Slow knowledge: the importance of tempo in debriefing and in individual learning

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ABSTRACT

Over the last five years in particular, there has been a tremendous emphasis placed on the speeding-up of both information work and of knowledge work, part of a much longer-run emphasis on the increasing tempo of modern societies. In this paper we review the rhetoric of speeding-up with particular reference to some of its negative dimensions for our particular focus on knowledge work.

We focus on two contrasting dimensions of knowledge work: team debriefing and individual learning. We conclude by arguing that electronic learning media need to draw on both traditional and on re-designed knowledge creation processes, with particular reference to appropriate tempo, if they are to rise above the purely instrumental types of learning experience.

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"I had imagined that Sherlock Holmes would have at once hurried into the house and plunged into a study of the mystery. Nothing appeared to be further from his intention. He lounged up and down the pavement and gazed vacantly at the ground, the sky, the opposite houses. Having finished his scrutiny, he proceeded slowly down the path, keeping his eyes riveted on the ground."

A Study in Scarlet
Sir Arthur Conan Doyle

"They (the audience) missed the point. There's no such thing as silence. What they thought was silence (in 4'33"), because they didn't know how to listen, was full of accidental sounds. You could hear the wind stirring outside during the first movement. During the second, raindrops began pattering the roof, and during the third the people themselves made all kinds of interesting sounds as they talked or walked out."

John Cage in conversation about his 'silent' work 4'33" with John Kobler (1968)

"Being in a hurry is not just a state of motion, but is an attitude of mind. On the Undergound almost everyone was in a hurry. To get at important lessons, life must be simplified and slowed down. When you are in a hurry this is not possible."

Tunnel Visions, - Journeys of an Undergound Philosopher
Christopher Ross (2001)

1. Introduction: Fast Company and Slow Company

Over the last five years in particular, spurred by the growth of electronic networks, there has been a tremendous emphasis placed on the speeding-up of both information work and of knowledge work, part of a much longer run emphasis on the increasing tempo of modern societies. In this paper we review the rhetoric of speeding-up (Gleick, 2000; Moore-Ede, 1993), with particular reference to some of its negative dimensions for our particular focus on knowledge work (Degrandpre, 1999; Ettighofffer and Blanc, 1998).

We focus here on two contrasting dimensions of knowledge work. The first is the sharing and creation of knowledge in a team context, with specific reference to the team debriefing process. The second dimension is of individual learning, whether within a business or within an academic or vocational environment. We particularly examine the assumptions related to the speeding-up of learning, and in what circumstances this might be both appropriate and achievable. What is lost, or damaged by an overemphasis on speed?

In an earlier paper, we introduced the theme of the "slow company" as a key concept in knowledge management (Ward, Holtham and Bohn, 2001). Our theme remains all the more important in the light of a generally exaggerated emphasis on the "fast company". It is interesting how proponents of the "fast company" are recanting on their earlier position. Steve Bezos, the head of its most notable icon, amazon.com, recently admitted that "During the first four years of extraordinary growth, we did not have time to operate efficiently" (Edgecliffe-Johnson, 2002). More information may be too voluminous to process:

> "With current technologies, information is generated faster than individuals and organizations can make sense of it." (Harther and Lerch, 2001)

In this paper we explore three further dimensions of the "slow company".

The first is to examine the dynamics of power in deployment of fast and slow timescales, drawing lessons, both direct and metaphorical, from slowness in everyday life.

Secondly, we explore the nature of tempo of dialogue in knowledge-sharing conversation, in particular drawing on Habermas's distinction between interactivity and dialogue.

Thirdly, we review the significance of repetition and redundancy, particularly in supporting the acquisition and retention of knowledge.

2. The Varying Tempos of Knowledge Work

We make a distinction between information and knowledge work. In our view, knowledge work specifically relates to the creation of new knowledge and the sharing of knowledge. Information work is primarily concerned with transactions. (This is not, we should be clear, a value judgement, simply a way of delineating the area to which we wish to pay attention. Transactions are often, but not necessarily, time dependent or even time critical. Figure 1 contrasts typical contexts in relation to organisational and market tempos.

Figure one:
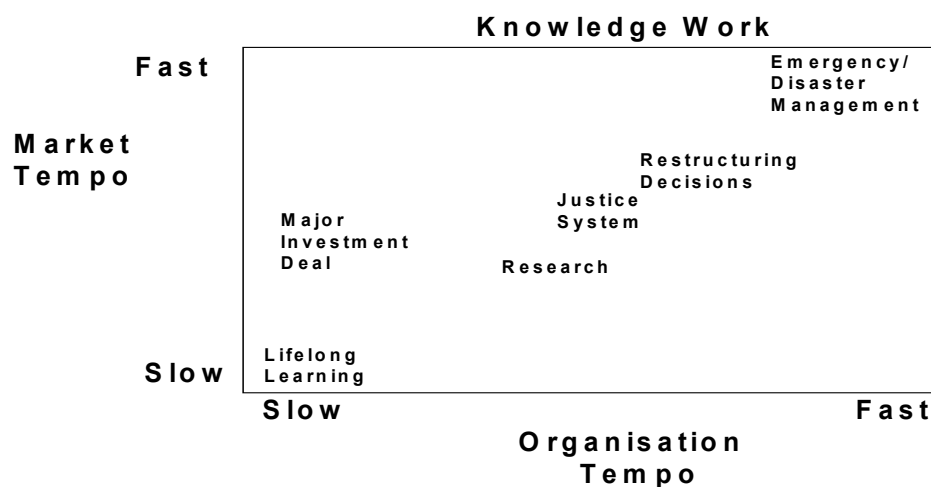
We believe that there has been far too much emphasis on the need for speed, above all the need for speed in knowledge work. Advocacy of its need or inevitability is hardly surprising in authors of a technologically determinist persuasion, such as James Martin (1994) who predicts:

> "A period of momentous change driven by massive automation, fluid organizational structures, dynamic relationships between corporations using worldwide computer networks, electronic reaction times and intense global competition"

But such advocacy can even come from a distinguished social science scholar such as Castells (1996). While Castells deploys a fascinating variety of perspectives on time, much not likely to be widely disputed, he appears not to distinguish between the differing implications for speed and time between information work and knowledge work:

> "timeless time…occurs when the characteristics of a given context, namely the informational paradigm and the network society, induce systematic perturbation in the sequential order of phenomena performed in that context. This perturbation may take the form of compressing the occurrence of

phenomena, aiming at instantaneity, or else by introducing random discontinuity into the sequence. Elimination of sequencing creates undifferentiated time, which is tantamount to eternity."

3. Tempo as politics, slowness in everyday life

Paul Virilio, Speed and Politics (1980) sees speed as far from neutral: it orders our lives, dominates our expectations, even alters our deep sense of ourselves. The dotcom experiences has led us to consider the extent to which "fast company" has to some extent been at the very least a subconscious attempt to subvert necessary analysis and reflection. The very climate of speed in the dotcom era did prevent proper consideration of both individual projects, and of the dotcom phenomenon as a whole. As the dust settles on the boom and bust early period of dotcom, the signs are that, with some honourable exceptions, sustainable dotsuccess is more likely to emerge from dotorgs than from dotcoms. That is to say, from those whose prime motive for a presence is the fostering of online community, and consequent action in pursuit of a not-for-profit goal.

We are certainly not supporters of "paralysis by analysis", and are well aware of the use of slowness as a deliberate tactic by those seeking to subvert essential reforms and innovations. Recent research conducted for the Industrial Society (Max Nathan, 2002) on the politics and geography of workspace identifies, in particular, the drag on office effectiveness created by unilateral and individual customisation of the workspace (generally as some kind of silent rebellion against the disorder and incoherence of organisational change).

All the same, in many areas, there are many disadvantages to speed. When we asked a focus group where slowness was intrinsic to quality in everyday life they very quickly identified:
    Wine making
    Sex
    Burial and grieving
    Pregnancy
    Holidays
    Investment
    Planning
    Building customer relationship
    Visits to museum and art gallery

You might say, as one early reviewer of this paper has, that the point of slowness boils down to a search for the essence of things. Without the context of seeking meaning, the value of slowness might be questionable and open to abuse. With intent, its value can be incalculable.

4. Internal and external tempo

The notion that fast is good relates almost always to competition or something happening **outside** of an organization – being faster than competitors is the goal (to sell products, to deal with a fire before the flames destroy the building). Speed has also become synonymous with efficiency (especially relating to cost) and

organizations who get work done faster have, all other things being equal, a competitive advantage in the market.

Inside an organization, however, there is another measure of speed or better, tempo, dictated by procedure (e.g. reports, meetings, chains of actions where various people have to sign off something), division of labour, time-differences in global organizations, and so on.

This twofold notion of internal and external tempo was introduced earlier via Figure 1, and can be seen in the modern workplace where companies need to get products on the market faster than their competitors but on the other hand spend increasingly longer hours at their workplace. Acceleration doesn't mean things get done faster but seems to trigger a larger workload (interesting to measure whether individual tasks really get done faster or people slow down when work piles up).

How do we "make time' in an organization? More to the point, how do we stop organisations structurally taking time away from people by burdening them with the kinds of formal processes described above? In perhaps 100 – 150 client assignments over five years, almost every one that Sparknow has conducted has had as one recommendation the need to stop doing some things, in order to make the time (and energy) in which people might start doing other things. In every case, individuals are desperately scrounging time to get real work done by developing their own shortcuts which bypass formal systems.

To 'make time', we believe you need to reconsider the units of time in which organisational life is measured.

5.   Homogenous and heterogenous time, knowledge claims

If we refer to tempo not as clock time but as perceived speed or velocity we need to look at the impact events have in a given time frame. This can be looked at in terms of employees' emotional reaction: boredom when time seems to pass slowly, stress when time/tempo is accelerating.

Clark (1990) refers to homogeneous and heterogeneous chronological codes

> *Homogeneous*: "objective" time system with measurable, clearly defined temporal units (working hours, days, weeks). This enables planning procedures, designing time intervals that can be filled with projected events.

> *Heterogeneous*: qualitative time, **in** the event, dependent on the events which emerge.

These could also be called convergent and divergent notions of time and temporality. For example, the work in progress phase of knowledge creation is particularly demanding in its requirements on data and information, on retrieval and processing, on reflective process. There are contrasting needs. Narrow uninterrupted focus contrasts with expansive serendipitous stimulus. These are the contrasts between what is needed for convergent thinking and what is needed for divergent thinking.

These contracts place extraordinary demands on the psychological environment, on the physical environment, and on the data and information resources needed.

Bruno Latour (1991) describes syntagms or paths of what he describes as 'knowledge claims'. A syntagm is a group of associated elements in a meaningful sentence. In his short essay he describes an example of a syntagm taken from 'The Little Prince' by Saint-Expuery. The context is that of the Turkish astronomer who wants to talk about asteroid B612. The first day he does so in traditional costume and is laughed at by all his colleagues. The second day he does the same demonstration dressed in a three piece suit and is taken seriously.

> Syntagm1. Demonstration + Turkish National Costume + collegial laughter
> Syntagm2. Demonstration + three piece suit + collegial esteem.

The importance of this for considering the rhythm, or tempo, of life inside organisations is that you cannot predetermine the weight of what counts, of what is rhetoric and what is essential. According to Latour you need to calculate the weights of factors as a function of the movement of syntagms or the whole knowledge claim. Thus the passage of time over the history of a project or innovation is no longer a fixed, regular framework. It becomes a consequence of alliances, interactions and sequences which form syntagms. The actors create their respective relationships, transformation and sizes and let the speed of events depend entirely on the "movements of alliance and rupture" formed by the actors and their props.

Heterogenous time (Clark 1990) becomes a more important unit than homogenous time.

6. Slack

In recent years some of the strongest support resisting the inexorable pressure for accelerating both decisions and their implementation, has been from what we can describe as the "slack" movement. This movement has correctly identified the elimination of slack in the planning and implementation of projects, in particular, as a fundamental reason why projects go wrong. Although the slack movement has made clear and coherent arguments, its voice has often been muted against the barrage of the "fast company" advocates. However, this latter barrage has itself become muted in the wake of the dotcom fallout. This makes it a particularly appropriate time to review this issue of speed in the context of the effective creation of knowledge.

Lawson (2001) is unambiguous on the significance of slack in reintroducing a balance between short term reactions and long term reflection:

> "Organizational slack, in terms of time and human resources that are not constantly subject to measures of short-term efficiency, is important for organizations coping with the challenges of the 21st century. Those who must weigh the pressures for short-term efficiency against the demands for long-term effectiveness in confronting strategic resource-allocation and design decisions should consider the value of slack. Slack is important for organizational adaptation and innovation--two often-cited requirements for organizations of the future. Increasingly complex systems and technologies

require more, not less, time for monitoring and processing information. Future demands for strategic flexibility and for integrating learning and knowledge throughout organizations highlight the need to reexamine the importance of time in organizational work--and to recognize that all organizational resources cannot be committed to immediate output efforts if we are to have time to pay attention, think, and benefit from the knowledge gained. "

The legacy of the nineties, says DelMarco (2001) is a "dangerous corporate delusion: the idea that organizations are effective only to the extent that all their workers are totally and eternally busy,"

8. Ambiguity

A key message about the importance of slowness relates to the significance of ambiguity and dilemma. Slowness allows ambiguity, which can be extremely valuable in avoiding defensiveness, or vulnerability. Brunsson (1985) in his classic critique of the rational method in public sector management, specifically advocates slow processes to enable not a "better" decision, but rather building up commitment to a more successful implementation of the decision. Speed is all about clarity, urgency, briefing, action. Slowness (not the same as sloppiness) allows ambiguity, dilemma, paradox, contradiction to become visible, be explored so enabling organisations to reach the subtle, tacit knowledge which is of such great value.

This is even more necessary in virtual networks, such as that characterised by the experimental, and sometimes deliberately (sometimes accidentally) ambiguous Sparknow business model. Here the long slow nurturing of social capital, mutuality and trust allow for the threading together of insights which emerge across different disciplines to weave a much stronger, more tensile fabric. Such a process is fraught with ambiguity and dilemma, particularly as often two or more worlds are colliding. The challenge is to avoid entropy, and harness the energy from the collision.

Advocates of storytelling as an organisational tool identify ambiguity as one of the key attributes of story which can make it a force for organisational change (Sparkteam 2001, Allan, Fairtclough, Heinzen 2002).

But fostering a climate in which ambiguity is possible takes more than storytelling, it takes a profound understanding of the role of dialogue in organisational sensemaking (Weick 1995).

9. Dialogue

Bruno Latour (1991) points out that the force with which a speaker makes a statement is not enough in the beginning to predict the path the statement will follow. This path depends on what successive listeners do with the statement which leads to 'programmes ' of speakers and 'anti-programmes' of listeners. If the speaker is ordering something, the order that is obeyed is not the same as the original order, it has been translated, not transmitted. You do not follow a statement though a context. What you follow is the simultaneous production of a 'text' and a 'context'.

Dixon (1998) emphasises the importance of dialogue at work. More specifically, Fabry (2002) has analysed the contribution of discourse theory in Habermas (1985) to the management of knowledge. She reviews how Habermas distinguishes between interaction and genuine discourse. Interaction is only operational among people who share the same ideology:

> "People with different ideologies have to surpass conventional communication and transcend to the meta-level of discourse. It is only within discourse that norms are challenged and change initiated."

Fabry then goes on to analyse the time dimensions of discourse theory. Habermas argues that for true consensus, there need to be four essential prerequisites of an effective discourse, namely equal opportunities:

> To partake/participate
> To justify and to interrogate
> To represent (no deception of self or others)
> The same rights, entitlements and obligations

These are the:

> "language speech theoretical conditions for truth, freedom and justice. Such discourse *if carried out over a long enough period* will end per se with a true consensus." (our italics)

10. Dialogue as an integrative solution

Interestingly, an earlier writer (Vickers, 1983) advocated something similar to discourse which he called the "integrative process".

> "The most highly developed example known to me of the integrative process is the time-consuming but effective model by which the Society of Friends deals with its common business. Their procedure depends for its success not only on the belief that, given time and properly conducted dialogue, an integrative solution will emerge; but also an acceptance of the fact that time is indispensable to the process of restructuring reality systems and value systems, on which integrative solutions depend"

Vickers goes on to quote an example of an executive faced with a need for far-reaching change, who decided:

> "to interrupt his meeting for three days after his new idea had been clearly presented but before those concerned had had time to commit themselves publicly to their first reactions. He was unusual in treating human reactions with as much respect as he would have accorded to chemical reactions."

Louis (1994) provides us with a perspective on the Quaker "Meeting for Business" written from an academic organisational behaviour perspective. She notes firstly the role of silence:

"Periods of silence mark the beginnings and end of each meeting. The silence is of the same quality as in a regular Meeting for Worship: that is, it is a worshipful silence. Silence may also be invoked as needed during the discussion. For instance, if conflict arises, if there is an impasse, or if someone perceives that it would be desirable to deepen consideration of an issue, the clerk or someone else may call for silence"

One of the key Quaker protocols relates to haste:

"Instead of rising hastily to reply to another, it is better to give time for what has been said to make its own appeal, and to take its right place in the mind of the Meeting. We ought every to be ready to give unhurried, weighty and truly sympathetic consideration to proposals brought forward from whatever part of the Meeting".

Closure is achived by "unity", which is different from unanimity in that those who do not support a proposal will agree to withdraw their objections. "Without unity action is not taken", and as a result the issue may need to be subject to considerable further discussion. Lest we leave with too idyllic a view, Louis concludes

"The community is not without differences and difficulties, even disputes. But a well-respected process is in place for dealing with differences and doing so with respect for one another".

Paolo Freire (1994) sets out a manifesto on the need for dialogue, which takes time to set up in effecting change, and advocates critical and liberating dialogue:

"...to substitute monologue, slogans and communiques for dialogue is to attempt to liberate the oppressed with the instruments of domestication. Attempting to liberate the oppressed without their reflective participation is to treat them as objects which must be saved from a burning building."

This has for us particular resonance. Our very first discussion of the concept of 'slow company' took place on a (very slow) train from Liverpool to London. In that conversation we discussed the saving of objects from a burning building, the City University building which had recently been in the news. In that instance the objects which were treasured were in many cases meaningless, except as mnemonics for individuals – a ticker tape which triggered the memory of a technology discovery, family pictures etc. What is the role of objects in slowness?

11. Objects and artefacts

We have rehearsed elsewhere at length a belief in the role of artefacts and objects, and their pivotal role in maintaining a balance between two worlds, the poetic and the informative.

Artefacts play a crucial role in keeping Communities of Practice together and adaptable to change. Wenger (1998) describes the process of giving form to our experience by producing objects that congeal this experience into `thingness.' He uses the term 'reification' to cover a wide range of processes that include 'making,

designing, representing, naming, encoding and describing, as well as perceiving, interpreting, using, reusing, decoding and recasting.' Communities of Practice will create routines, procedures, stories and other artefacts which will help to negotiate meaning and pursue a joint enterprise. These artefacts can also have unintended effects – they can stimulate discussion and reflection and be catalysts to action and collaboration. Therefore not only the artefact itself but also its interaction with people as well as the process of creating and maintaining it need to be the focus of enquiry.

This also dissolves the division of knowledge into soft or hard, tacit or explicit, structured or unstructured, much as Bruno Latour discarded the duality of objects and society (1991). There is no such thing as objectless or subjectless knowledge. Similarly, we cannot analyse the way a company does or does not function by looking at objects – forms, spreadsheets, equipment, software, intranets, space – and company culture separately. We cannot change the culture of a company culture or make it more knowledgeable simply by supplying new tools – we have to look at the developmental dynamics of human conduct *and* the objects of work (Schein 1992).

Contemplation of objects can trigger imagination - the capacity to see beyond the materials given, including the materials directly given in limited personal experience. It is the faculty of the human mind that responds to story and is excited by the possibilities of art. John Cage's silent work 4'33" is an extreme demonstration of this (Larry Solomons 1998):

> "The first performance of John Cage's *4'33"* created a scandal. Written in 1952, it is Cage's most notorious composition, his so-called "silent piece". The piece consists of four minutes and thirty-three seconds in which the performer plays nothing. At the premiere some listeners were unaware that they had heard anything at all. Cage said, "People began whispering to one another, and some people began to walk out. They didn't laugh -- they were just irritated when they realized nothing was going to happen, and they haven't fogotten it 30 years later: they're still angry."

Objects used as "unburied time capsules" by an organisation can capture and transfer the important histories and stories which will influence success. Tangible objects last and can provide continuity during periods of change. Using narrative and storytelling techniques expressed through artefacts can bridge the public and the private, the physical and the conceptual (Sparkteam 2001).

12. Domain: Team Debriefing

Debriefing is a process that is carried out across a very wide spectrum of organisations, in widely different ways, and we have specifically examined examples of team debriefing in the emergency services, by contrast to approaches used in professional service firms.

Colardelle & Wybo (2000) use systematic, but non-technological knowledge processes to improve debriefing of near-miss rail incidents. Wybo's approach marries slowness (a detailed, individual and collective deconstructed narrative of a near miss incident) with reflection on future speed - what episodes in the atomised experience could be managed differently, better and faster next time?

It is essential to avoid an inappropriate emphasis on speeding up such processes. Schein (1992) identified the importance of making time for learning, of not being obsessed only short-term coping and adapting:

> "Lean and mean is not a good prescription for learning"

We have recently been studying knowledge management in a large professional services firm. Since the second world war, this firm has, like all its competitors diversified from its original professional base to build up a diverse range of specialisms, several of which could be dealing with a single client firm in parallel. This firm has invested significant sums in its information technology, specifically its intranet, in order to enable rapid debriefing across the whole firm about any given client. Yet this intranet lies substantially unused, the province of only a few "enthusiast" users.

On further investigation, it appears that one major problem is that this firm was late to the implementation of office automation, and unlike competitors who developed their collaboration around shared databases, this firm developed an e-mail culture. E-mail is in many ways the epitome of the "fast company" mindset – send any amount of information rapidly to as many people as needed globally if necessary. E-mail is a form of unstructured and unclassified information publishing, with modest guarantee of persistence. (While the first telegram from the 19th century has been preserved for ever, the first e-mail from the 20th century has already been lost).

But apart from having opted in an unplanned way for a technology unsuited in many ways to debriefing, there is an equal problem of trust. Many of the experts involved with a single client do not know each other personally. They are often reluctant to share what they regard as privileged and sensitive information even with work colleagues servicing the same client. Older practitioners reflected back on the way they had learnt about both professional content and relationships:

> "When we studied we were called articled clerks. We were in effect apprentices attached to a partner. Our desks were right there in the partner's office. Much of the way we learnt was by overhearing what was going on in the partner's dealings with clients and colleagues. Today's trainees are sent away for formal training and never slowly develop insights into how to build trust."

So here is a professional services firm, heavily knowledge-based, which has been unable to develop a satisfactory form of debriefing, despite considerable expenditure on technology. Examples of successful project debriefing in professional firms are surprisingly few (Cross and Baird, 2000; Wolf, 2000). Perhaps not surprisingly, one highly successful expert at debriefing was Thomas Edison (Fisher and Fisher, 1998)

It is interesting to contrast the ineffective experiences of debriefing in this large firm, with those involved in "critical incidents", typically the emergency services and the military. In some environments, there is a vital imperative for fast debriefing, perhaps above all in bomb disposal. A bombing campaign may be carried out near-simultaneously in several cities or even countries, and may possible involve bomb

devices never before seen. It is therefore vital to be highly effective in communicating experiences from the location of the first bomb as near instantly as possible, and today this will also involve both still and moving images. But in the second phase - the forensic investigation of the bombing, there will be a tremendous emphasis on carrying out the task thoroughly rather than fast (Technical Working Group for Bombing Scene Investigation, 2000). This is the slow world of the Sherlock Holmes quotation with which we began this paper.

We have observed similar behaviour in dealing with fire incidents – speed of information and knowledge exchange at the fire-fighting phase, contrasted with systematic, and what many would regard as slow, debriefing after the event. In our earlier paper (Ward, Holtham and Bohn, 2001).

The business world often appears to be surprisingly reluctant to learn from the experiences of the emergency services and military, even though one might assume that knowledge-sharing processes forged out of the traumas of life and death might as a result have evolved under pressure rather more extensively than in office environment where the lack of biscuits with coffee may be seen as deprivation. Some rightly urge caution in over-emphasising the wider messages from emergency service debriefing (Elliott, Smith, and McGuinness, 2000), yet there are many areas of almost direct relevance, such as the US Center for Army Lessons Learned (CALL) (Baird, Henderson, & Watts, 1997).

One example provided to us in the military environment of effective debriefing was where four different infantry groups need to meet together during battle. Each was plugged into separate radio networks, and information needed to be taken into and fed back into those three separate networks. So the commanders reversed their trucks to form a plus sign shape, with the back of the trucks facing onto the hollow square at the center. Apart from producing an element of both privacy and quiet, of vital significance was that the radio operators were in the back of each truck as "back row participants", and could immediately receive and send information and orders.

11. Domain: Individual Learning

Adelman, Haslem and Pringle (1996) identify the importance of time in education:

> "One theme in particular intrigued us: the uses of time for teaching and learning. Time is pervasive. Time lends itself to cliches. Time, as an issue, crops up when you thought that you were focusing on other things. In short, time is potentially a key element in reform efforts of any kind. In addition, the amount of time that American students spend in school-- widely perceived to be less than in other industrialized nations and therefore a potential cause of disappointing results for U.S. students in international assessments of achievement--was about to become the focus of a congressionally-mandated Commission on Time and Learning. Time, it appeared, was coming into its own as an educational research variable."

There has been considerable discussion in the recent years of the benefits of electronically learning (e-learning). It has to be said that the great bulk of this discussion has been initiated by the protagonists of e-learning. We are in little doubt

that e-learning can play an important role in learning innovation and achieving significant benefits (Rosenberg, 2001). However, we are not convinced that e-learning is problem free. Indeed we believe that in certain key respects, e-learning has specific disadvantages which, perhaps hardly surprisingly, its protagonists have not felt necessary to dwell upon. Our particular concern is with the nature of time in learning.

Rosenberg (2001) outlines a common perspective on the need for just-in-time technology based learning, although he also recognizes diversity of learning styles:

> "Widely distributed employees who are busier than ever are calling for delivery solutions that meet their needs and time frames. Learning must be available on a 24/7 clock, with delivery to the office, home, and hotel room. Time is emerging as a critical factor in learning. Employees want and need to learn according to their schedule, not the schedule of the training organization. They also want to learn as fast as possible. Managers want this, too, as it saves downtime due to training and increases overall organizational mobility. But others may want to learn more slowly, a little each week or whenever their schedule permits. While classroom training still has a critical role to play, the needs of employees who have different time requirements can be met most effectively by putting technology in the mix."

It is possible that the era of electronic learning environments may continue to place emphasis on traditional skills, even those of memory (Yates, 1966). There is now sufficient evidence of virtual learning environments for their actual and potential weaknesses in knowledge creation to be surfaced. In the area of online class discussions, for example, there has been inadequate consideration of the temporal, dramatic and choreographic elements of the conversations. We conclude by arguing that electronic learning media need to draw on both traditional and on re-designed knowledge creation processes, with particular reference to appropriate tempo, if they are to rise above the purely instrumental types of learning experience.

Many learning tasks necessarily involve the consumption of time, sometimes very considerable amounts of time. Mastery onto a musical instrument is quite clearly an extremely time-consuming process, even where introductory skills can be quite quickly developed. The traditional British apprenticeship took five years, this for a non-graduate to develop mastery in their chosen occupation. It takes seven years to train an architect in Britain on average, longer than to create a medical doctor.

Paul Harris in an article in The Observer (3rd March 2002) writes of the demise in Britain of trades where the commitment to individual learning takes the form of apprenticeship which stretches over years:

> "One of the main stumbling blocks to younger people joining artisan-style professions is the lengthy and often arduous apprenticeships involved. Most full-time blacksmith apprenticeships last three years, and if you want to be trained to shoe horses it can take up to two years longer on top of that. Becoming a fully trained horologist can take up to five years. An apprenticeship to become a thatcher lasts four years."

Set against this there are constant pressures to reduce the time spent in professional education and development. Much of the promise of e-learning is extended at the level of professional development, rather than at the undergraduate level. We believe that it is essential to initiate a critical discussion concerning the speeding up on educational processes

Castells (1996) argues for the potential impact of speeding up education in that:

> "school education, media entertainment, special news reports or advertising organize temporality as it fits, so that the overall effect is a nonsequential time of cultural products available from the whole realm of the human experience"

although he also sees school education as largely "child-care centers and/or children's warehouses", and – perhaps curiously for such an advocate of timelessness - quality higher education "associated with the intensity of face-to-face interactions".

12. Repetition, redundancy and reincorporation

It is interesting if we reflect on the most basic aspects of learning, that of small children. Regardless of the benefits or otherwise of the conventional classroom environment, it is clear that repetition plays a vital part in the initial educational process. Even though the scope for learning by rote is now regarded as distinctly limited, if not highly undesirable, there is still remains considerable significance in repetition in learning. It is interesting that one conventional approach in learning is to repeat statements about the thing to be learned, perhaps with slight variation. This can be regarded as "redundancy". This term that often carries a negative meaning, for example, in film criticism, redundancy is typically used to describe what are regarded as unnecessary repetitions. Equally, another reviewer might see this redundancy has developing the plot or creating tension. There is, of course, the well-known observation about the work of an O&M specialist who examines the operations of an orchestra and concluded that "since so many people were employed to play exactly the same notes simultaneously, many of them were clearly redundant and could be sacked."

Yet it seems to us that repetition, as with any redundant communications channel, can frequently be one successful component in the learning experience. Eliminating repetition on the grounds that one is simply eliminating redundancy – the argument of the parodied O&M specialist above seems to us a potentially risky argument generally in the context of learning. They may well be occasions when repetition is expensive and unnecessary. There may also be occasions where electronic media can more satisfactorily execute repetitions many humans or classic text-based media.

Indeed, in certain environments, repetition plays a central contribution to originality. We have been exploring the value of managers learning the methods of improvisational drama and comedy, working in part with Neil Mullarkey. One of the strong features of improvisational comedy, for example, is the continued re-incorporation of previous material into new proposals and interactions with the audience. Here, repetition provides a familiar base upon which to develop twists and contrasts. It is the very familiarity with the repetition of material that provides the

sound foundation for further improvisation, in effect rather like a bass-line in music, or indeed as with the whole process of jazz improvisation.

The importance of nursery rhymes, and similarly of parables, lies precisely in their constant repetition. Now, we are certainly not arguing that the nursery rhyme and parables are necessarily suitable role models for 21st century management although Allen, Fairtclough and Heinzen (2002) point out that one benefit of storytelling is redundancy and repetition - the gaps and repeats in story give the listener a chance to hear, question and interpret and appropriate content, and give the storyteller a chance to finetune.

Traditional approaches developed from an era where the half-life of knowledge was very much slower than at present. The last 20 years has seen a massive growth of self-the help management books, and many MPs include numeric lists, such as Stephen Covey's "seven habits of highly effective people", and its many imitators as far as management "lists" are concerned. They can be little doubt that these lists of former a role not dissimilar to those of the commandments in a more religious era, where they can be memorised and repeated without technological intervention. This allies with the philosophical school of thought, described by Christopher Ross (2001) which recommends

> "not wide reading, but deep reading of a limited number of texts, which through re-reading are utterly owned, become the property as it were, of the rader, capable of being called to mind at will."

Cotton (1995) "There is no doubt that active learning takes much longer than the traditional process…formation of groups, the briefing for action, the debriefing and then discussion and reflection take a lot of time"

Papert (1980), who studied with Piaget in Geneva, believes that "children are active builders of their own intellectual structures". He is critical of traditional approaches which force "the system into a logically consistent mold", and instead advocates "a process based on tinkering; learning consists of building up a set of materials and tools that one can handle and manipulate……Here I am suggesting that in the most fundamental sense, we, as learning, are all *bricoleurs.*"

Historically, many learning processes deliberately set out to be slow. The Grand Tour of Europe which was popularised during the Enlightenment, was an explicit method . of slow learning. The sequestration of the religious hermit, or the lonely "visionquest" of the Native American were other explicit methods to take time for reflection. Although academics still have access to sabbaticals, school teachers are less fortunate, as McDiarmid (1995) advocates for *mental space* as "the opportunity for teachers to get away from their classrooms both mentally and physically to think about their work".

Weil and Rosen (1997) argue that business training with short, immersive workshops is often not the best way to teach a technical skill:

> "You must have time to explore and play. You learn it in much the same way a
> 2-year-old learns things -- through repetition and asking a lot of questions. The

goal of training programs is to get employees to say, 'Aha! Now I get it.' ... Think back to the seventh grade and what it was like learning geometry. The concepts might not have been easy. But if you'd ask the teacher to display the concept visually, for example, you had a better chance of getting it."

Sorensen (2000) studies "social learning" in response to the problems of understanding what happens to technology in society which implies an emphasis of both spatial and temporal aspects. Quoting Giddens and the literature on technology transfer he aruges that disembodied knowledge is insufficient. Knowledge has either to be embodied (transfer of people as well as technology) and/or to be developed locally through learning (Bruland 1991).

Social learning is thus more than learning-by-interacting. It may be characterised as a combined act of discovery and analysis, of understanding and meaning, and of tinkering and the development of routines. In order to make an artefact work, it has to be placed, spatially, temporally, and mentally.

13. Conclusion

The way companies deal with time and tempo at the heart of an effective understanding of risk, and an effective capacity to anticipate.

To deal with a complex world we need to be flexible. We all can work faster as we all have access to the same technology in the industrial world. Thus the advantage of speed gets eroded. Not simply accelerating (as this can lead to stress – see working hours extending despite things seemingly being done faster) but flexible tempi that allow companies to absorb information and turn it into knowlege, to exchange and communicate that knowledge and to deal with unforseeable events.

Fast tempo often encourages the use of preplanned, repetitive procedures, a culture of speed could thus encourage a reversal to old ideas and routines. We need to look at what makes time and space possible and what the intermediaries are - look at the connectedness of human and non-human agencies – Bruno Latour's work. We need time to reveal formerly invisible things – tacit knowledge become a new source of profit (attention economy) – and to search for adaptational set of skills.

However, the value of "slow company" lies in a search for the meaning of things, not in slowness for its own sake. As Christopher Ross says in "Tunnel Visions" (2001):

> "By encouraging the capacity to see systems as whole operative units, as well as orders of details, and these two things simultaneously at that, it would become possible to develop a sense of reality, currently buried under ten thousand unrelated points of view."

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