Active intentional squeezing out is part of juggling and is reorganising or reordering. (Jugglers and strugglers will do this).

Leavers decide to stop. Strategic decision.

Fade-aways not so decisive, they keep failing to integrate until the plug is pulled. (Which is why there are few reliable drop out rates, merely completion numbers – as people only become fade-aways when a structure point – an end point – defines them as having faded away. Stages of fading away: passive squeezing out, temporary withdrawal, end point defines. Fade-aways have not necessarily failed – may have developed competence to required level and have no need of the validation.

This made it easy now to re-sort the huge pile of memos regarding integration into piles pertaining to 'jugglers', 'strugglers', 'fade-aways' and 'leavers'. Some of the memos had to be cut up, for example where I had talked about each type on one memo of integrating a step change into the personal commitment structure. I also noticed that the variables relating to type are the same variables that go into the evaluation calculation. The variables are predictors of type - of whether or not the learners will process their problem of integrating study into their structured lives and the time tension and time tyranny that they will be prepared to tolerate.

As one by one the theoretical codes brought order to a section of chaos, the codes were also confirmed and less pertinent properties dropped. This made it easier to see where other

smaller codes fit in e.g.' catch up' is a strategy that both 'jugglers' and 'strugglers' employ but probably not 'fade-aways' and definitely not 'leavers'. By October 2005, I have seven theoretical codes: a Typology, two Basic Social Processes (BSP); i.e. a Basic Social Structural Process (BSSP) and a Basic Social Psychological Process (BSPP) also Balancing, Cycling, Amplifying Causal Loop and Cutting Point. Amplifying causal looping is ".. an ordered, calculated growth of increased size based on a set temporal path (Glaser, 2005a, p. 24). For example 'strugglers' and 'fade-aways' fall further and further behind as they cycle through the basic social processes: integrating and studying. The Cutting Point family:

> is a variation of the degree family. Degree focuses on the full range, while here we focus on significant breaks or cutting points on the range. Cutting points are very important in theory generation, since they indicate where the difference occurs which has differential effects". (Glaser, 1978, p. 76)

In this study, the Cutting Point is a step change of the Personal Commitment Structure experienced by 'Leavers' e.g. the birth of a child, the death of a close family member.

This part of the study was about seeking, noticing, exploring, defining, testing and trying on, refining or rejecting, and re-hanging codes and relationships. During this process I changed the way I thought about the descriptive codes (e.g. evaluating the value of study) and descriptive relationships (e.g. leads to). Where my focus had been principally on codes, my focus moved on to the dynamic relationships between codes. In this study, this is where the complexity lies and which is ultimately and elegantly expressed in an algorithm and a set of propositions. (Scott, 2007a, b)

Literature Review

Glaser (1998) is emphatic when he writes:

> a) do not do a literature review in the substantive area and related areas where the research is to be done, and b) when the grounded theory is nearly completed during sorting and writing up, then the literature search in the substantive area can be accomplished and woven into the theory as more data for constant comparison. (p.67)

Consistent with these strictures, I embarked on the literature review only when I felt confident about the shape of my theory. It was during the literature search that I came to appreciate much more the role of sorting in organising the theory and defining the relationships between categories; since it is the sorting and the use of theoretical codes to organise my theory that separates my work from the other qualitative studies reviewed. I can also see why we are enjoined not to read the literature first. Had I conducted the review before data collection and analysis, I would have read widely and wastefully in the field of personality since that was the field in which I had expected my study to be located. I had certainly not envisioned a study to do with student attrition and retention, or student persistence or withdrawal, as became the case.

Secondly, if I had located that field in advance, my study would have been abandoned. My horror at finding Kember's (1999) article "Integrating Part-time Study with Family, Work and Social Obligations" was profound; my study was almost done and my theory emergent. As I sat down to read the article I struggled to see how I could add to the understanding of the field particularly since very few of the categories I had identified in my theory seemed to be new ideas. As it was, however, I quickly came to see how I could add value.

The qualitative literature in the field of online distance learning, fully describes the problems such that the mass of detail is overwhelming (Dupin-Bryant, 2004). Since each issue is given equal prominence, the burden on online distance learning professionals is huge - every issue has to be addressed as there are no clues as to where interventions might be made most effectively. By offering an explanation of the main concern of online learners and how the structural conditions impact upon their experiences, it is possible to identify where interventions, changes, might usefully be made. It is possible to design for learner persistence.

Quantitative studies proved similarly unhelpful as practitioners struggled to find relevant and related variables to test and conjectured as to the meanings of what their statistics meant. As I read I could see how the tools, the methods, with which quantitative researchers analysed their data could not cope with the complexity of the field. My theory makes it possible to untangle the threads of description and add meaning to

conjecture; for example, it is now possible to identify separate strands of temporal issues and academic issues, which matters were often intertwined, maintaining confusion (e.g. Woodley 2004). This confusion was important since it meant that in some studies, inappropriate variables were used to measure persistence rendering the studies valueless. By regarding persistence and withdrawal (i.e. dropout) as a temporal matter and the process of academic performance and the outcome of that process, academic achievement (success or failure) as academic matters, those variables which do and do not measure learner persistence can be identified and used or not used as appropriate. Additionally, the algorithm which captures the dynamic relationships between codes can be used to identify dependent and independent variables.

During the review, I also came to appreciate that using the literature as more data in developing one's own Grounded Theory is invaluable, both in finding new categories and particularly in being able to theoretically sample and saturate existing categories of the emerging theory. Not least, as I tussled with the principle authors, I *finally* came to recognise what my study was about and that the core category was '*temporal* integration'.

Summary

In this paper, I have exampled the experiential nature of the process of producing a Grounded Theory (Glaser, 1998, pp.6,102); detailing how my understanding of the method developed as I engaged with it. I have also illustrated the power of the method and in particular, theoretical coding, by showing how the potentially overwhelming complexity of data is made manageable by organising theory using 'theoretical codes'. In doing so I have illustrated how the call for axial coding and the use of one theoretical code as suggested by Strauss and Corbin (1998), is restrictive in the production of a Grounded Theory.

Appendix: Structure of Theory

This is a complex Grounded Theory and for completeness it may be helpful to outline the structure of the theory, i.e. how the categories are inter-related. In descriptive terms, the main concern of learners is fitting study into their lives on an ongoing basis. In conceptual terms, the basic social psychological process which processes this concern is *temporal integration*. This is the process by which the *structure points* of the *time design* of a

connected learning opportunity are combined into the *personal commitment structure* of the *connected learner*. Thus two related categories are of import to this theory; the *connected learning opportunity* and the *connected learner*. The category *connected learning opportunity* has properties of *the knowledge domain of the course, the language of the course, the technology of the course* and a sub-category of *time design*. The *time design* has properties comprising *structure points* of *start points, end points, organising points,* assessment *points* and *connection points*.

The category *connected learner* has properties of five personal competencies of the knowledge domain of the course, the language of the course, technical skills, integration skills and online learning skills. Each of these properties has dimensions ranging from high to low, i.e. from high levels of personal competence to low levels of personal competence. In addition, the related category *connected learning* has properties of need for learning and satisfaction (with learning opportunity) and cost of failure, all of which have dimensions from high to low. This category also has a sub-category of personal commitment structure which has structure points having dimensions of being more or less fixed.

The process of *temporal integration* has three stages; *juggling* which has properties of *scoping, prioritising* and *scheduling*; *engaging* having dimensions ranging from full engagement, reducing by degrees to partial withdrawal, temporary withdrawal down to full withdrawal (or *disengagement*); and *evaluation*. The *evaluation* stage involves the assessment of the benefits of engaging in study, (*'what's in it for me?'*) and the costs *('is it worth it?'*). The outcome of the evaluation is expressed as the *propensity to study* which forms a feedback loop to the juggling stage. The balancing algorithm, captures the relationships between the dimensions of a *connected learner* and the structural conditions under which *temporal integration* takes place and how they co-vary during the temporal integration process to impact upon the assessment of the benefits and costs of *engaging* in and the propensity *to study*. Lastly a learners' type is defined in the first instance by the two categories*, personal commitment structure* and *personal competencies*; by the *value of study* in the second instance; and by the *cost of failure* in the third. See also textbox 8.

Textbox 8: Substantive and theoretical codes of the study 'The temporal integration of connected study into a structured life: A Grounded Theory'

Temporal integration - core category and BSPP with stages of:
Juggling
Engaging
Evaluating

Connected learners - related category
Personal commitment structures – sub category and structural condition; having properties (e.g. structure points)
personal competencies – sub category having properties (*of knowledge domain of the course, the language of the course, technical skills, integration skills and online learning skills*.) with dimensions (high or low levels of competence)
value of study – property of connected learner having dimensions
satisfaction with study – property of connected learner having dimensions
'the propensity to study' – property of connected learner having dimensions.
cost of failure – property of connected learner having dimensions

Juggler, Struggler, Fade-away and *Leaver* – typology of connected learners defined by the interrelationships between the learner's personal commitment structure and his/her personal competencies.
Connected learning – related category and structural condition
Time design - sub category having properties (e.g. structure points)

Studying: BSSP relevant stage – 'Doing the study'

Theoretical codes which organise the substantive codes are: a Typology, two Basic Social Processes (BSP); i.e. a Basic Social Structural Process (BSSP) (studying) and a Basic Social Psychological Process (BSPP) (temporal integration) where the codes Balancing, Cycling, Amplifying Causal Loop and Cutting Point organise the movement and flow of the process.

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