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Participatory management of working time or subordination to operational constraints?
Working-time arrangements, work organisation and group work

Introduction

Work processes are driven essentially by the organisation of working time in the workplace. Working-time organisation is one of the instruments available to firms seeking to utilise material, technical and human resources in accordance with need. For this reason, working time can play a key role in new forms of production organisation (Büssing/Glaser 1998, p. 586). As is well known, innovative modes of work organisation and flexible modes of working-time organisation play important roles in the various forms of flexibilisation that firms have developed. However, there is no automatic connection between the two. New forms of work organisation, such as those based on stationary assembly platforms, can in principle be implemented with traditional working-time arrangements. Conversely, flexible working-time arrangements do not necessarily require any change in work organisation. Thus working-time accounts might well make sense, for example as an instrument for overtime reduction, even when used alongside traditional Taylorist modes of work organisation, and under some circumstances the introduction of flexitime arrangements may impact only on the scheduling and distribution of individual working time if work organisation is left unchanged. However, even if there is no deterministic connection between the two spheres, it cannot be denied that work organisation and working-time organisation are not completely independent of each other either.

The ideal-typical connection between new production systems and working-time arrangements is shown in Table 1, which is taken from C. Mies (1997). Whereas employees in strongly hierarchical organisations are controlled to a large extent by rigid, externally imposed working times, those in “flatter” management structures and self-organising groups take responsibility for planning and managing their own working time. This self-responsibility can range from intermediate forms such as flexitime, which offer limited autonomy, to working-time systems offering complete autonomy. According to the research conducted to date, however, working-time arrangements are seldom adjusted to new production systems (Mies 1997, p. 191). This would suggest that reality is multifaceted and full of contradictions.

Depending on the forms it takes, working-time management can either support or impede innovative forms of production organisation. The interface between the two is workforce flexibility. If such flexibility is an element in new modes of work organisation, then it becomes absolutely essential to introduce appropriate forms of personnel deployment and hence of working-time management. “Consequently, new working-time systems become the key issue in any attempt to introduce innovative modes of work organisation; they can support new forms of work organisation and thereby enable their potential to be fully exploited” (Mies 1997, p. 184). If, in the course of a change

towards a more process-oriented mode of production organisation, those activities in the production process that do not add value are to be minimised, together with stocks and buffers at the points of interface in the production chain (Lehndorff 1996, p. 245), then some form of coordination between workload and working time is essential. Matching working time to operational requirements creates both the framework and the opportunity for workers to take responsibility for managing their own working time.

Autonomous time management - defined as the "opportunities for an employee to influence the duration, scheduling and distribution of his or her individual working time" (Büssing 1995,p. 84) - can increase employees' power of disposal over their own time. Under certain circumstances, however, when increased "autonomy" is used by employers as a strategy for introducing self-organisation, it can actually have the effect of making individual working time even more dependent on operational requirements, particularly if the employers' principal objective is to make it easier to adjust to rapidly changing market requirements. In situations in which the main purpose of increased flexibility is to ensure high product and service quality, employee autonomy can be an important source of efficiency. Conversely, the decentralisation of decision-making processes, which is an integral part of the new production systems and is intended to promote self-responsibility and employee commitment as means of increasing productivity, depends for its success on a workforce with sufficient freedom to manage the work process and their own working time. Thus the connection between management systems, work organisation and working-time arrangements is complex, or even ambivalent. This accords with what Dörre (1996, p.8) perceives as the "internal contradictoriness of participatory management systems".

Although the literature on both work organisation and working-time organisation is extensive, few empirical studies of the linkage between work organisation and working-time organisation have been conducted and those that have been carried out tend to focus only on individual examples (case studies).[1] Taking our own representative employee survey on work organisation and group work as a starting point[2],we have attempted to discover more about this linkage. This has led at the same time to further advances in working-time research. Research to date has tended to focus on working-time forms (surveys) and the functioning of various working-time arrangements (case studies); our investigation, on the other hand, seeks to forge links between working time and various forms of work organisation.[3]

[1] Two examples would be a study conducted by the Fraunhofer-Institut für System-Technik und Innovationsforschung (Lay/Mies 1997) and an investigation carried out by the Institut der deutschen Wirtschaft (Dichmann 1998).

[2] The overall results of this survey and the methodological approach adopted are presented in detail in the chapter by J. Nordhause-Janz and U. Pekruhl in the present volume.

[3] Relatively good information is available on trends in the distribution of full and part-time work (Wagner G 1998), on the evolution of operating hours (Bauer et al. 1998) and on the diffusion of certain forms of working time (Bauer et al. 1996, 1998). Case studies have provided some information on innovative working-time arrangements (Lehndorff 1999), while case studies and an analysis of company agreements (Lindecke/Lehndorff, Klenner et al.) are the only source of information to date on the procedure for agreeing individual working time when flexible working-time systems are introduced.

Our purpose was to enquire not about the type of working-time system in use in individual workplaces but rather about the underlying procedures for determining working time and the degree of autonomy enjoyed by workers in relation to the form of work organisation.

In the light of current concern with the question of whether group work impacts on the nature of working-time organisation, we were interested to discover whether, and in what way, the flexibility in personnel deployment required for group work (Kaluza 1998, p. 1138) is reflected in flexible and self-organised working-time arrangements. Our starting hypothesis was that group work has to be accompanied by a flexible system of working-time organisation. For this reason, we deliberately asked questions on how daily starting and finishing times, the scheduling of annual holidays and unexpected changes in working times are agreed in the workplace.

We were also interested in actual working time which, according to everything we know (Wagner A. 1998), differs considerably in some cases from (collectively) agreed working time. Our principal concern here was to ascertain whether the opportunities that flexible working-time systems create for eliminating overtime, and thereby reducing actual hours worked, are being exploited in practice, or whether, as some suspect, the flexibilisation of working time tends to lead to an increase in hours worked (Hermann et al. 1998). As far as the expected flexibility of working time was concerned, we were interested less in the average length of time worked than in the fluctuations in individual weekly working time as a result of changes in workload or the opportunities for autonomous time management. For this reason, we also asked about minimum and maximum weekly working times.

The aim of this paper is to provide an overview of the results of the investigation in so far as they help to resolve some of the issues outlined above. We will begin by describing working-time realities in terms of their actual flexibility, as measured by fluctuations in weekly working times (Part 2). We will then operationalise autonomous time management and seek to ascertain whether there is a link between variable working time and autonomous time management (Part 3). Part 4 will examine the link between work organisation (group work) and the organisation of working time.

2. Fluctuations in weekly working time

2.1 Fluctuating working times - not (yet) the norm

Traditional working-time arrangements were characterised by the more or less regular repetition of certain patterns. It is true that, for a long time, increasingly few employees have worked the same hours on all five days of the working week[4] (Bauer et al. 1996), but even the now widely used

[4] In 1995 only 17% of all employees in Western Germany were in jobs with weekly working hours corresponding to the full-time norm of between 35 and 40 hours, distributed over 5 working days, usually from Monday to Friday during normal working hours, and generally not subject to variation.

arrangements such as shift work, flexitime or staggered working times[5] are based on a certain weekly working time or follow a constantly repeated pattern. Shift systems are generally based on a cycle, with the individual shifts to be worked each week (and therefore working time) being repeated every few weeks, so that a certain average weekly working time is achieved over the course of the cycle. The main effect of flexitime arrangements is to enable individuals to vary the hours they work from day to day: the agreed weekly working time still constitutes the norm. Staggered working times are used primary to extend operating hours and do not generally affect the duration of individual weekly working times.

In the event of cyclical or seasonal fluctuations in the production process and those caused by unexpected changes in the order situation, firms have traditionally had resort primarily to overtime, short-time working or (temporary) recruitment and redundancies. As production becomes increasingly customer and therefore order-oriented, production volumes and operating hours become ever more dependent on the order situation at any given time. Unexpected fluctuations in production are now part of everyday life in many firms. In a representative survey of manufacturing firms throughout Germany conducted in 1996, 56% of companies stated that they had had to deal with fluctuations in production in the previous 12 months, of which a considerable share (31%) could not have been foreseen (Bauer et al. 1998). Ever harsher competition among suppliers forces firms to exploit to the full every possible opportunity for rationalisation. The fine tuning of operating hours, that is the precise adaptation of operating hours to changing requirements, is one potential source of such rationalisation. Flexible working-time systems, such as annualised working hours, working-time accounts etc., are a more effective means of dealing with fluctuations in production than the traditional instruments such as overtime and short-time working or even the recruitment of additional temporary staff or lay-offs because they involve much less formal regulation. In 1996, 35% of all manufacturing firms that experienced fluctuations in production coped with them solely by means of working-time measures. However, “less formal regulation” frequently also means that working times become less transparent, co-determination on working time issues becomes restricted and overtime premia are no longer paid.[6]

One of the aims of our survey was to ascertain the extent to which working time is already being adjusted to workloads and how widely diffused working-time systems with constant, regular or marginal weekly fluctuations are. Our question was : “Thinking now of the total number of hours in a normal working week (excluding public holidays, days off or holidays), is that number always more or less the same or does it fluctuate from time to time?”

[5] In 1995, 45% of all employees regularly worked overtime, 13% were regularly employed in shift and night work, 18% were working part-time and 26% were working flexitime (Bauer et al. 1996).

[6] Thus additional hours worked, which in the past would have been regarded as overtime, are now “deposited” in working-time accounts, thereby becoming standard working hours that attract no premium payments. In the same way, certain non-standard working hours, such as weekend work, no longer attract premia.

2.2 The quantitative dimension of fluctuations in weekly working time

The fluctuations in working time analysed here were determined on the basis of the answers to the question: "How does the total number of hours you work per week fluctuate overall?" The model answer was: "The total number of hours I work per week fluctuates approximately between a minimum of … hours and a maximum of … hours."

It is interesting that full-time employees with an unvarying weekly working time also have the shortest average actual working times. Employees who occasionally work overtime, those on flexitime and shift workers work on average rather longer hours than their colleagues with unvarying weekly working times. In contrast, it is noticeable that those employees whose working time varies because of irregular workloads have above average "normal" working times. Both the minimum and maximum working times for this group of workers are above average. Their minimum working time is close to the average collectively agreed working time, from which it is evident that the fluctuations in weekly working time are accounted for mainly by increases rather than decreases in hours worked. This means that, for these employees, wide ranges of variation go hand in hand with long working times. Thus they not only have very irregular schedules but also work, on average, much longer hours than other employees.

One explanation for this phenomenon might be that flexible working-time systems encourage employers to maintain very low manning levels and employees to "store" overtime in their working-time accounts. Evidence of such practices has already been obtained in various case studies. In this way, any additional hours worked are simply accumulated, perhaps in the vague hope that they can be exchanged for extra time off at some time in the future, when workloads are less heavy. However, if workloads do not get any lighter, the additional hours worked are eventually remunerated financially, conferring on them official "recognition" as overtime. If we can only speculate here as to the reasons, the facts show that the working times recorded for this group of employees are considerably longer than the average for all those surveyed.

Thus analysis of working time and the range of variation draws attention to that segment of the labour force working flexible hours for operational reasons[7]. Whereas employees on flexitime are able to vary their weekly working time within certain limits and shift workers know their work schedules a long time in advance because they are determined by the shift pattern, those employees working flexible hours for operational reasons not only have to put up with greater uncertainty in planning their work and personal lives but are also under much greater pressure or even compulsion to work longer hours.

[7] I use the term "flexibility for operational reasons" in order to make it clear that working times are directly dependent on operational requirements (workload). Flexitime is also a form of flexible working time, albeit one that opportunities for some degree of autonomous time management (depending on agreements on core times, limits on credit and debit accounts and equalisation periods).

On closer inspection, this category of workers turns out to contain above-average numbers of male full-time employees, construction workers, high-school graduates, white-collar workers and civil servants authorised to issue directives, employees engaged in logistical activities and management tasks as well as those with above-average incomes. While the overrepresentation of construction workers can certainly be explained by the seasonal nature of building work, the earnings variable(cf. Table 4) seems to reflect the fact that the category is made up largely of more highly qualified employees of higher than average occupational status (authorisation to issue directives, management). It is known from other surveys (Wagner, A., 1998) that more highly qualified employees have particularly long working hours that often go beyond contractually agreed levels and are therefore determined by the volume of work required to achieve the goals laid down. To that extent, our findings confirm that a higher qualificational level and higher occupational status is frequently associated with long working hours and high flexibility requirements.

3. The organisation of working time - more autonomy in flexible working-time systems

Working-time patterns were traditionally determined by either machine operating times or by the working-time system, or by a combination of the two. The duration, scheduling and distribution of working time were fixed, and individual workers had only very limited opportunities to advance their own interests. With the introduction of flexible working-time systems, the organisation of the duration, scheduling and distribution of working time became more diverse. Flexible working times can serve a number of very different ends and be achieved in various ways. Whereas flexitime is intended primarily to adjust working hours to individual preferences, thereby increasing both motivation and efficiency, externally imposed (heteronomous) flexibility determined by operational considerations may even increase employees' subordination to the workplace time regime. Nevertheless, there is at least a theoretical possibility that workers might acquire greater autonomy in managing their own working time. Participatory forms of work organisation are intended to extend employee participation in the area of working time. At the same time, time issues are becoming increasingly important for employees as they seek to establish a balance between the demands of work and their own leisure time and family responsibilities. In our view, the possibilities opened up by new forms of work organisation, combined with employees' new aspirations in respect of working time (Böhle 1997), could lead to new forms of work organisation in which, despite the widely accepted priority given to operational considerations, greater account could also be taken of employees' individual preferences. The degree of employee autonomy in determining working hours is a basic criterion in assessing the social acceptability of a working-time regime (Büssing/Seifert 1995).

3.1 Operationalising autonomous time management

In our survey, we sought to capture the extent to which employees are empowered to manage their own working time on the basis of three sets of findings. Firstly, we asked how the beginning and ending of working time were determined. Secondly, we asked whether and under what conditions employees were able to change their working hours at short notice if they so desired. Thirdly, we wanted to know how holidays were scheduled in each establishment. The response categories were framed in such a way that all possible variants were listed, so that multiple responses were not permitted (Table 5). The first response category - working times determined by fixed rules - could well be interpreted as meaning that there is no autonomous time management because there is no decision-making process at all. The other response categories reflect differing degrees of participation by supervisors, colleagues and individual employees themselves. These range from decisions taken solely by supervisors to decisions taken solely by employees.

In order to be able to assess the degree of autonomous time management revealed by the survey findings and to compare different categories of employees in terms of this particular characteristic, a distinction is made in what follows between three different levels of autonomy in time management:

1. Employees enjoy (relative) autonomy in their working-time decisions. They must when necessary take their colleagues' working time into consideration or fix their own working times by agreement with colleagues.

2. Employees cannot determine their working times by themselves but are included in the decision-making process and can influence it through consultation.

3. Decisions on working times are taken either by supervisors (i.e. heteronomously) or there are fixed rules, so that there is no opportunity for participation in determining individual working times.

Table 5 shows the operationalisation of these three levels of autonomy on the basis of the response categories. The crosses indicate which responses are assigned to the three levels. The degree of autonomy is assessed by the share of each response category in the total responses given. The results assessed in this way are termed the autonomy, consultation and heteronomy rates.[8]

- The autonomy rate indicates the extent to which employees themselves decide on the times at which they begin and end work, although they may have to take certain factors into account.
- The consultation rate reflects the extent to which employees are involved in decisions on working time, although they are ultimately not able to take the decisions themselves.

[8] Since multiple answers were not permitted, the answers sum to 100%. Thus the share of the response categories that can be attributed to the corresponding levels can properly be termed a "rate".

– The heteronomy rate reveals the extent to which working time is determined either in accordance with fixed rules or by supervisors acting alone.

3.2 Autonomous time management and externally imposed flexibility

Our first question related to the determination of starting and finishing times. The question asked was: "Thinking about your normal working day, how are the times at which you start and finish work determined?" The results are presented in Table 6. As it turned out, around two thirds of all those surveyed are working in time regimes with fixed rules. These may be fixed working hours, shift systems, staggered working-time systems, flexitime systems or other kinds of working-time arrangement. Whatever the nature of the rules, they leave little if any room for individual workers to determine their own working hours.[9] Where such fixed rules do not exist, decision-making in more than half of the cases lies in the hands of supervisors, sometimes in consultation with employees and their immediate colleagues. In all, 72% of respondents (heteronomy rate) stated that they had no opportunity for influencing decisions on the starting and finishing times. Twelve per cent of employees have the opportunity to be involved in decision-making (consultation rate), while 16% are able to decide their starting and finishing times for themselves, subject to certain conditions in some cases (autonomy rate).

If we focus on the group of employees already identified in the previous section as having fluctuating working times because of variable workloads, barely one third stated that their working times were determined by fixed rules. For this group of employees, the autonomy and consultation rates are virtually twice the average for all employees. This may well support the argument that flexible working-time systems have greater potential for increasing autonomous time management among employees. However, our findings may also reflect the fact, already noted above, that two of the other characteristics of this category of employees are higher occupational status and a greater incidence of authority to issue directives.

The finding that employees with variable working times enjoy greater autonomy in the management of their working time is further underlined by the fact that workers in flexible working-time systems are much more likely to be able to make changes at short notice on their own initiative. The question we asked was: "Apart from illness, you may sometimes need to take a day off work because something unexpected has happened. In such a situation are you able to alter your working time at short notice, say within 1 to 2 days?". More than half of workers in flexible working-time systems introduced for operational reasons answered this was always possible (Table 7).

[9] It must be said by way of qualification that research findings indicated that there can be considerable room in isolated cases for individual determination of working time, e.g. through flexitime arrangements. Normally, however, any scope that does exist is limited to slight deviations from a fixed norm.

However, it is clear from the previous section that this group of employees typically has long working hours and few opportunities for advance planning. For this reason, the greater autonomy they seem to enjoy may also go hand in hand with higher work burdens, which may in a sense be the price that has to be paid. The apparent increase in autonomous time management "is achieved at the cost of greater subordination to the company time regime" (Deutschmann et al. 1986 p. 143). It is difficult to say (and cannot be depicted with our data) whether work burdens or autonomy carry more weight. In any event, these employees need relatively good planning, management and coordination competences in order to manage their time and strike a reasonable balance between work and leisure.

As far as the planning of holidays is concerned (Table 8), the particular characteristics of flexible working-time systems are less evident, although here too employees whose working time varies considerably because of irregular workloads have slightly higher autonomy and consultation rates. This is an interesting finding, in that even in response to a question not directly related to the flexibilisation of working time[10] a higher degree of autonomous time management is observed among employees with variable working times. This may indicate that a new culture of negotiation on working time is emerging in the wake of the introduction of flexible working-time systems.

4. The connection between work organisation and the organisation of working time

As described in the introduction, there is a connection between work organisation and the organisation of working time. Case studies in firms that have introduced group work show that these firms are trying to harmonise working time and work organisation and, by putting in place flexible working-time systems, to establish a system of production management adjusted to demand (Senft/Kohlgrüber 1997, p. 113). Conversely, new working-time systems can be the starting point for innovative forms of work organisation. Case studies have shown that working-time reforms can act as catalysts for changes in work organisation and personnel structure that have already been contemplated but not put into practice(Lehndorff 1998). It is easier to tap potential sources of flexibility if employees are in a position to cover for colleagues when necessary. Task rotation within a group can also increase individual group members' freedom to determine their own working times.

The following hypotheses can be advanced for the harmonisation of work organisation and the organisation of working time, particularly in the form of group work:

1. The work groups plan their own working time; in so doing, they are required to take due account of workloads. Individual working time is largely determined by the group itself, in consultation with their colleagues, which

[10] Holiday arrangements are usually "negotiated" on an annual basis, even in "traditional" working-time regimes.

gives rise to greater autonomy in the management of working time (within the limits laid down by the firm). The group's internal organisation makes it easier to change working time at short notice.
2. Flexibility within the group is guaranteed by (among other things) employees' ability to cover for each other. This requires broad skill profiles and, if necessary, appropriate further training.
3. Flexibility within the group, and the associated increase in autonomous time management, can lead to (greater) fluctuations in individual weekly working time.

These hypotheses will now be tested against the findings of our representative employee survey.

4.1 Autonomous time management in cooperative systems of work organisation

The extent of individual control over working time is determined by the degree to which each job is dependent on others, which in turn is a function of the technological process concerned and/or of the extent to which individual workers are integrated into a particular system of work organisation. For example, if a worker has sole responsibility for a task and if the time at which that task has to be performed is wholly determined by technological demands (production line, opening hours etc.), then the extent of individual control overworking time is low. This may be changed merely by the existence of a second person who can perform the same tasks if required and cover for the employee in question. Clearly, however, if such arrangements are to work successfully, there have to be opportunities for consultation between those concerned and decisions cannot be taken solely by third parties (supervisors). In that respect, the various forms of work organisation have a decisive influence on employees' ability to manage their own working time.

Our survey results confirm the importance of this link between work organisation and autonomous time management. Using factor and cluster analyses, we have identified various forms of work organisation[11] and drawn up a typology of eight different types, four based on cooperation and four on individualised work.

As far as the determination of starting and finishing times for these eight forms of work organisation is concerned (Table 9), the autonomy rate is, as might be expected, higher in some of the individualised systems than in more cooperative forms of work organisation. The explanation for this is that dependency on colleagues can restrict one's own autonomy. On the other hand, it is surprising that the autonomy rate for completely heteronomous individual work is particularly high. The explanation must lie in the fact that, at 35%, the part-time rate for such work is considerably higher than for the other forms of work organisation. Within this group, the autonomy rate for part-timers is 32.8 (no fewer than 27.7% are solely responsible for determining their own working time!), while that for full-timers is 19.2. Clearly, the

[11] Cf. also the chapter in the present volume by U. Pekruhl and J. Nordhause-Janz.

activities involved here are routine ones that have to be carried out regularly but not necessarily at fixed times.

In the more cooperative forms of work organisation, the degree of autonomous time management varies depending on the nature of the cooperation. Enforced (i.e. not self-organised) cooperation has the lowest autonomy rate and the highest heteronomy rate. This is hardly surprising; if cooperation is externally imposed, then the potential for task rotation and covering for absent colleagues is not being exploited, while the mutual dependency among workers is very high. Controlled and self-determined cooperation have high autonomy rates, in some cases higher than the various individualised forms of work organisation. However, autonomous time management and consultation are linked in this question with a certain need for coordination, since agreement has to be reached with colleagues. This gives rise to at least two imponderables, if not constraints on autonomy, for example in situations in which colleagues' working or holiday times prevent an individual worker from taking a period of time off in lieu. It is here that the crucial difference between the autonomy rate in cooperative systems and that in individualised forms of work organisation lies. The greater degree of individual control over working time that can be achieved through coordination and consultation is reflected in the fact that in controlled and, particularly, self-organised forms of cooperation, it is considerably easier to change work schedules at short notice than in the other cooperative forms of work organisation. Self-organised forms of cooperation record the lowest value of 22.3% in the category "changes to working time at short notice impossible or dependent on supervisor".

These results show that individual control over working time is a parameter susceptible to external influence. Individual working time is not wholly determined either by technological processes nor by the level of integration into cooperative forms of work organisation. Rather, individual control over working time can be influenced by the form of work organisation, the nature of cooperation between workers and the devolvement of competences to employees.

4.2 Autonomous time management in group work

We have focused until now on the link between autonomous time management and work organisation. We turn now to work organisation itself or, more precisely, a particular form of work organisation, namely group work. We define **group work** as follows:

1. The term "group work is used in the workplace to denote the chosen form of work organisation.
2. The work is performed in a genuinely cooperative way.
3. Group members share a common set of tasks.

A comparison between employees in group work systems and those not involved in group work (columns 2 and 3 in Table 10) shows that the autonomy rates are identical and that the differences in the consultation rate

on the fixing of starting and finishing times are slight. In terms of the hypothesis advanced above of the link between work organisation and the organisation of working time, this is an unexpected finding. However, it is a product of the fact that the non-group workers also include those in individualised forms of work organisation, some of whom, as we have seen, enjoy a high degree of individual control over working time. To compare group work with non-group work is in fact to compare the incomparable. The relevant comparison for group workers is with employees in cooperative systems not involving group work. As Table 10 shows, those involved in group work enjoy greater control over their starting and finishing times than workers in cooperative systems. This suggests that group work increases individuals' control over working times when it is deliberately adopted as a particular form of work organisation. Except in the case of group work that is externally imposed, the same also applies to the separate types of group work. Figure 1 shows precisely this, taking semi-autonomous group work as an example. When self-organised cooperation is combined with group work ("semi-autonomous group work"), employees' influence over their own work schedules increases still further.

Table 11 shows the differences in autonomous time management between the various types of group work. As might be expected, the level of individual control is lowest when group work is externally imposed and highest in semi-autonomous group work systems. More than half of employees in semi-autonomous forms of group work state that it is always possible to change their schedules at short notice. The relatively positive values recorded for controlled group work, in which employees are not themselves responsible for the organisation and allocation of tasks, are interesting. They probably reflect the relatively high degree of participation. Opportunities to have a say on work processes, areas of responsibility and changes to working practices seem to create a favourable climate in which employees can also exert some degree of influence over the organisation of working time.

To sum up, there is clearly a link between the form of work organisation and the extent to which employees can control their own working time. In forms of work organisation based on cooperation, there has to be a coordination process within the groups if workers are to have the opportunity to influence their schedules. Employees in controlled and semi-autonomous group work systems enjoy the greatest degree of control over their own daily working times and the greatest likelihood of being able to change their schedules at short notice. Thus our survey findings have largely confirmed the suspected linkage between work organisation and the organisation of working time.

Table 1
The correspondence between working-time regimes and new modes of production

Working time	Rigid	Limited flexibility	Flexible scheduling, duration and distribution	Autonomous
Modes of production	Collective working time reduction	Short time; Additional hours	Flexitime, annualised working hours	unenforced cooperation
Organisation	Flat hierarchies, decentralisation, flexible, process-oriented production processes, integration of indirect tasks, self-coordination within work groups			
	Strongly hierarchical organisation, centralisation, rigid, Taylorist-functional organisation of production processes, highly-developed division of labour, external coordination, work mainly individualised			
Management	cooperative management style, management on the basis of agreed objectives and outcomes, employees as "entrepreneurs" who plan, manage and carry out their work independently			
	Authoritarian management style, control-based management, employees as potentially disruptive factors, not "entrepreneurial", uninformed and confined to performing prescribed tasks.			

Source: Mies (1997), p. 189

Table 2

Fluctuations in weekly working time and their causes (as % of all interviewees)		
Combinations of characteristics	**All interviewees (multiple responses)**	**All interviewees who gave only this answer**
Same number of hours every week	**46.3**	**46.3**
Same number of hours every week apart from 1-2 hours' overtime per week	**27.5**	**26.0**
Work flexitime, so no difficulty in varying working times	**6.8**	**5.8**
Weekly working time changes regularly because of our shift system	**4.9**	**4.3**
Weekly working time depends very much on daily or weekly workload.	**16.9**	**15.2**
The questions asked was: "Thinking now of the total number of hours in a normal working week (excluding public holidays, days off or holidays), is that number always more or less the same or does it fluctuate from time to time?" Base: all interviewees who answered this question. (N = 2852)		

Table 3 1

Average duration of and variation in actual weekly working times[1] (in hours)				
	Actual weekly working time	minimum weekly working time	maximum weekly working time	Range of variation
All interviewees - irrespective of whether working time varies[2]				
All full-time employees	**39.74**	**36.80**	**46.05**	**4.25**
Interviewees who stated they worked more or less the same hours each week				
All full-timers with unvarying weekly working times	**38.07**	**-**	**-**	**0**
All full-timers who stated that they always worked the same number of hours every week, apart from 1-2 hours' overtime	**40.05**	**36.52**	**42.35**	**5.83**
Interviewees with variable weekly working times				
All full-timers	**41.73**	**37.59**	**47.17**	**9.56**
All full-timers who said their working times varied because they worked flexitime	**40.61**	**36.60**	**45.18**	**8.58**
All full-timers who said variations were due to shift system	**40,89**	**35,38**	**48,77**	**13,40**
All full-timers who said variations were due to irregular workloads	**44,47**	**38,28**	**51,35**	**13,01**

[1] adjusted for implausible cases (some interviewees gave maximum weekly working times far below the standard working time - they may have been referring to overtime. These cases have been excluded from the evaluation).

[2] including employees without variable working times (here: range of variation = 0 hours)

Table 4

Employees with workload-dependent working times by net income (individual net income in DM)		
	Employees with workload-dependent (% shares)	**Other employees (% shares)**
Up to 2000	27.9	35.6
2000 to under 3000	38.2	41.6
3000 to under 5000	26.8	20.3
5000 and over	7.1	2.5

Table 5

Criteria for assessing individual freedom to determine starting and finishing times (and free time)			
Possible answers	**No influence**	**Consultation possible**	**(relatively) autonomous decision**
fixed rules; deviations possible only in exceptional cases	**X**	**-**	**-**
determined by supervisor alone	**X**	**-**	**-**
my supervisor decides in consultation with me	**-**	**X**	**-**
my supervisor decides, in consultation with me and my immediate colleagues	**-**	**X**	**-**
I decide in consultation with my colleagues	**-**	**-**	**X**
I decide by myself, but I must take colleagues' working and holiday times into account	**-**	**-**	**X**
The decision is entirely up to me	**-**	**-**	**X**

Table 6

Determination of starting and finishing times (in %)		
Responses	**Employees with variable working times because of irregular workloads**	**All interviewees**
fixed rules; deviations possible only in exceptional cases	32.7	64.7
determined by supervisor alone	12.0	7.2
my supervisor decides in consultation with me	12.4	6.6
my supervisor decides, in consultation with me and my immediate colleagues	12.0	5.4
I decide in consultation with my colleagues	7.0	4.7
I decide by myself, but I must take colleagues' working and holiday times into account	8.9	4.7
The decision is entirely up to me	14.9	6.6
Total	100	100
Autonomy rate	***30.8***	***16.0***
Consultation rate	***24.4***	***12.0***
Heteronomy rate	***44.7***	***71.9***
N	483	2888

Table 7 2

Opportunities for changing working time at short notice (as % of interviewees - multiple responses)		
Responses	**Employees with variable working times because of irregular workloads**	**All interviewees**
completely impossible	**8.5**	**7.6**
depends on supervisor	**24.8**	**27.1**
only if I find cover	**17.6**	**22.0**
only if I have time credits or free shifts	**7.2**	**8.6**
always possible	**46.4**	**38.9**

Table 8 3

Planning of holiday times		
Responses	**Employees with variable working times because of irregular workloads**	**All interviewees**
determined by works holidays	12.0	14.4
fixed rules in the workplace	11.6	17.5
supervisor has sole responsibility	3.5	3.2
my supervisor fixes dates in consultation with me	19.0	15.7
my supervisor fixes dates in consultation with me and my colleagues	17.0	17.5
I fix dates in consultation with my colleagues	13.9	14.6
I fix dates myself, but must take colleagues' holiday dates into account	13.9	10.8
I fix dates entirely by myself	9.1	6.4
Total	100	100
Autonomy rate	***36.9***	***31.8***
Consultation rate	***36.0***	***33.2***
Heteronomy rate	***27.1***	***35.1***
N	483	2888

Table 9 4

Autonomous time management by form of work organisation								
	Cooperation				Individualised work			
	Of necessity	Controlled	Self-determined	Without influence	Autonomous/participatory	Heteronomous	Participatory	Completely heteronomous
Determination of starting and finishing times								
Autonomy rate	**6.0**	**21.0**	**20.1**	**10.0**	**17.4**	**11.1**	**19.6**	**24.4**
Consultation rate	**13.0**	**13.2**	**13.9**	**12.5**	**17.8**	**8.1**	**10.3**	**7.6**
Heteronomy rate	**80.9**	**65.9**	**66.1**	**77.3**	**64.7**	**80.9**	**70.1**	**67.9**
Colleagues involved in the decision or necessary to take account of colleagues' working times in deciding on own starting and finishing times	**10.4**	**22.4**	**22.4**	**15.2**	**20.5**	**8.4**	**14.3**	**6.8**
Opportunities for changing working time at short notice (Multiple responses)								
Impossible or dependent on supervisor	**41.5**	**29.6**	**22.3**	**34.9**	**35.0**	**40.5**	**32.0**	**39.2**
Possible under certain conditions (cover, time credits)	**28.0**	**35.5**	**34.2**	**36.4**	**36.4**	**30.7**	**26.0**	**18.6**
Always possible	**34.9**	**41.4**	**46.4**	**34.3**	**32.8**	**33.1**	**45.6**	**44.5**

Table 10 5

The determination of starting and finishing times for employees in ...				
	Overall (all forms of work organisation)	**Cooperative forms of work organisation**		
	Non-group work	**Group work**	**Non-group work**	**Overall**
Autonomy rate	***16.1***	***16.1***	***13.6***	***14.2***
Consultation rate	***11.8***	***13.3***	***13.2***	***113.1***
Heteronomy rate	***72.1***	***70.6***	***73.3***	***72.6***

Figure 11

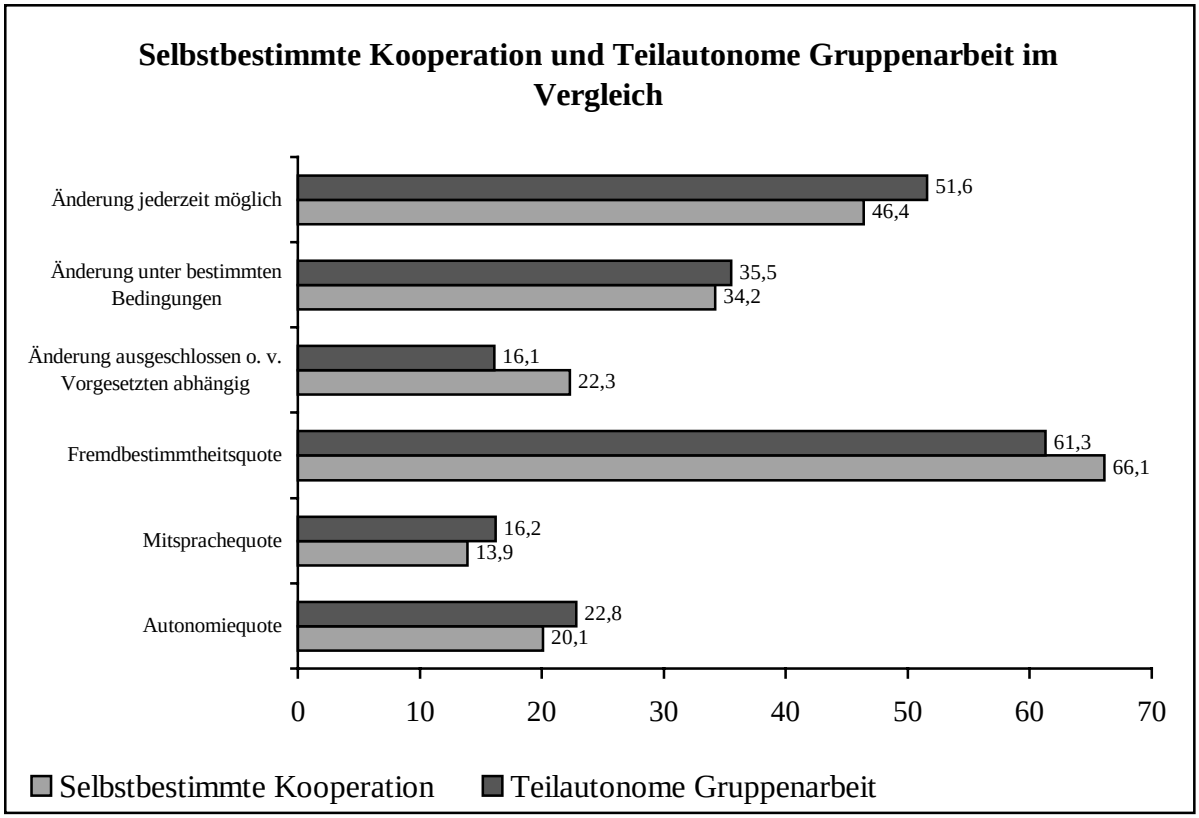

Table 11 6

Autonomous time management by type of group work (as % of all interviewees)				
	Necessary group work	Controlled group work	Semi-autonomous group work	Group work without influence
Determination of starting and finishing times				
Autonomy rate	**5.7**	**25.0**	**22.8**	**12.5**
Consultation rate	**14.9**	**9.8**	**16.2**	**11.4**
Heteronomy rate	**79.3**	**65.3**	**61.3**	**76.2**
Fixing of holiday dates				
Autonomy rate	**26.4**	**38.9**	**43.1**	**27.3**
Consultation rate	**22.9**	**30.6**	**26.9**	**30.7**
Heteronomy rate	**50.5**	**30.6**	**30.2**	**42.0**
Opportunities for changing working time at short notice				
Impossible or dependent on supervisor	**43.6**	**19.5**	**16.1**	**29.5**
Possible under certain conditions (cover available, time credits)	**26.4**	**40.3**	**35.5**	**39.8**
Always possible	**32.2**	**44.4**	**51.6**	**36.4**

Table 127

Covering for colleagues and group work (%)		
Responses	**Non-group work excl. employees working alone**	**Group work excl. employees working alone**
we do not cover for each other at all	**8.8**	**5.1**
there are **a few** colleagues for whom I cover occasionally if they are ill or on holiday	**43.3**	**35.8**
there **a few** colleagues for whom I cover frequently because of variable attendance times	**6.2**	**8.4**
occasionally, **all** employees cover for each other when colleagues are ill or on holiday	**22.9**	**24.2**
all employees cover for each other because of variable attendance times	**18.8**	**26.6**
	100	**100**

Table 138

Further training and group work (% of all interviewees)		
Further training because of …	**Non-group work excl. employees working alone**	**Group work excl. employees working alone**
Change of job	**41.9**	**50.1**
Contact with new technologies	**45.1**	**49.9**
Additional responsibilities	**38.7**	**46.9**
Organisational changes	**32.1**	**40.3**
Cover arrangements	**25.6**	**34.9**
Other reasons	**19.9**	**27.2**

Table 14

Variable working times among employees in ... (in %, multiple responses)			
	cooperative forms of work organisation		
	Group work	**Non-group work**	**Total**
Same number of hours in every week	**37.6**	**42.8**	**41.5**
Same number of hours every week, except for 1-2 hours' overtime per week	**28.5**	**28.0**	**28.1**
I work flexitime, so it is easy to vary working times.	**8.8**	**5.4**	**6.2**
Weekly working time changes regularly because of our shift system	**7.9**	**5.9**	**6.4**
Weekly working time depends very much on daily or weekly workloads	**19.7**	**19.6**	**19.6**

Table 159

Average duration of and variation in actual weekly working times of full-time employees involved in group work [1] in hours				
	actual weekly working time	minimum weekly working time	maximum weekly working time	range of variation
Group work	**41.43** [2]	**36.85**	**47.46**	**10.61** [3]
Non-group work	**41.76** [2]	**37.73**	**47.07**	**9.32** [3]
Employees in cooperative forms of work organisation	**41.96**	**37.37**	**47.55**	**10.14**
By type of group work				
necessary group work	**41.57** [4]	**37.60**	**46.63**	**9.03** [5]
controlled group work	**42.00** [4]	**37.33**	**49.85**	**12.52** [5]
semi-autonomous group work	**42.07** [4]	**36.80**	**48.30**	**11.50** [5]
group work without influence	**39.81** [4]	**35.23**	**45.04**	**9.80** [5]

[1] adjusted for implausible cases
[2] T-Test in the case of independent samples: sig. (2-sided) .002
[3] T-Test in the case of independent samples: sig. (2-sided) .001
[4] one-factor ANOVA significance between the groups: .006
[5] one-factor ANOVA significance between the groups: .000