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A CRITICAL ANALYSIS OF THE KNOWLEDGE CREATION PROCESS

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Abstract

The topic of knowledge creation (Nonaka and Takeuchi, 1995) will be analysed from a philosophical perspective. To begin with, the key motivations behind the discourse of knowledge creation and management are briefly discussed. The contemporary distinction between tacit and explicit knowledge is then explored. Following this, the work of Lyotard on knowledge in a (post)modern economy will be summarised. The paper then explores how some of the work by Foucault and Adorno may provide a new direction for developing research approaches in this area.

Keywords: Knowledge creation, knowledge management, performativity, subjectification

Introduction: Why “Knowledge Management”?

In the last ten years or so, an explosion of literature on *knowledge management* has occurred. This literature is nearly all managerialist in tone, and it is underpinned by a belief in the competitive advantage that can be obtained from the exploitation of knowledge – both for companies and countries – in the developed world; a typical argument being:

“The long-predicted ‘information society’ and ‘knowledge economy’ are now emerging as tangible realities. Leading management theoreticians argue that it is much more profitable for a company to invest a given sum in its knowledge assets than to spend the same amount on material assets.” (Probst *et al.*, 2000, p. 3)

The challenge is, then, to both to create new knowledge - and exploit existing knowledge (within a firm) more aggressively than hitherto. Nonaka and Takeuchi’s (1995) work contains one of the seminal accounts of these processes, and provides prescriptions - for contemporary managers of competitive firms – concerning how to both create and exploit knowledge. They argue that, in order to persist, companies must perpetually offer competitive new products and services; moreover, “Years of research on Japanese [and other Western] firms ... convinces us that knowledge creation has been the most important source of their international competitiveness.” (Nonaka and Takeuchi, p. viii). As the marketplace is conceived of as being dynamic it follows that new knowledge is constantly needed for the existence of a company to be sustained, “By organisational knowledge creation we mean the capability of a company as a whole to create new knowledge, disseminate it *throughout* the organisation, and embody it in products, services and systems... The goal of this study is to formalise a general model of organisational knowledge creation.” (*Ibid.*, pp. iiv-ix). This approach - and that of many others in the knowledge management field – hypostatizes (and, no doubt, encourages) an unprecedented *desire* for knowledge within the firm. As Fuller (2002) points out, this has little to do with a (quaint?) curiosity-based desire for knowledge. The knowledge management literature is focussed on the needs of competitive firms (or perhaps their shareholders), “The realisation that knowledge is the new competitive resource has hit the West like lightning. But all this talk about the importance of knowledge – for companies and countries – does little to help us understand how knowledge gets created.” (Nonaka and Takeuchi, p. 7). Philosophically, this is significant. Epistemology-to-date has been a largely *regulative* activity; most philosophers have concerned themselves with the question of how to evaluate a knowledge-claim (e.g. astronomy v astrology), and have largely left the *generative* aspects alone. The knowledge management literature stresses the *generative* aspects and leaves the *regulative* aspects largely untouched – indeed, the implication is that these problems have been solved. At times, one gets the distinct impression that as long as *useful stuff* is produced, then debates concerning the *truth* of this *useful stuff* are relegated to being (economically costly) scholasticism. There are profound implications of such a

view, but further discussions of these lie outside the scope of this paper. To some extent, it can be argued that – from a critical perspective Lyotard pre-empted these arguments in the seventies. Lyotard’s contribution will be summarised shortly. One of Nonaka and Takeuchi’s key arguments is that knowledge falls into several categories; the primary distinction they draw is between *tacit* and *explicit* knowledge. These distinctions will now be discussed:

Tacit and Explicit Knowledge

Here is an “official” statement of this distinction:

“Tacit knowledge is personal, context-specific and therefore hard to formalise and communicate. Explicit or ‘codified’ knowledge, on the other hand, refers to knowledge that is transmittable in formal, systematic language... Therefore scientific objectivity is not a sole source of knowledge. Much of our knowledge is the fruit of our own purposeful endeavours in dealing with the world...” (Nonaka and Takeuchi, 1995, pp. 59-60)

Explicit knowledge need not be *subjective* – and may reside in databases, written reports, etc. *Tacit* knowledge is further subdivided into two – not entirely discrete – categories:

“Tacit knowledge includes cognitive and technical elements... Mental models [the cognitive elements] such as schemata, paradigms, perspectives, beliefs, and viewpoints, help individuals to perceive and define their world. On the other hand, the technical element of knowledge includes concrete know-how, crafts and skills. It is important to note here that the cognitive elements of tacit knowledge refer to an individual’s images of reality and visions for the future, that is, ‘what is’ and ‘what ought to be’.” (*ibid.*, p. 60)

It should be noted that *technical* skills are primarily bodily skills.

Lyotard and the Performativity Principle

Lyotard was one of the first people to link knowledge-production to economic well-being in a systemic way, and – in some ways – the knowledge management literature is a sort-of “joyful” extension of this thesis:

“There is no denying the dominant existence today of techno-science, that is the massive subordination of cognitive statements to the finality of the best possible performance, which is the technological criterion. But the mechanical and the industrial, especially when they enter fields traditionally reserved for artists, are carrying with them much more than power effects. The objects and the thoughts that originate in scientific knowledge and the capitalist economy convey with them one of the rules which supports their possibility: the rule that there is no reality unless testified by a consensus between partners over a certain knowledge and certain commitments. This rule is of no little consequence. It is the imprint left on the politics of the scientist and the trustee of capital by a kind of flight of reality out of the metaphysical, religious and political certainties that the mind believed it held. This withdrawal is absolutely necessary to the emergence of science and capitalism.” (Lyotard, 1984, pp. 76-77).

However, as already stated, Nonaka and Takeuchi make a distinction between *tacit* and *explicit* knowledge; of these, “[The] more important kind of knowledge is *tacit knowledge*.” (*ibid.*, p. viii). Interestingly, if Nonaka and Takeuchi are taken seriously (and the management literature appears to do so!) then - for critical purposes – tacit knowledge is where the attention should be focused. However, much of Lyotard’s argument relates more-or-less entirely to *explicit* knowledge; *tacit* knowledge is not considered to be predominantly *textual*. Consequently – in this context - the critical solution to the problems of the performativity-principle, advocated by Lyotard, would no longer be tenable:

“We are finally in a position to understand how the computerisation of society affects this problematic. It could become the ‘dream’ instrument for controlling and regulating the market system, extended to include knowledge itself and governed exclusively by the performativity principle... But it could also aid groups ... by supplying them with the information they usually lack for making knowledgeable decisions. The line to follow for computerisation to take the second of these paths is, in principle, quite simple: give the public free access to the memory and data banks. Language games would then be games of perfect information at any given moment.” (Lyotard, 1984, p. 67).

A critical theory of tacit knowledge dissemination will need to take a very different approach. Furthermore, Lyotard has little to say concerning the active *management* of the knowledge-creation processes in a site such as competitive firm.

Active Management of the Dynamic Knowledge Creation Process

What specific interventions are involved in the creation of knowledge in the knowledge management literature? A supercilious answer might be that there are as many answers to this (sort of) question as there are books on knowledge management! Nonaka and Takeuchi go to some lengths to explicate their theoretical and pragmatic assumptions, and these help to throw light on the issues which must be grappled with. To begin with we might ask, ‘how can knowledge be *created* at all?’. Of course, it is commonsensical enough to state that knowledge-generation doesn’t “just happen”, but it also seems commonsensical enough to assume that knowledge is generally *discovered* rather than *created*. The key here is to note that the use of the term ‘created’ implies an *active* process (in fact, various dynamic *processes* are advocated):

“In our theory of organisational knowledge creation, we adopt the traditional definition of knowledge as ‘justified true belief.’ It should be noted, however, that while traditional Western epistemology has focussed on ‘truthfulness’ as the essential attribute of knowledge, we highlight the nature of knowledge as ‘justified belief’... While traditional epistemology emphasises the absolute, static, and nonhuman nature of knowledge, typically expressed in propositions and formal logic, we consider knowledge as *a dynamic human process of justifying personal belief toward the ‘truth’.*” (Nonaka and Takeuchi, 1995, p. 58)

Truth is – most likely - in scare-quotes because the *justification* for the “stuff” generated will have to be grounded in the future; in consumer acceptance of the products (services, etc.), produced, as a result of the “knowledge” generated, in the competitive marketplace – rather than being grounded on any direct *evidence* of truthfulness. In a sense, this is perhaps the ultimate conclusion of the justification-by-performativity argument put forward by Lyotard (1984). What is different is that the exploitation (or liberation) of explicit knowledge is no longer deemed sufficient (or even central). Furthermore, the processes involved in active management of the dynamic knowledge creation process (i.e., knowledge management) have largely escaped critical attention hitherto. To critically examine the *tacit* dimension, other approaches may yield important insights; one approach being that Foucault’s analysis of *pastoral power* – insofar as it provides the beginnings of a genealogical approach to the study of the power / knowledge relations intrinsic in the typical contemporary descriptions - and prescriptions - of (tacit) knowledge management in competitive firms. Foucault’s conception of *pastoral power* will now be explored.

Foucault’s Conception of Pastoral Power and Knowledge Management

Foucault characterised this form of power thus:

“This form of power applies itself to immediate everyday life which categorises the individual, marks him by his own individuality, attaches him to his own identity, imposes a law of truth on him which he must recognise and which others have to recognise in him. It is a form of power which makes individuals subjects... the modern Western state has integrated into a new political shape, an old power technique which originated in Christian institutions. We can call this power technique the pastoral power... this form of power cannot be exercised without knowing the inside of people’s minds, without exploring their souls, without making them reveal their innermost secrets. It implies a knowledge of conscience and an ability to detect it.” (Foucault, 1982, pp. 212-214)

One of the main techniques of (old) pastoral power was the religious confession, vital for obtaining a deep knowledge of the subjects (their intentions, aspirations, secrets, etc.). The original aim of pastoral power (and its associated confessional technology) was religious salvation. Of course, in Western (mainly) secular societies, religious salvation may have lost its traditional significance, however Foucault argues that pastoral power, as a form of power, is still prevalent today - but in other guises:

“We may observe a change in its objective. It was no longer a question of leading people to their salvation in the next world, but rather ensuring it in this world. And in this context, the word salvation takes on different meanings: health, well-being, (that is sufficient wealth, standard of living), security, protection against accidents. A series of “worldly” aims took the place of the religious aims of the traditional pastorate...” (Foucault, 1982, p. 215)

It is in the appeal to secular salvation that the legitimisation of the active management of knowledge creation processes is grounded. Furthermore, these are processes which transcend the normal boundaries of management understood as (an aspect of) traditional labour-capital relations - this is discussed further below. Foucault traces the genealogy of such a conception back to ancient Hebrew, Greek, and Roman civilisations, a key notion in the themes traced is that of the shepherd:

“I just want to show a few themes typical of pastoral power... The shepherd gathers together, guides, and leads his flock... what the shepherd gathers together is dispersed individuals. They gather together on hearing his voice: ‘I’ll whistle and will gather them together.’... In other words, the shepherd’s immediate presence and direct action cause the flock to exist... The theme of keeping watch is important. It brings out two aspects of the shepherd’s devotedness. First, he acts, he works, he puts himself out, for those he nourishes and who are asleep. Second, he watches over them. He pays attention to them all and scans each one of them. He’s got to know his flock as a whole, and in detail. Not only must he know where good pastures are, the season’s laws and the order of things; he must also know each one’s particular needs... The shepherd’s power implies attention paid to each member of the flock.” (Foucault, 1988a, pp. 61-63)

The senior managers of knowledge-creating companies (in theory) display many of these features, as their role is to leverage both the tacit and explicit knowledge, generated at lower levels of the organisation, for competitive advantage:

“The basic role of knowledge officers, who are the senior managers of a company, is the management of the total organisational knowledge-creation process at corporate level... Knowledge officers should be aware that their aspirations and ideals determine the quality of knowledge the company creates. While the ideals of top management are important, on their own they are not enough; they need to foster a high degree of personal commitment by other members of the knowledge creating crew. To do so, an open-ended and equivocal vision, which is susceptible to a variety of interpretations, is preferable. A more equivocal vision, which is susceptible to a wide variety of interpretations, is preferable. A more equivocal vision gives members of the self-organising team the freedom and autonomy to set their own goals, making them more committed to figuring out what the ideals of the top really mean.” (Nonaka and Takeuchi, pp. 156-157.)

The management of knowledge-creation *cannot* be achieved using old-fashioned disciplinary-hierarchical management techniques. Managing the “flock” of potential knowledge creators involves a good number of classic Foucauldian power/knowledge themes particularly “subjectification” – ways in which people turn themselves into subjects, which has been explained by Paul Rabinov thus:

“Foucault’s third mode of objectification represents his most original contribution. Let’s call it ‘*subjectification*.’ The process differs in significant ways from the other two modes... The *dividing practices*, broadly speaking, are techniques of domination... The interplay between these modes of domination and various *social scientific form of classification*, although given new clarity and power by Foucault’s analysis and historical studies, has been recognised by other thinkers... In contrast, with the third mode, ‘subjectification’ – Foucault looks at those processes of self-formation in which the person is active.” (Rabinov, 1984, pp. 10-11 [emphases added])

The tacit knowledge creation process requires that the actors are dynamically self-forming to produce their *own* tacit knowledge – which can then be passed on (by various methods) to other members of the organisation for commercial exploitation, “Let us start with the ontological dimension. In a strict sense, knowledge is created only by individuals. An organisation cannot create knowledge without individuals. The organisation supports creative individuals or provides contexts for them to create knowledge.” (Nonaka and Takeuchi, 1995, p. 59). However, to exploit such knowledge it will be necessary for it to be made available to others in the organisation, “The explanation of how Japanese companies create new knowledge boils down to *the conversion of tacit knowledge into explicit knowledge*. Having an insight or a hunch that is highly personal is of little value to the company unless the individual can convert it into explicit knowledge.” (Nonaka and Takeuchi, p. 11) . The self-forming activities the employee must undergo take place in several modes, both bodily and cognitive, as tacit knowledge can be created in both ways (as outlined earlier). This is essentially the process of subjectification identified by Foucault, “This self-formation ... takes place through a variety of ‘operations on [people’s] own bodies, on their own souls, on their thoughts, on their own conduct’.” (Rabinov, 1984, p. 11). Part of the requisite conduct-management will be the “pastoral” function of converting tacit (individual) knowledge to explicit (socialised) knowledge.

A Critical Analysis of the Knowledge-Creation Process

Nonaka and Takeuchi (1995) provided four models of knowledge “conversion”. These will now be summarised.

Tacit to Tacit

The process described for this conversion is *socialisation*. Tacit knowledge is gained from experience and this can be passed on to others. Bodily training is as important as anything cognitive in this process. This bodily training is largely to be self-initiated, and requires adequate pastoral arrangements / incentives, etc. It should be noted that (in theory) *disciplinary* procedures play no (or very little) part in this process.

Tacit to Explicit

The process described for this conversion is called *externalisation*. This process is essentially one of making the (largely) bodily knowledge textual, although it will not always be possible to directly express this knowledge in prose or diagrams, “When we cannot find an expression for an image through analytical methods of deduction or induction, we have to use a nonanalytical method. Externalisation is, therefore, often driven by metaphor and/or analogy.” (Nonaka and Takeuchi, 1995, p. 65). However, to be ultimately useful, such knowledge will need to be codified in fairly precise language. There may be considerable scope for further critical research concerning this mode of conversion

Explicit to Explicit

This process is described (rather unfortunately, perhaps) as *combination*. Any cognitive learning from primarily textual sources (e.g. databases) falls under the rubric of ‘combination’. Interestingly, Lyotard’s (political) plea to “give the public free access to the memory and data banks” seems to have been taken on board *within the boundaries* of the knowledge creating company. Discussing the Kao corporation (in Japan), Nonaka and Takeuchi note the following:

“To assure ‘free access to information,’ computer systems have been introduced throughout the Kao organisation., with all information being filed in a database. Through this system, anyone at Kao can tap into databases included in the sales system, the marketing information system (MIS), the production information system, the distribution information system, and the total information network covering all of its offices in Japan. the unique feature of this system is that any member, no matter what his or her position or to what section she or he belongs, within the business system, has full access to the database (except for a limited amount of personal information). In other words, anyone can get access to the rich base of explicit knowledge that exists within the business system through this ‘free access to the information system’.” (Nonaka and Takeuchi, 1995, p. 172).

In a way, this is striking - no (or little) risk is perceived as a result of this policy; indicating a considerable discontinuity between this approach and the older “disciplinary” approaches to management (where security and “need to know” issues are paramount).

Explicit to Tacit

The process described for this conversion is *internalisation*. This is hard to describe – Nonaka and Takeuchi suggest “learning by doing” (p. 69-70). Once again, the body is centrally involved, as it learns to behave in ways formally written down. Explicit operations on the body are central here, as this example shows:

“An example of internalisation through ‘learning by doing’ can be seen at Matsushita when it launched a companywide policy in 1993 to reduce working time to 1800 hours... the policy’s objective was not to reduce costs but to innovate the mindset and management by reducing working hours and increasing individual creativity. Many departments were puzzled about how to implement the policy, which was clearly communicated as explicit knowledge...[They] advised each department to experiment with the policy for one month by working 150 hours. *Through such a bodily experience, employees got to know what working 1800*

hours a year would be like. An explicit concept, reducing working time to 1800 hours, was internalised through the one-month experience.” (Nonaka and Takeuchi, 1995, p. 70 [emphases added])

In this mode, written prescriptions will be *internalised* as bodily activities, processes, etc.

The Four Processes

These four modes of knowledge conversion very explicitly link operations on the body and the mind. The settings in which these are to take place hardly resemble the “disciplinary” organisation (of the past), however there are strong indications that subjectification processes should be occurring.

Discussion and Conclusion

It is obvious that the knowledge creating company is (at least in theory) a very different beast from the disciplinary organisation. Many of Foucault’s later themes on power and subjectivity certainly seem relevant to analysing the power effects of knowledge creating companies on those who are employed within them, but it must be doubted as to whether these analyses could go beyond thematic conclusions. The most important examples given by Nonaka and Takeuchi (1995) are Japanese companies – genealogical studies have been mostly European. Whereas companies based in the USA follow many social patterns observed in European companies - and there are considerable similarities in the histories of North America and Western Europe at the ideological / genealogical level - very little (genealogical) material from Japan is available. Nor – until very recently – has there been a great deal of cross-fertilisation (of ideologies, social structures, etc.) between Europe / North America and Japan – although a review of the American influence (on Japan), immediately post 1945, would seem worthwhile. Nevertheless, genealogy concerns itself with what it is that makes management styles (etc., etc.) *readily acceptable* to people. In this respect many of Foucault themes will be worth revisiting (particularly those on subjectification) if the styles of management advocated by Nonaka and Takeuchi prove to be more than fleeting. But will they? Already the knowledge management displays many aspects of the *bandwagon/fad* effect of much prescriptive modern mismanagement literature. This study has focussed on Nonaka and Takeuchi’s (1995) work precisely because if it were to be widened to take into account the multifarious approaches to the topic of *knowledge management*, available in the literature, it might well prove impossible to do any serious analysis at all. Moreover, some *knowledge management* literature is now almost totally focussed on IT. At this point, it is worth mentioning that Nonaka and Takeuchi only include one extended discussion on IS (there is nothing on IT) in the whole of the 1995 book, and this discussion has been (largely) included in section 6.3 above. Assuming that Nonaka and Takeuchi’s work is durable (for the moment), a focus on technology seems to miss all the homilies about the importance of tacit knowledge – especially its bodily character. Furthermore, in this respected, it can be argued that the changes in management, seemingly advocated by Nonaka and Takeuchi, can appear to be (proposals for) changes in *relations* of production in European / North American firms, rather than changes in the *forces* of production (Adorno, 1968). Moreover, it is the illusion - that these proposed changes in relations of production – are (critically) *substantive* that appears to give rise to the some of the enthusiastic *academic* receptions of these ideas in Europe / North America, whereas – on the contrary – it is precisely because they are merely extensions / formalisations / etc. of techniques of management that have been gathering momentum since at least the 1960s that probably accounts for the enthusiasm shown by *managers* for these ideas. *Prima facie*, that the body must be re-invigorated as a productive force – even in the most sedentary of occupational settings – would be a management prescription that would hardly have surprised Michel Foucault. Further research is underway by the author to locate Nonaka and Takeuchi’s work in a wider discussion of the shift of emphasis - taking place at the present – from *constant* capital enhancement (e.g. new IT) to *variable* capital utilisation-enhancement (e.g. knowledge creation and management).

References

- Adorno, T. W. “Is Marx obsolete?,” *Diogenes* (64), 1968, pp. 1-16.
- Foucault, M. “The subject and power,” in Michel Foucault: Beyond Structuralism and Hermeneutics (1st Ed.), H. L. Dreyfus and P. Rabinov, Brighton: Harvester, 1982, pp 208-226.
- Liotard, J. (Tr. Bennington, G. & Massumi, B.) *The Postmodern Condition*, Manchester: Manchester University Press, 1984.
- Nonaka, I. and Takeuchi, H. *The Knowledge Creating Company*, New York: Oxford University Press, 1995.
- Probst, G., Raub, S. and Romhardt, K. *Managing Knowledge*, Chichester: Wiley, 2000.
- Rabinov, P. “Introduction,” in *The Foucault Reader*, P. Rabinov (Ed), Harmondsworth: Penguin, 1984.