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The Temporal Order of Work

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Introduction

Time and questions of timeliness are of abiding practical concern to ordinary members of society and workplace analysts alike.¹ Time structures the working day, shaping the division of labour and flow of work through it. It is an essential ingredient to any contemporary understanding of work, routinely exploited by workplace analysts (consultants, managers, organisational toolsmiths, etc.) to plan and order work's accomplishment in fine-grained detail. What we want to do in this chapter is elaborate the impact time has come to have on work and how the temporal order of work has come to be an important topic within the ethnomethodological canon as an oriented-to topic *and* resource in work's incarnate accomplishment. Ethnomethodology wants, in short, to understand time from *within* work: to time as a setting's members orient to and exploit it as an essential resource in work's local, occasioned, and embodied accomplishment. This internal or endogenous view of time is not one that necessarily focuses on the clock or temporal measurement, but on the particular working competences a setting's staff employ to work *with* time and the material ways in which they *do* that.

Time and work-discipline

Time as we know and understand it today has not always been an indispensable feature of work. E.P. Thompson's seminal essay *Time, Work-discipline, and Industrial Capitalism* (1967) reminds us that the nature of time in work is not constant but has changed, from a *rhythmic* feature of everyday life driven by the natural world to a *calculable* feature of working life essential to its organisation. Calculable or measurable time is very much an

¹ Time is, of course, of broad theoretical interest to social scientists and philosophers too, but we do not want to touch upon that here other than to recognise that interest in time is broad and diverse (cf. Adam, 1990; Bolter, 1984; Castells, 1996; Durkheim, 1947; Giddens, 1981; Heidegger, 1978; Lash and Urry, 1994; Marx and Engels, 1976; Mumford, 1963; Weber, 1985).

invention of the industrial age. While clocks pre-date industrialization, their use to organise labour in fine detail does not. As Landes (1983) puts it,

“The clock did not create an interest in time measurement; the interest in time measurement led to the invention of the clock.”

Work was organised by much more irregular temporal patterns prior to the accurate and sustainable measurement of time by clocks, patterns which reflected the agricultural and cottage-based nature of work in pre-industrial society. In this context time was a natural rather than a mathematical phenomena, measured by such things as the rising and falling of the sun or the tides and the changing of the seasons, in which work was ordered by the day's tasks: the need to milk the cows, spin wool, gather the harvest, etc. *Task-orientation* rather than an orientation to mathematical time governed work in pre-industrial society, which is to say that the idea of working for a fixed period of time was quite alien: you did what had to be done, not more, and the clock did little more than signal the beginning and end of the day.

However, social and technical change in the 18th century heralded the widespread production of large surpluses of both goods and people and fostered a new sense of time as a core *organisational value* underpinning a new labour discipline in the doing. As Thompson describes it,

“Enclosure and the growing labour-surplus at the end of the eighteenth century tightened the screw for those who were in regular employment; they were faced with the alternatives of partial employment and the poor law, or submission to a more exacting labour discipline. It is a question, not of new techniques, but of a greater sense of *time-thrift* among the improving capitalist employers!”

The value attributed to time was not driven by economic imperative, however, or not by economic imperative alone. The moral concerns of the Evangelical and Methodist movements, rooted in the protestant ethic of earlier generations (Weber 1985), underpinned the industrial revolution in both urban and rural contexts. The irregular nature of work in pre-industrial society meant that people had a surplus of time. How they 'spent' that surplus became a source of moral reasoning for champions of protestant doctrine. Essentially, it was argued, time could be well-spent engaged in profitable labour or it could be idled away. We will leave it to the reader to work out which way the path to salvation allegedly lay, suffice to say that Weber attributes the rise of capitalism to the protestant concern with the

profitable use of time (ibid.). The protestant ethic transformed time into a virtue and vice. Made time into something of broad moral concern. A value that could be invoked, for example, to justify the low pay and long hours that apparently typified work in the early factories as a means of moral correction for the lower classes.

Nonetheless, and despite the extremely poor terms of work the value of time may have engendered, clock time performed few practical functions at the outset of the industrial enterprise. Even in the early factories, which existed alongside cottage industries and workshops in a symbiotic relationship, task orientation largely maintained. Initially, the role of the clock was not one of promoting efficiency but of social coordination: a practical mechanism to ensure that workers turned up at the new factories at an appropriate hour.² Irregular patterns of work were commonplace in the early factories too, both as a result of the contingencies that might effect work (weather could easily delay the processing or shipment of goods, for example) and in terms of old habits: the natural rhythms of the old temporal order not only provided for irregular patterns of work but also punctuated them with an array of traditional holidays, fairs, and customary wakes and feasts.

The use of clocks to organise work itself didn't emerge until the 18th Century. Crowley's Ironworks provides perhaps the earliest recorded example (circa 1710) of the imposition of a new work discipline based on the observance of measurable time:

“Some [workers] have pretended a sort of right to loyter, thinking by their readiness and ability to do sufficient in less time than others. Others have been so foolish to think bare attendance without being employed in business is sufficient ... Others so impudent as to glory in their villany and upbrade others for their diligence ... To the end that sloath and villany should be detected and the just and diligent rewarded, I have thought meet to create *an account of time* by a Monitor ... There will then be thirteen hours and a half neat service ... after all deductions for being at taverns, alehouses, coffee houses, breakfast, dinner, playing, sleeping, smoaking, singing, reading of news history, quarelling, contention, disputes or anything forreign to my business.” *The Law Book of Crowley Ironworks* (Flinn 1952)

The ‘account of time’ ordered by Crowley introduced the time-sheet into working life, compiled each day by the Monitor and the Warden of the Mill for every employee.³ Details of work were entered to the minute and strict controls were placed on the use of clocks.

² Not that the clock itself actually provided for this but rather, the ‘knocker up’ and later on the factory whistle.

³ This, in turn, heralded the onset of new accounting practices that were essential to the continued rise of capitalism (Pollard 1965, Bryan 2000).

Only the Monitor's clock was to be observed and only the Clock-keeper could alter it. A new time-based regime emerged, regulated by the Warden who signaled when the day began, when breaks started and finished, and when the working day was at an end.

It would be another 60 years or so before a measured sense of time became commonly observed. In 1771 Josiah Wedgwood introduced the first 'clocking-in' system (McKendrick 1961), although it would be another hundred and fourteen years before the printed time card became a feature of working life. Nevertheless, even at the turn of the 1700's measurable time was beginning to become an organising feature of working life and failure to observe it resulted in sanctions that inevitably resulted in the loss of wages and even work itself. The purpose of the clock and measurement of time in the early years of industrialization was not so much one concerned with efficiency, however, as with *work-discipline*; a matter of ensuring that a day's labour paid for was not wasted and frittered away. Yet the observance of clock time was not easy to instil among the workforce. 'Idleness' in all its rich variety continued to persist, and it is arguably the case that the introduction of wage incentives in the late 1700s fostered a greater respect for the clock than the moral compulsions of the times. The transition from task orientation to *time orientation* and increased productivity was an extended one then. One that relied on the implementation of new systems of work, particularly the working division of labour fostered by the publication in 1776 of Adam Smith's *Inquiry into the Wealth of Nations*, as much as it did on the introduction of measurable time into work. While measurable time was exploited by early capital enterprises to impose order upon work, it is in the context of the factory system and development of the working division of labour that measurable time came to exert a more exacting influence. That achievement is very much located in the 20th century and the emergence of scientific management.

Time and efficiency

F.W. Taylor's *Principles of Scientific Management* (1964, originally 1911) extended the role of measurable time in the organisation of work for the explicit development of "each man to his state of maximum efficiency". Taylor's work was primarily motivated by a moral concern with 'soldiering' or deliberately working slowly. Soldiering was, in Taylor's opinion, the "greatest evil" with which both England and America were afflicted and which

severely hampered prosperity. Taylor's was a powerful argument for the adoption of a more stringent and productive model of man-management and his seminal text sought to rally industry and replace the 'initiative and incentive' model of work that predominated at the time. In this model, work was based on traditional rule of thumb knowledge, which was the principle asset and possession of the worker. The problem of efficiency was, therefore, *the worker's problem* and not the manager's. It was resolved through *the worker's initiative* in response to the special *incentives* (e.g., higher wages) offered by the manager. The initiative and incentive model left the problem of doing work in the best and most economical way, of planning and implementing work in effective detail, to the worker. Furthermore, working practices and implements or tools varied immensely across the trades and crafts and so what constituted the best method of carrying out work and the best tools for doing the job varied from worker to worker and place to place. The solution to the 'evil' of soldiering lay, then, in management moving beyond instilling and maintaining work-discipline to assuming *ownership* of planning and best practice. Key to this accomplishment was time:

“ ... this one best method and best implement can only be discovered or developed through ... accurate, minute, motion and time study.”

Exercising the principles of scientific management, a new middle layer of management would be created to plan and implement a more efficient system of work that paid for itself by providing enormous savings of time and increased productivity through the elimination of “unnecessary motions and substituting fast for slow and inefficient motions”. This new system of work was predicated on subdividing labour and individuating tasks, thereby decomposing work into discrete task components and assigning specific task components to specific workers rather than a work gang.

“Perhaps the most prominent single element in modern scientific management is the task idea ... [the] task specifies not only what is to be done but how it is to be done and the exact time allowed for doing it ... Scientific management consists very largely in preparing for and carrying out these tasks.”

'Preparing for tasks' might be characterised as the scientific element of the enterprise. At Taylor's instruction it was to consist of finding a small group of especially skilful workers in a setting and subjecting their working practices to study. The focus of study was each 'elementary operation' or motion and use of a tool implicated in the accomplishment of

specific work activity. Each constituent motion and use of a tool was to be timed by stopwatch and recorded. This would enable the planner to analyse a range of working practices and identify both the “quickest way of doing each element of the work” and “false movements, slow movements, and useless movements”. The latter could be dispensed with by the planner and the “quickest and best” documented in a series which described the most *temporally efficient* motions and tool uses over the course of a task. Fundamentally, the idea was that by studying the best of the best, the best methods and tool uses would emerge and thus furnish new standards.

“This one new method, involving that series of motions which can be made quickest and best, is then substituted in place of the ten or fifteen inferior series which were formerly in use. This best method becomes standard, and remains standard ... until it is superseded by a quicker and better series of movements.”

Scientific management introduced a powerful and prolific new use of time into working life. Like innovations before it, scientific management was motivated by the moral concerns of the day and tied to new systems of work which transformed time from a means of instilling work-discipline into a means of planning and standardising the very accomplishment of work in fine detail. Taylor’s account of *how* time might be exploited for these purposes is largely anecdotal however, and we must turn to his contemporaries if we are to understand the role of time in the actual study and subsequent (re)organisation of work. Key among these are Frank and Lillian Gilbreth.

Compressing time

Frank and Lillian Gilbreth pioneered the use of the film camera in their ‘micro-motion’ studies, which enabled the temporal order of work to be measured to within one thousandth of a second. Micro-motion techniques were marketed as a major advance over stopwatch techniques, replacing human judgement and error with the impersonal eye of the camera and chronometer to provide new measures of accuracy. Micro-motion study was described by the American Society of Mechanical Engineers “as revolutionary in the art of time study as was the invention of the power loom in the art of weaving” (Kent 1912). The approach was further developed through the invention and adaptation of ‘cyclegraphs’.

“The basic cyclegraph method involved mounting a miniature electric light on a ring that could be slipped onto a worker’s finger, showing up on the back of the hand. The movement of the light created a bright line on a single time-exposed photograph. A

line full of twists and turns bespoke inefficient movement. The worker's tools, equipment, and motions could then be altered until the shortest, smoothest line was developed." (Price 1989)

'Motion maps' were further adapted by interrupting the flow of current to the electric light to produce a series of flashes to display the timing and direction of motion, and other photographic techniques were subsequently developed to generate 3D representations of work's accomplishment (Gilbreth and Gilbreth 1917).

The Gilbreth's penchant for innovation did not stop there and by 1920 they had introduced 'therbligs' to the study of work (Gilbreth and Gilbreth 1920). Therbligs are construed of as the basic elements of work, the fundamental range of motions that are and can be implicated in work's achievement. The Gilbreth's identified sixteen fundamental motions, which enabled them to decompose complex work tasks into their basic motional parts. These were then mapped onto 'simo charts' using a system of symbols and notations (see Ferguson 2000), along with the time it takes to complete each motion. This enabled the sequence of bodily actions constitutive of some work operation to be plotted and their temporal efficiency analyzed. This, in turn, enabled the Gilbreth's to chart the *flow of work* and resulted in the introduction of the process chart to the study of work (Gilbreth and Gilbreth 1922). The Gilbreth's proposed a workflow model that consists of four stages - processing, inspection, waiting, and moving - and two fundamental types of time-consuming activity: transformation activities and non-transformation activities. Analytic attention is specifically paid, via the use of motion study techniques and process charts, to non-transformative activities in order to enable 'time compression' and the reduction if not the elimination of waste (Koskela and Vrijhoef 2001). As the Gilbreth's put it in their address to the Annual Meeting of the American Society of Mechanical Engineers in 1921,

"The process chart is a device for visualizing a process as a means of improving it. Every detail of a process is more or less affected by every other detail; therefore the entire process must be presented in such form that it can be visualized all at once before any changes are made in any of its subdivisions. In any subdivision of the process under examination, any changes made without due consideration of all the decisions and all the motions that precede and follow that subdivision will be found unsuited to the ultimate plan of operation ... It is not only the first step in visualizing the 'one best way to do work' but is useful in every stage deriving it." (Cited by Graham, 2005)

In their time, the Gilbreth's were not so much at the cutting edge of work study as they were the cutting edge itself. Together they exploited new technologies and devised new techniques and modes of analysis that put time at the centre of work (re)organisation. Their innovations often met with stiff opposition from workers and managers alike, however (Price 1989). It was not until the 1930's and 40's when technology became significantly cheaper and other researchers, such as Alan Mogensen (1932) and Ralph Barnes (1940), championed 'work simplification' that the approach initially developed by the Gilbreth's became much more widely accepted. In 1947 the American Society of Mechanical Engineers adopted a set of standards for process charts and the rest we might say is history.

Today, time is a key concern to work analysts of all sorts, both within organisations themselves and without. The impetus of the scientific management movement, and even reactions to it (Hammer and Champy 1993), has transformed the role of time from a means of instilling work-discipline, to a means of conducting task analysis, planning and standardization, to process analysis and the wholesale restructuring of organisations under the auspices of time compression. An abiding preoccupation with time has come to shape the modern organisation of work and the *flow view* of production invented by the Gilbreth's provides the basis for 'just in time' or 'lean' models of work that are seen as essential to efficient production in the contemporary workplace (Womack et al. 1990).

Time within work

So where does ethnomethodology sit in relation to this preoccupation with time? As a species of sociological thought it might be supposed that it will offer a critique of the modern preoccupation with time in work (see Braverman 1974, for example). Ethnomethodology, however, is indifferent to such practices because of their profound failure of to get to grips with work itself (see Randall and Sharrock in Chapter 2). More surprisingly, perhaps, it is also indifferent to the claims of workplace analysts who design and implement time compression processes. While the methods of the process engineer may pay more attention to work itself than those of the sociological critic, like the critic's methods they bind us to a generic version of the socially organised nature of work which sees time as an external mechanism of order. Time for the sociological critic and process engineer alike is something *imposed* on the accomplishment of work in ever exacting

measures, whether for purposes of work-discipline, task standardisation, or process (re)design.

Ethnomethodology, by sharp contrast, is interested in time as an internal feature of work, with the ‘gambit of compliance’ (see Tolmie and Rouncefield, Chapter 4) and the ways in which time is *practically incorporated into work* and its requirements satisfied through the skill and acumen of those who do the work. Ethnomethodology seeks to understand the nature of time from within work’s accomplishment then, as it is *manifest in the actual doing of work* rather than how it appears through the sociological critic’s or process engineer’s methodological lenses. We are especially interested in the *coordinate* nature of time. Knocker-ups, factory whistles, timesheets, time cards, time and motion studies, process charts and host of other temporal artefacts all speak to the coordinate nature of time, or to the use of time and temporal artefacts to coordinate the timely accomplishment of work. Foundationally, ethnomethodology wants to know what the ‘timely accomplishment of work’ actually look likes as an incarnate achievement. It wants to know what the ‘timely accomplishment of work’ consist of in details of real human jobs done in a timely fashion, what the doing turns upon, and what more about time can we learn from it?

Workflow on the shopfloor

We might begin to develop answers to that question by looking at the character of workflow *on the shopfloor* and what the timely accomplishment of work looks like from the point of view of workers implicated in the realisation of a particular workflow. We take, as an arbitrary starting point (for one might start anywhere),⁴ the print industry and the ordinary shopfloor work of running print jobs (Bowers, Button and Sharrock 1995). The central and critical orientation of shopfloor workers to that job of work is one of maintaining the ‘smooth flow of work’. Maintaining the smooth flow of work involves a battery of fine-tuned temporal considerations that are together directed towards the aim of maximizing both worker and machine occupation so that neither is standing idle, and involves giving due consideration to the shifting priorities within print work so that urgent jobs and routine jobs can be interleaved without difficulty.

⁴ See Sacks (1984) ‘Notes on Methodology’.

Maintaining the smooth flow of work relies on shopfloor workers' ability to manage shifting priorities. That work is done by sifting through paper 'dockets' that describe the particular jobs to be undertaken so that, rather than processing them in strict order, the shopfloor worker can see what are long jobs and what are short jobs and how they can be best interleaved to keep everything in operation. Practical concerns at play here are things like 'how complicated is this job?', 'how long will it take overall?', 'what time-consuming processes are going to be encountered in doing it?', 'what is the delivery date?', and so on. Other practical concerns include whether there is a backlog to contend with from the previous day or a large routine job that is going to begin shortly. Judgments as to what to do now and what to next also involve things like how to make time to do other labour intensive activities such as scanning, cropping or masking whilst the machines are busy printing. Then there are matters such as 'jumping the gun' where aspects of regular monthly jobs can be anticipated and got underway without having a docket in hand. These are all rich temporal considerations that trade upon workers' experience of working with specific materials on specific machines with specific colleagues at times like this with this much work on. It also involves the intersubjective recognition of how other workers are getting along because in this kind of environment you can see your co-workers and hear what their machines are doing and can adapt how you order your work accordingly, even help them out if needs be. Only with this kind of knowledge and these kinds of situated resources can workers make a skilled judgment about what work should be undertaken at any particular moment in time and it stands wholly outside the strict date-ordering of dockets.

Set against this background Bowers *et al* note that the print company in question had recently made a commitment to install and use a workflow system with real time shopfloor data-capture to monitor workflow as part of the requirement for a government tender they had won. Amongst other things this system offered the possibility of providing management reports which could detail the time spent on processes, materials consumed and wastage figures. It could also facilitate the production of invoices, the management of stock control, and the preservation of a record of worker activity that could offset the need for clocking on/off and the maintenance of separate paper records of how long each job had

taken. The authors tell us that the workflow system is predicated on a formal model of work which depicts print work as processes in a series such that,

“ ... (i) each process has to be terminated before another can begin, (ii) each process has just one operator associated with it at any one time, (iii) each operator can only engage in one process at any one time, and so forth. It would be inaccurate of us to say that these methods from without are just plain wrong. Rather, they offer *another way of organising print work*, one which is encountered by the workers ... as *alien* to their methods of organising print work. Their methods crucially attend to the problem of the ad hoc, real-time ordering of multiply instantiated jobs. [However, the workflow system is] concerned with the processual character of individual jobs, engaged with by individual workers, measurable by clock time and so forth.”

What Bowers *et al* mean by ‘workflow from without’ is that the workflow system imposes an external temporal order on print work. It is an idealised temporal order that contrasts with, and is strongly at odds with, the real world, real time management of contingency that characterizes the actual doing of print work on the shopfloor. For instance, the operating of the workflow system imposes upon the work inappropriately rigid working procedures. The real doing of the work requires jobs to be got underway before they have been formally run through the system but this means that none of the work could be recorded, current information in the system would be inaccurate then, and customers would appear to be being charged for work that had not been undertaken. Another problem with the workflow system was that it was structured around interlocking processes, where each one has to be completed before the next one is begun. Multi-tasking, which makes perfect sense for the real-time management of differentially structured and prioritised jobs where the goal is maintaining a ‘smooth flow of work’, is impossible to capture within such a system and so either has to stop or remain outside of it. The workflow system also made each job the responsibility of one particular operator, making it impossible for operators to assist one another according to need or take over one another’s jobs without ‘lying’ to the system about who did the work and then finding ways to compensate for work done on one another’s schedules.

Workflow in the office

An abiding practical concern with ‘workflow from within’ is also reflected in the mundane work of print management. Button and Sharrock (1997) looked at managerial work in the same print production company and the ways in which the *order of production* was

managed so as to provide both management and shopfloor workers with a definite sense of what was to be done, when, where, and how. Once again these considerations were shot through with temporal concerns. As Button and Sharrock put it,

“Personnel make determinations such as: ‘is this job on time?’; ‘is this job going to be late?’; ‘how late will the job be?’; ‘what do we have to do to get the job out on time?’; ‘do we have the necessary resources - the right paper in the right quantities, the necessary inks and toners, enough memory, money in the overtime budget?’; ‘can we take this job on in the light of our other commitments?’; “how are we going to cope now this machine has broken down?””

Underlying these temporal and related resourcing questions were two organisational imperatives: one, that there was a maximum ten day turn around from the receipt of an order to delivery; and two, the need to keep the plant at full production.

Being able to attend to these matters involved a range of temporal orientations and temporal understandings that echo the shopfloor worry of being able to preserve ‘a smooth flow of work’ and rely on the use of distinct artefacts providing *temporal perspectives on the work*. These include the forward loading board, work tickets and workbags, and the load monitor.

The forward loading board provides a physical representation of the production order for printing machines that was regularly revised according to daily and contingently presented customer job requests. It allowed for the circumstantial creation of a new array of jobs each working day and for the performance of a calculus across machines to see how best to divide up the work across the available resources so as to maximize production. Button and Sharrock describe this calculus in the following way:

“The AM [Administration Manager] knows from the job order form how many copies of a document are required. He knows from past experience the hourly production capacity for each machine and he is thus able to calculate how long a job will take if it is printed on any given machine. He can then give over a machine for a number of hours to a particular job. He blocks out that machine for the requisite number of hours [on the forward loading board] and assigns the job name to the machine. In this way he is able to see, for example, if printing the job on that machine will extend the production beyond the point at which it should be delivered if it is to meet its ten-day turn-around target. It thus allows him to see if he needs to place the job on two machines.”

Because the forward loading board was a physical board that simultaneously made available all of the machines and all of the available production hours in the week it also enabled the administration manager to make a series of rational decisions,

“i) can the print centre take on another job this week?; can it be accepted?; must it be turned down?; should the job be outsourced?, or should the customer be approached and asked if they would accept the job on a different time-cycle?; ii) is a job late, progressing to schedule, or early?; iii) the re-ordering of production should a production contingency such as a machine going down arise; iv) whether the PCM [Print Control Manager] should be advised that over-time may be required, and v) in what order should the jobs be printed in?”

Thus the forward loading board was a key resource for projecting workload and *constructing* the temporal order or ‘schedule’ of jobs.

Work tickets and workbags are used to *articulate* the temporal of order of work to shopfloor workers. The work ticket is numbered list of activities each job should go through, each number corresponding to a specific production activity. The numbering of activities is hierarchically organised and describes in detail the temporal and sequential order in which things are to be done. It effectively tells the users of the ticket what to do now, what to do next, where to send things after that, and so on. Work tickets are always attached to ‘work bags’ or folders containing all of the documentation relating to a specific job. A trimmed down version of the workbag was sent to the production manager, showing a further orientation to temporal efficiency by enabling the preparation of machines in anticipation of a job arriving.

The load monitor enabled managers the potential consequences of ‘log jams’ where workloads build up for particular machines. Once again a smooth and timely flow of work was managed with the aid of artefact that helped the admin manager to monitor the load building up for each machine. Like the forward loading board this was a highly visible resource that associated paper strips detailing jobs with specific machines, such that the paper strips could easily be moved around.

It should be noted that many of the artefacts associated with managing the flow of work were visible to everyone, not just the managers. Thus the contingent temporal ordering of the work was continually made available to all of the parties who might need to work with that ordering as a matter of getting the job done. They provided in their production and revision an account for ‘why these jobs now?’ They also provided for considerations such

as ‘where in the production cycle is the job?’ and ‘is the job progressing according to the production schedule?’ In sum, then, Button and Sharrock observe that the work of production management is oriented to providing a revisable and visible order of the order of production. This work is fundamentally bound up with the practical consideration of the time and timeliness of work’s accomplishment. Thus, whilst for shopfloor workers temporal considerations stand as a practical resource for arriving at just what practical activities should be undertaken at any moment in time, for managers the work is, in a strong sense, *arriving at the temporal order itself*.

Abstracting time

An almost inevitable consequence of the increasing focus upon the specification of, and manipulation of workflow in the management of any number of different working enterprises is that managers have themselves begun to trade in *abstract representations* of time as part of their everyday working practice. In this final section we shall look at how this trend has become manifest and how even these activities are intimately bound up with practical, local orientations to time.

The following extract is from a long-running ethnographic study of work in a major UK retail bank in the late 1990s (Hughes et al, 2002). It looks at the activities of one particular manager in a large centralized lending centre, as he attempts to pull together some calculations that can be fed back to the rest of the management in meetings through the development of what was called ‘an MI pack’ (MI standing for Management Information).

Clive sorting through MI papers - Looks at the calendar under his keyboard and writes ‘P/E 27/2’ {Period Ending 27/2} on 4-Weekly Total printout - He then continues to write on a sheet from his notepad:

P/E 27/2	P/E 27/3
ASH %	HE ASH* %

He enters the total from the 4-Weekly Total sheet for Non-Personal {one of the teams in his section}, then does the same for the others - Draws a line down to split up the ‘P/E 27/2’ group, then shifts the other 4-Weekly Total Sheet in front of himself and notes the figures similarly for the ‘P/E 27/3’ group - Draws a line at the right hand side to separate the figures and percentages - Does the same for the ‘Backlogs’ - Writes the ‘Backlogs’ as a total, then puts the P/Es, then notes the figures from the sheets (averages for the 4 week period) - Comments that the figures for the backlogs don’t relate to any specific allowance - He needs to see if they are retaining the backlogs at a ‘manageable level’ - He admits it’s ‘not rocket science’ - He is just using it to give him an idea {‘ASH’ = Actual Staff Hours, ‘HE’ = Hours Earned - The distinction here recognises the way that the work measurement system in the Bank provides a particular allowance for certain activities, but these do not necessarily tally precisely with the actual hours worked}

It is also important to know that all of the above information is premised upon information he draws out of the system relating to monitoring of staff performance. All of the staff were obliged over the course of each working day to enter into a system what particular kinds of tasks they had undertaken and how long they had spent doing them. This is a pretty common scenario in many large enterprises nowadays. Performance metrics were automatically calculated and tallied across groups through the application of what were called 'REs' (or Reasonable Expectancies) for any particular kind of job, and business analysts had already spent some time in the bank gathering the REs for various tasks in something akin to a time and motion exercise. It is hard to miss the Taylorist overtones in conducting such an exercise and one can readily see how it resonates with the description of scientific management we provided earlier.

As we have argued before, one of the things to recognize about Management Information of this order - whether it is being used to account for particular situations, to justify certain decisions, as a basis for rationalisation, or as a means of arriving at some sort of assessment - is that it trades upon an underlying assumption that *work activities are ultimately reducible to figures* (Tolmie et al 2000). In this case, the figures in question relate to a whole range of fundamentally temporal concerns: the notion of organisationally accountable temporal periods such as weeks and months; the number of hours people have been working over these various periods; the number of hours they *should* have been working over the same periods; just how long it takes to do any particular job; and so on. What is interesting here is how this information is not getting used to, say, call individual people and groups to account and say 'things have got to change, we know how long these things should take and you're not doing them fast enough', though you could very well imagine that such a conversation might ensue. Indeed, one finds that people very quickly become quite canny about how to use such systems and will find the means within their completion to not look unduly slow or lazy. One way of doing this is to decide where an extra five minutes will look good or bad, and if you can say it was half an hour all the better. The art, so to speak, is to know what the total number of hours for any day should be so that you don't look like you worked too long or too short. Then within that you find an approximate way of cutting things up that can be accounted for even if it isn't exactly accurate. This particularly trades upon the fuzziness of work activity categorizations. So,

for instance, if you put down that you were phoning a customer that gets you one kind of allowance, whilst saying that you were selling (even if you only mentioned a bank product once in passing), will get you another.

However, in this case the work is all about backlogs, and being able to see how backlogs might need to be managed, and how to represent backlogs in the right kind of ways to other managers.

Something to notice is that the manager does not simply copy the figures he's already been given by his teams into an MI pack. Various numerical expressions of time that already gloss massively the real-world, real-time work they are putatively representing, are now being transformed into percentages, so that they are more relevant to the task in hand, e.g. telling a story about backlogs and how they are being managed. This is not in any way particularly arcane. One can readily see that if you have percentages you can begin to make arguments about things such as what proportion of time was spent in doing the kinds of things you get an allowance for, what proportion of a team's work relates to dealing with work carried over from a previous day and what proportion relates to work that has just come in, and so on. It provides for a kind of reasoning that is harder to talk about with only stark totals. It also demonstrates neatly how there are two very different things going on in all of this. On the one hand you have the *collecting* of a whole battery of temporal data that is, itself, subject to its own contingencies and elisions in practice, where the 'gambit of compliance' is often what holds sway. And note that this is, itself, underpinned by the collection of 'scientifically instrumented' data by work analysts that, if you bothered to probe it, would itself be shot through with its own 'primitive methodology' (Husserl 1999) that provides the means for the formulation of a mathematical account (after Garfinkel et al, 1981). On the other hand you have the *use* of that data that is, once again, massively contingent and subject also to the contingencies of 'recipient design' (Sacks 1992) such that it can serve concerns like coordination where you want to make the work of some body of people available to other people in a format they can work with (Hughes, Rodden & Rouncefield, 1996). Lynch, in a broader discussion of the mathematisation of phenomena by scientists and how it renders otherwise 'recalcitrant, "naturally occurring" phenomena', makes the point particularly nicely by observing that [to paraphrase] "the process of

making something 'useful' through its representation involves the ordering of it through such things as 'exposure, seizure upon, clarification, extension, codification, comparison, measurement, and subjection to mathematical operations' in relation to the pre-existing order that was somehow resistant to the intended 'use'" (Lynch, 1990).

So here you have a bunch of data that may on the one hand have some indexical relation to real-world temporal matters such as how long Joan spent dealing with the previous day's WE008s on 3rd March 1999 but that on the other hand is getting worked up into materials for a meeting where decisions might get made about things like 'we need more people dealing with the backlogs'. The beauty of the thing is that the production of such data is utterly embedded in the local contingent production of people's everyday work and, at the point of production it has no sense outside of what people can accountably say of how much time they spent doing some task. That is to say it's reason-able-ness is an appeal to what just anyone around here might know of how long it might have taken to do just those things on just that day in question. Yet these locally sensible temporal abstractions are immediately then open to being embedded in temporal abstractions of a wholly different order that are themselves the locally contingent production of someone's everyday work.

Time as an Endogenous Feature of Work

In this chapter we have taken a brief historical journey through some distinct ways of tackling the notion of time within the workplace. Over the course of that journey we have remarked that there are two very different ways of thinking about time that have profound consequences for what you might say about time as a feature of the social order. For one of these approaches the flow of time is something to be thought about as a phenomenon that stands outside of particular social environments such as the workplace but to which those social environments are oriented. In these circumstances time and the measurement of time becomes something that imposes an order upon the phenomena of the workplace. For the likes of Taylor and the Gilbreths it was taken as a scientific fact against which the resistant practices of real world workers had to be constrained and modified and improved. Social theorists have largely bought into this view in that they have taken this facticity of time and its usability as a constraining and modulating force for granted and then woven narratives of society around it, be that in terms of the oppression of the worker (Marx and Engels,

1976; Braverman, 1974, etc.) or in terms of notions such as temporal acceleration (Giddens, 1981; Lash and Urry, 1994, etc.) or whatever.

We have set against this approach a way of thinking about time that has grown out of ethnomethodological considerations. Here time is explored as a feature or resource in the ongoing accomplishment of everyday activities where even apparent temporal abstractions and measurements are just one more aspect of getting some specific, situated job of work done. Time here does not stand outside of but within the gamut of ordinary human activity. Its meaningfulness is accomplished as a part of that activity where some notion of time is made relevant to the job in hand. This is a situated, occasioned, skilled, competent, equipmentally-affiliated, chiasmically-chained, reason-*able* and incarnate *making* of time that speaks just of what people do and that has no interest in reading into the scene any sociological theories beyond the theories and abstractions that members of the setting themselves chose to trade in.

More than this, the way that time stands as a resource in relation to the actual accomplishment of work that we have outlined in our treatment of time *within* work is the very thing that theoretical, conventional analytic accounts consistently *miss*, even where work is apparently their topic. What we would therefore like to emphasise about the preceding studies is that, for all that workflow, process and labour allocation may be abstracted and treated as things to be both constructed and theorized, a practical flow of work in the real world is a thing that has to be accomplished *within the doing of the work itself*. Orientations to time here are an endogenous feature of that work. Orientations to time within the practical accomplishment of a flow of work therefore involve such grossly observable matters as:

- *Managing shifting priorities* such that the relationship between interleaved and contingently arising tasks is ongoingly negotiated in a way that can serve to display an accountable attention to such matters as a 'smooth flow of work'.
- *Constructing schedules* such that they display a continual attention to local organisation imperative such as preserving a ten-day turnaround or keeping a plant at full production.

- *Articulating a sequential order* such that what has to be done first is indeed what is done first and with an ensuing order that ‘just anyone working here’ might recognise as being an appropriate order of things for getting the job done.
- *Handling back logs* in such a way that how long people take to do things, how long it will take to do stuff that’s just come in, and how long it will take to do the work that’s been left over from yesterday are ordinarily treatable and abstractable parts of the work for the purposes of rendering the work open to calculation, rather than statements about the arcane and mysterious properties of time.

Curiously, there is actually a strong resonance between these observations and what has been said over recent years regarding lean systems. One popular articulation of what lean systems might amount to offers the following characterization:

“Gaining a true understanding how things work so you can constantly improve, reduce waste and increase efficiency.

“Reducing buffer storage to the absolute minimum, which makes everything connected: if one point in the system breaks down, everyone is very rapidly also affected.

“Attention to bottlenecks, including when up-stream to suppliers and downstream to customers.

“Being able to rapidly change the system to work on different products.

“Having flexible, multi-skilled people who can perform such changes.

“Having systems and management that engenders such a capable and motivated workforce.”

(Syque.com, 2002-2010)

The difference here is that understanding what the implications of time might amount to is an accomplishment internal to the actual doing of the work rather than an externally imposed program. That accomplishment turns upon matters such: understanding how long some particular activity might take and positioning it in relation to other activities accordingly; appreciating that activities have to be sequenced over time and that an order ensues whereby some things necessarily have to be dealt with before others; seeing that time has accountable characteristics whereby doings may be reasoned about and argued about according to how long they may take, should take, or may actually have taken; seeing that time can be given impactful concrete articulations whereby ten minutes to five on the

second of November is not the same as ten minutes past five on the second of November in terms of matters such as deadlines; taking for granted that ordinary displays of time are just available to everyone such that continual glancing at your watch can tell a story about whether 'time' is becoming an issue in the completion of some job, and that 'I didn't notice the time' works not as some absolute claim but rather as an excuse for lateness that may or may not be taken to be reasonable; and so on.

In view of the fact that time can be taken to be a material, internal resource to doing the work in all of these various ways (and many others) it can be seen that reasoning about time in the context of such activities as labour calculations, scheduling, monitoring, managing contingencies, apportioning the backlog, etc., is not somehow an external force that shapes and renders the work but rather a material, visible, aspect of doing the work itself. Thus, calculating reasonable expectations of how long some task may take, putting down a sequence of tasks on a schedule, providing displays of current average call length in a call centre, and so on, are not things undertaken in and as of themselves. Rather they trade upon practical *local understandings and material articulations of time* to accomplish specific kinds of work in specific kinds of situations, such as working out how many people to move from one team to another to get rid of the backlog, deciding just what machine should be printing what job right now, increasing or decreasing the number of people currently assigned to answering calls, where these are just some of the kinds of practical accomplishments that may draw upon such abstractions as a resource.

Thus it should be understood that, even where members themselves apparently reduce time to a set of abstractions they do not orient to these abstractions as idealizations in practice, but rather as practical resources for getting the work done.

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