RÉSUMÉ
L'organisation du travail dans les centres informatiques au Brésil: conformisme et résistance.

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L'objectif de cet article est d'analyser comment le travail informatique est organisé dans les grands "pools" informatiques au Brésil et comment les ouvriers et les ouvrières perçoivent et résistent à cette forme d'organisation du travail.

Le travail informatique est toujours associé à l'image d'une profession du futur: un travail moderne, intellectuel, spécialisé et à gros salaires. Cependant, cette image n'est qu'un des mythes créés autour de l'informatique. Dans les grands "pools" informatiques, le travail est organisé à la tayloriste. Ainsi, la réalité, pour la majorité des travailleurs et travailleuses de l'informatique, est très différente: il s'agit d'un travail "en miettes," composé de tâches parcellaires et répétitives où ils n'ont pas de contrôle sur le processus de travail. L'informatique rend possible l'émergence d'une nouvelle discipline, très rigide, où il y a une surveillance électronique du travail. Même le temps passé aux toilettes est contrôlé. Ainsi, l'ensemble du temps dans le milieu de travail devient temps de travail. La structure architecturale de ce nouveau milieu de travail a un "caractère total" qui mène à une augmentation du rythme du travail.

On peut constater, ainsi, un paradoxe: en même temps qu'on a une nouvelle technologie incorporée et moderne (l'ordinateur), on a aussi une technologie organisationnelle dépassée (le taylorisme) dans le même milieu de travail. La relation des travailleurs et travailleuses face à cette réalité paradoxale est ambiguë et on ne peut pas la caractériser uniquement comme une relation de résistance, ni uniquement comme une relation de conformisme parce qu'elle peut revêtir un peu des deux caractéristiques.

On termine en présentant une expérience de résistance à l'organisation tayloriste du travail informatique. Un groupe d'auxiliaires en saisie des données a fait un changement dans l'organisation du travail en utilisant des principes d'autogestion. Le groupe a démontré la viabilité d'une nouvelle organisation du travail qui était très productive, et qui peut être vue comme une solution possible aux problèmes du "monde du travail."

Work Organization in Brazilian Data Processing Centres: Consent and Resistance[1]

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> "où il y a pouvoir, il y a résistance"
> (Michel Foucault)

Introduction

Working with computers has been considered in Brazil the "Profession of the Future," a modern, highly skilled, profitable and intellectually stimulating occupation. Although this may be true for a very small part of hyper skilled workers (e.g., software analysts), it is not so for most of the information workers[2]. The objective of this paper is to analyze how workers perceive and react to work organization in large Brazilian Data Processing Centres (DPCs)[3].

Work organization in Brazilian DPCs

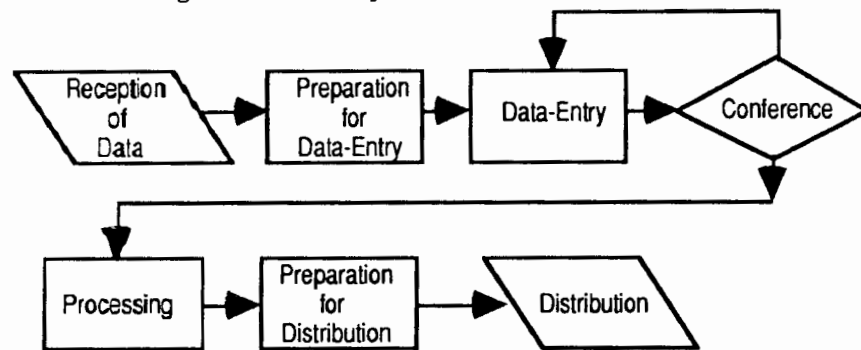The emergence of DPCs in Brazil took place during the authoritarian period after 1964, when Brazilian capitalism

2   Information workers are considered, in this paper, as all the workers who are necessary for computers to work: data-entry clerks, data-preparation clerks, programmers, computer operators, tape librarians clerks, and system analysts.

3   Semi-structured interviews were conducted with 120 information workers in the four largest Data Processing Centres in Brazil which are located in Sao Paulo. Also interviewed were 24 data-entry clerks of the self-managed group as well as managers and the superintendents who were involved in an organizational change in ORG1, the largest DPC in Brazil.

reached its monopolistic phase. Since then a great interest in technology has existed. Technology is seen as a non-political variable, neutral and essential to the country's development. In the post-1964 era, technology is seen as a symbol of progress, efficiency and modernization, and any possible link between it and the exploitation and domination of workers, most of the time has not been considered.

Covre (1983) pointed out that monopolistic capitalism established itself in Brazil through two basic processes: "de-nationalization" and technological modernization. The latter involved the widespread use of both machine-specific and organizational technology. DPCs are closely related to the modernization process described by Covre (1983). Information workers, who appeared during the period of military rule, have, since then, been repressed and excluded from participation in all decision processes.

Although information work is seen as a "white-collar" job, safer and cleaner than factory jobs, Data Processing Centres might be compared with a factory in which the raw materials are the data-entry documents that roll along the assembly line (see Figure 1). The final products are the reports and documents, which have to be sent to the customers.

Figure 1: Assembly Line "Batch" in a DPC.

Source: Maciel et al. (1985)

The work organization in Brazilian DPCs is essentially based on Taylorism (Taylor, 1919), which will be considered here not as a set of ideas surpassed by other schools of organizational psychology, but as a set of principles underlying work organization. Thus, a Taylorist work organization may be

analyzed in terms of the three general categories proposed by Littler (1978): 1) the division of labour; 2) the implicit employment relationship; and 3) the structure of control over the task performance.

Table 1: Distribution of Information Workers Per Job (Estimated)

Year Jobs		1987	1988	1989	1990
Analyst	(16.5%)	59.015	67.867	78.047	89.754
Programmer	(15.0%)	53.845	61.922	71.210	81.891
Computer Operator	(11.6%)	41.489	47.712	54.868	63.098
Data-Entry Clerk	(36.2%)	129.690	149.143	171.514	197.241
Data-Preparation Clerk	(19.9%)	71.521	82.249	94.586	108.773
Tape Librarian	(0.8%)	2.970	3.415	3.927	4.516
TOTAL (100)		358.581	412.308	474.152	545.273

Source: Special Secretary of Informatics - Brazilian Federal Government (SEI)

Information work has been fragmented since its emergence in the mid 50s, as pointed out by Greenbaum (1979) and Kraft (1977). This fragmentation produced a polarization of skills[4], as noted by Palloix (1976), where unskilled tasks are performed by most of the information workers, who in Brazil amount to 83.5% of the information labour force (data-preparation clerks, data-entry clerks, computer operators, programmers, and tape librarians) as shown in Table 1. This fragmentation takes place in a rigid hierarchy, which was created, according to Greenbaum (1976), to

4   There is a long and intense debate about the (de)skilling process related to the introduction of new technologies in the workplace. Some investigators (Noble, 1984; Greenbaum, 1979; Shaiken, 1984; Braverman, 1974) argue that the introduction of new technologies led to reduced skill levels. On the other hand, some investigators support the idea that new technologies may lead to an upgrading of skill levels (Zuboff, 1988; Hishhorn, 1984). Another position in the debate is held by Spenner (1983, 1985) who points out the importance of the "social and bureaucratic factors" in the (de)skilling process. Spenner notes that the same technological innovation in two different firms can change the skill requirements in different ways.(See Milkman & Pullman (1988) for an extensive literature review.). Computer skills will be used here as "learned behaviours needed-for achieving desirable performance levels when doing job related tasks using a computer; achieving satisfactory performance hinges first upon attentional resource capabilities (i.e. information processing) and motor behaviour by the individual and, second, upon the mix of declarative and procedural knowledge need to perform the skill" (Gattiker, 1991).

reinforce the effects of standardization and to pay the worker the lowest possible wage.

Working on a DPC is well described by the minimum interaction model, "under which there is a minimal connection between the individual and the organization in terms of skill, training, involvement, and complexity of his contribution, in return for maximum flexibility and independence on the part of the organization in using manpower" (Davis, 1972; p.302). Training programmes in DPCs are rare and most of the workers complain about the lack of training courses. "Most companies have preferred, when they could, to organize jobs as narrowly as possible in order to minimize training (a key tenet of Taylorism). And when they couldn't, they have relied on the informal organization of workers on the shop floor to provide an environment where people can learn from one another" (Howard, 1985; p.42). The strategy of leaving training to be done by informal groups - "learning on the job" - is common in DPCs:

"Until now, we did not have any training courses and the system is going to change soon. We are going to have to learn by ourselves" (Computer Operator).

Control over task performance is extensive. In the data-entry sector the control exerted over the worker is double: by supervisor and by computer. Work is electronically monitored and even time spent in the bathroom is monitored. One can observe in the DPCs the emergence of what Foucault (1977) called "integrally useful time." The electronic surveillance of data-entry is a clear example of how all time is, in fact, transformed into working time. Computer monitoring exerts a continuous and constant control on workers, imposing on them a severe discipline and setting the workers' pace in a standardized way, which not only eliminates the working individualities but also restrains horizontal communication. The worker cannot stop working for a few minutes to think, to drink a cup of coffee, or to talk to a fellow-worker.

"If you go to the toilet, you have to type in a message: Gone to toilet. When you come back, you send another message: Back from toilet, for them to control your work" (Data-Entry Clerk).

"The computer measures the number of keystrokes, the time you worked so the supervisor knows how many keystrokes per hour you are doing" (Data-Entry Clerk).

The electronic monitoring exerts, in this way, a total and uninterrupted control over information workers, creating a rigid

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discipline as was never before achieved. One may say that this rigid discipline, imposed on information workers, through their own working tools that control them, has many new aspects, which differentiate it from the disciplines in other workplaces. The scale of this control reaches the limits of workers'physiological necessities and includes movements, attitudes and pace. It creates, therefore, an "infinitesimal power over the active body" to use Foucault's own words (Foucault, 1977). The object of this control is the economy and efficacy of movements to get the tasks done in the same rhythm as the computer:

"You work in an environment of dispute with the computer itself. You prepare the tapes and if you work in a slow pace, people discriminate you, but if you work very fast you are very appreciated" (Computer Operator).

"You have to be faster than the computer. Five minutes are a big delay. It is a complete absurd" (Computer Operator).

Lastly, the modality of this control is the electronic surveillance, which exerts an uninterrupted and constant coercion over the information workers and allows total control over the tasks done. Thus, there is the emergence of the "informatics" discipline, which not only permits the domination of, but also engenders consent among, information workers.

In large Brazilian DPCs, the Taylorist work organization produces divisions among workers even when they share the same working conditions, pace and discipline. It increases loneliness at the workplace and decreases horizontal communication (Dejours, 1987). Restrictions on communication during working time according to Dejours (1987), disorganize workers' emotions and prevent the emergence of informal groups, which are both production and struggle groups who face common problems related to work. It is well known that workers constitute informal groups to resist, to defend themselves, to struggle (Castoriadis, 1985) against exploitation and in order not to experience frustration and anxiety in isolation for, when they are isolated, these feelings are much more intensified (Dejours, 1987).

Another aspect that hinders horizontal communication in DPCs is the spatial distribution of workers in the workplace (Foucault, 1977). One of the most used techniques in DPCs is the distribution of workers in individual workstations separated by tall partitions. "Each individual has his own place and each

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place its individual (...) Disciplinary space tends to be divided into as many sections as there are bodies or elements to be distributed" (Foucault, 1977: 143).

This technique of fragmentation and isolation of the spatial environment is often present in the DPCs. "The work stations were separated by tall partitions, which created a cubicle effect around the work space of each clerk. Installing those partitions was the final step that completed the clerk's relegation to the realm of the machine. Exiled from the interpersonal world of office routines, each clerk became isolated and solitary" (Zuboff, 1988: 125). This rigid fragmentation of spatial environment not only creates isolation in the workplace, but intensifies the workers'pace so that informal relations and horizontal communication are further prevented. Information workers are increasingly isolated in cubicles, where there is constant surveillance over their behaviour. The restrictions on workers' communication are generalized in the DPCs:

> "You want to have a chat with a fellow-worker. You want to relax, but if you go there and talk to another person someone will go by and start to watch you, go away, come back again and watch you because he knows that you are chatting. You feel that someone is watching you. So, you start to control yourself, because there is always someone watching you" (System Analyst).

> "You cannot talk in the data-entry sector. If you start talking, the supervisor comes and tells you: Well, it is better not to talk. Nobody likes talking here. It is better to shut up" (Data-Entry Clerk).

However, the lack of communication is much more severe in the data-entry sector, where workers are forbidden to talk during working time. Data-Entry work is extremely uneventful, repetitive, without any demands on creativity and has a very narrow and one-sided job content. Most of the time, data-entry clerks are paid according to results: "the more you work, the more you are paid," which increases workers'pace and decreases communication at work. Data-Entry clerks are Taylor's "second-class" workers who should be isolated from each other to prevent the "systematic soldiering."

> "The way they treat us is like if we were in the kindergarten and sometimes it is even worse, as if we were irresponsible! Right now, it is a little better, can you imagine this?" (Data-Entry Clerk).

"We are treated as second class people" (Data-Entry Clerk).

One fundamental aspect in the information work is the sex segregation. Women are concentrated in the repetitive and monotonous jobs with low skills that demand much attention. According to DIEESE, 62% of female information workforce are concentrated in manual tasks (data-entry, data-preparation) and less than 5.6% were in the intellectual tasks as system analysts. Braverman (1981) pointed out that data-entry work was considered a female job due to its low skill requirements. This is an important aspect because the extent of control over time, space and even the tasks performed are different according to sex (Humphrey, 1987). Indeed, one of the reasons why management was so concerned about restricting communication among data-entry clerks is that they were women, and were presumed to be interested only in gossiping. Moreover, this sex segregation pattern is very important because, as pointed out by Milkman (1987), once a job is labelled as "male" or "female," it is very difficult to break with this image.

Architectural Aspect

Data Processing Centres are not ordinary workplaces. They have the physical characteristics of the total institutions. One may argue that these characteristics are present in other workplaces but, as pointed out by Goffman (1974), the intensity of these characteristics is the reason that leads us to differentiate DPCs from other workplaces.

Brazilian DPCs present a "total character," which acts as a barrier to the social intercourse with the outside world, and it is often built into the physical plant - e.g., high walls, locked doors, and barbed wires (Goffman, 1974). It is worth mentionning that these characteristics are there to ensure the physical security of the computers and it is worse in the computers' room that is often windowless and with just one door.

> "There is no window, there is nothing!" (Computer Operator).

> "You do not know if it is raining or if the sun is shining! It is always like this, DPC is always closed" (Tape Librarian).

The doors are electronically locked, with security agents and cameras at the door. In this way, a DPC looks like a fortress, which opens its gates to the entrance/departure of the information workers in the beginning/end of their working shift.

The aim of this "enclosure" aspect is "to derive the maximum advantages and to neutralize the inconveniences (thefts, interruptions of work, disturbances and 'cabals') as the forces of production become more concentrated, to protect materials and tools and to master the labour force" (Foucault, 1977: 142). Thus, even the architecture of a DPC is executed in such a way as to intensify the working pace and to discipline the workforce.

Working Conditions in DCPs

Contrary to what one may believe, the work environment in DPCs is not "cleaner" and "safer" when compared with other work environments. In this new workplace there are many insalubrities and as they are related to a new technology, most of the time, they are not well understood.

The main complaint among information workers is the temperature, which is low because of the equipments' requirements. Although the average temperature should be 21 Celsius, to achieve this average, air conditioning is set at a much lower temperature to compensate the concentration of machines and people working together in the same room.

"Like today, it is a hot day, you are in the computer   room, and when you go out, you feel the difference. The computer operators have always bad colds and sinusitis" (Computer Operator).

"Generally, the temperature is very cold. When you go outside you can perceive the difference!" (Data-Entry Clerk).

Table 2: Partial Results of the Research on Health and Working Conditions

Factor	With Complaints	No Complaints
Temperature	71.6%	28.4%
Noise	58.0%	42.0%
Lighting	24.0%	76.0%

Source: Org1

The second main problem faced by workers in DPCs is noise as there are many sources of noise in the workplace: printers, VDUs, keyboards, magnetic-tapes unities and the air conditioning, i.e., most equipments which are part of the information workers' everyday life. According to research conducted in one of the DPCs analyzed, the following complaints (see Table 2) were the most frequent:

Noise is also perceived by information workers:

'The disks are very noisy, there is also the noise from air conditioning. When they turn off the computer, it is nice...it is silent" (Computer operator).

"Noise! We have a lot, At least, that is what we feel. At the printers'room, we have a lot of noise. It is really a lot" (Computer Operator).

"When you turn off the machines for some time, everything turns into silence, it seems that we are in another world" (Computer Operator).

Another aspect of insalubrity is the presence of paper powder in the air, which arises from the continuous sheets when they pass through the printers or when they are prepared by data-preparation clerks. Paper powder circulates through air conditioning and is inhaled by the workers during their entire working time.

The Organization of Time

One important aspect of the work organization in DPCs is the working time. The duration of work is variable, according to the job in a DPC, as it may be seen on Table 3:

Although information workers use Video Display Units (VDUs) during their working time, only data-entry clerks have the right to breaks. At the time of this research, only one DPC allowed a rest break of 10 minutes every 50 minutes of work in the data-entry sector[5].

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5 This research was conducted from 1987 to 1989. In 1990 a Brazilian Federal law was weated which tries to regulate the use of VDTs in Brazil. This law states that there must exist a 10 minute break after 50 minutes of work with VDT. Unfortunately, one cannot say that this law is enforced or has changed working conditions in DPCs. See VDT News Jan/Fev 1991, p. 09, for more details on the Brazilian VDT Law.

Table 3: The Working Time of Information Workers

Job	Daily Working Hours
Analyst	8 hours
Programmer	8 hours
Computer Operator	6 or 8 hours
Tape Librarian	6 or 8 hours
Data Preparation Clerk	6 hours
Data-Entry Clerk	6 hours

Source: Soares (forthcoming)

Overtime work is common in DPCs due to the seasonable aspect of the production flow. During production peaks, there is an enormous demand for overtime and several restrictive policies are adopted, such as no holidays during these periods. Another reason for overtime in DPCs is the myth of efficiency surrounding computers in Brazil[6]. It is believed that computers give answers to all problems at a simple keystroke, without any problem. The role of workers and system problems have often been ignored when any planning is done. Therefore, the time allowed to each task is always short and forces information workers to work overtime to finish on time. Generally, workers do not complain about working overtime, first, because of the fear of unemployment (Maciel et al., 1985), but mainly due to their low wages, as one may see in the next section, which turns overtime into an important way of complementing wages.

Another important aspect of the time organization is night work, which is imposed to amortize the high investments made on the machinery that has a fast technological obsolescence in the sector. Night work is perceived by workers as a source of stress and health problems:

"I have been working for 3 years at night and since then I cannot do anything else in my life" (Data-Entry Clerk).

"Look, social life becomes very difficult when you work at night because of our timetables are the contrary of other people, when you are going to work your friends are coming back home" (Computer Operator).

"You get isolated from the rest of society. It changes your metabolism, you start to eat more and in the morning you feel as if you have a hangover. It is very bad. There is nothing like when you can sleep during the nights" (Tape Librarian).

Besides occupational health problems[7], one also may observe in the comments above that information workers perceive the feeling of "social death" produced by night work, as pointed out by Carpentier and Cazamian (1977), which is caused by the lack of synchronization of the life cycle with the rest of society.

Wages

A main point associated with information workers in Brazil is their high wages. However, this image is limited only to a very small part of the information workers (e.g., analysts), and one cannot generalize for the information workforce as a whole. Nowadays, in fact, even for analysts, high wages are becoming a history from the past as a decrease in all wages of the information workforce may be observed in the last years (see Table 4)[8].

This wage decrease might be explained by the global economic situation of the country, due to inflationary and recessionary realities, but this explanation is incomplete because in the same period, the information sector was the sector, if not the only one, which grew in high percentile rates. In our opinion, main reason for the wage decrease, as highlighted by Friedman (1972), is the deskilling process present in the sector[9] associated

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6   For this mythical view around computers, see Roszack (1986) and Soares(1988).

7   For a discussion of occupational health problems for information workers, see Soares (in press), Chapter 3.

8   The minimum wage established by DIEESE was used to deflate information workers'wages. The dollar was not used here, although the same decrease would be observed because the use of the Dollar for deflationary reasons, in Brazil, induces some problems: the wage being monthly and dollar quotation changing every day, this would require to work with a monthly average of dollars. Moreover, there is the problem of which quotation of dollar to use: the official one, which is imposed by the Federal Government, or the Black Market quotation. If one chooses the Black market quotation, which is the more realistic one, one would have the bias coming from the financial market speculation. Although the same tendency is observed using the quotation of dollar in the Brazilian black market, we decided to use the minimum wage of DIEESE because it has been calculated using the same methodology and principles, that is the amount of money that a family needs to live in Brazil respecting basic needs.

9   For a whole discussion on the deskilling process in the sector of DPCs in Brazil see Soares (in press), for the United States see Kraft (1977) and Greenbaum (1979).

with the constant fragmentation of work, which causes a hyper-skilling for a small part of the workforce. Furthermore, the Taylorist work organization that is based on the "minimum interaction model," imposes on information workers through temporary work the absence of a carreer plan and the incentive of a high turn-over of the labour force, a limited bargain power and, therefore, decreases workers' wages.

Table 4: Wages of the Information Workers in minimum wages of DIEESE

Year Job	1983	1984	1985	1986	1987
System Analyst	5.08	4.41	4.04	3.71	3.01
Programmer	3.32	2.09	2.43	2.29	1.90
Computer Operator	2.57	1.49	1.84	1.87	1.48
Tape Librarian	1.64	nd	1.59	0.99	0.85
Data-Entry Clerk	1.56	1.30	1.30	1.04	0.66
Data-Preparation Clerk	1.23	0.88	1.42	0.86	0.69

Source: Sucesu and Dieese

Information workers perceive their wage loss and resist it. From 1983 to 1988, the number of strikes in the DPCs increased (see Table 5). The number of non-worked hours rose from 120 in 1983 to 2281 in 1987 and the main reason for those strikes was pay-claims.

Table 5: Strikes in Brazilian DPCs

Years	1983	1984	1985	1986	1987	1988*	Total
Number of Strikes	02	01	06	16	23	07	55
Number of Workers Stopped	288	800	7,500	27,697	29,154	34,480	99,919
Total of Non-Worked Hours**	120	96	802.5	1,248	2,281.5	1,512	6,060

Source: DIEESE bulletins, the whole collection
* Strikes until august 1988
** For purpose of calculations, we consider that each day of strike is equal to 24 hours because of the working in shifts in DPCs.

Consequently, the reality of working in large DPCs in Brazil is very far from the myth of the "profession of the future." The work organization based on Tayloristic principles establishes a paradox: simultaneously to the latest incorporated technology (computer), there is an organizational technology (Taylorism)

developed in the beginning of the century. Thus, one may question: how do information workers face this paradox in everyday life?

Consent and Resistance

Information workers' perception of their work organization is ambiguous as one may not say that their perceptions are neither of resistance nor of consent. Analyzing how workers perceive and react to the work organization one may try to avoid the dichotomy of consent x resistance[10].

It must be pointed out that neither resistance alone nor consent alone was found in jobs analyzed. It must also be highlighted that there is not any isolated cause for consent and/or resistance; as in any social interaction, there are countless variables, political, economic, social, cultural, and it is impossible to analyze their relationships in a static or fragmented way. In the same sector, in the same DPC, workers perceived their work organization in completely different ways:

"I believe that the worker must be evaluated in all senses, for example: he must not have absences or delays, unless they are rigorously justified, he must be disciplined, he must cooperate with colleagues and supervisors, and he must be evaluated by keystrokes. Monthly, those who get the best scores must be divulged and annually, for example at Christmas time, the best ones should be awarded with a premium: medals, bonus, promotions. I think this attitude will give incentives to workers to dedicate themselves to work and it is going to create some competition among them, not for the prizes but for the satisfaction of being a model worker" (Data-Entry Clerk).

"Regarding the whole system used here in production, whoever looks from outside can see that we are in the age of slavery. We have to produce until we reach the minimum limit, no matter how. This kind of virus [the production limit] they put in our minds when we step for the first time in the production sector. We work as slaves, being whipped not in our bodies but in our minds" (Data-Entry Clerk).

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10 We believe that when one uses, in sociology, dichotomic concepts that have their roots in ideological concepts of good and evil, stead of analyzing social reality, it may deform it to suit the researcher's ideology (Queiros in Chaui, 1986)

Consent

Consent is common in Brazilian DPCs among information workers who perceive and accept work organization in a very passive way:

> "Sometimes you work in systems that are very enveloping and I like them. I get enveloped and I forget everything, I forget to eat, to sleep and life goes by" (System Analyst).

> "The temperature is really cold but I am accustomed toit, it is cold but it must be like this because all machines need this temperature" (Computer Operator).

Several aspects must be considered to understand information workers'consent. An important one is work organization, itself, as Taylorism in DPCs causes a double consent. First, Taylorism tries to eliminate/expropriate the workers' knowledge, which is associated with their working life experience and transmitted informally among them. Coriat (1976) points out that a key tenet of Taylorism is the expropriation of knowledge from workers. In this way, being expropriated of their knowledge, which has been incorporated into computers through softwares[11], information workers have progressively lost their principal source of power and at the end of this process an even more passive role in work relations is imposed on them.

Secondly, in a workplace where workers have almost no control over their work process, there are higher levels of stress, and this situation "corrodes their sense of self. More than just a lack of control over work, it signals an inability to cope with the demands of their world" (Howard, 1985: 89). Even if information workers recognize that they work in a very stressful situation, most of the time they "see it as their own inability to function according to the norms established by the company. They feel they are individually failing to live up" (Howard, 1985: 89) to the company's standards. The feeling of "incompetence" associated with the invisibility of "informatics" violence turns

the worker into a passive immobility instead of embracing the rebellion.[12]

We must highlight the role of work alienation that is a characteristic of the capitalist mode of production and present among information workers. Only three of the 84 workers interviewed answered that they were important for the computers to function, when they were asked: "for you, what is a computer?"

> "Computers are an enigma for me. I know how to make it function through instructions, but what is it, what can it do for me and for society, you know? So it is an enigma for me (...) For me it is a surprise box, this is the logical definition for me" (Programmer).

> "Computer, what is a computer? ... It is a machine, ... a machine that was programmed" (System Analyst).

> "For me it is a fantastic machine, I believe that computer nowadays is the soul of the world, it is the base of everything, nowadays everybody deals with computers, I think it is a fantastic machine" (Computer Operator).

> "You know, you got me! Can you believe? I have been working for five years here and I have never seen the computer" (Data Preparation Clerk).

> "The computer itself, I do not know how to explain, because I never had the access to a computer, but I always liked it!" (Data-Entry Clerk).

> "Computer? I don't know. I believe that I don't know how to define it. I can only say that it is a machine" (Tape Librarian Clerk).

Consent to work organization is so exacerbated among information workers that even when they resist, most of the time they "consent". Since 1983, the number of strikes in Brazilian DPCs increased (see Table 5), which is an indication of increasing resistance in the sector. However, when one analyzes the reasons for these strikes - pay-claims - one may perceive a consenting movement inside the resistance.

Although the fight for better wages is important, mainly due to a very hard economic reality and to decreasing wages (see Table 4), most information workers neither fight for new forms of

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11 If one examines the history of computers, not as a "cult of the progress," with the generations of computers, but from the workers'point of view, one may see that there is a logic of incorporating, through software, the knowledge of workers into the machine. The classic example is the Operating Systems and the deskilling process of computer operators. See Soares (in press) and Manacorda (1982) for a fuller discussion.

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12 There are other aspects related to how the organization of work induces consent that we are unable to discuss here due to the lack of space. For a fuller discussion see, Soares (in press).

work organization nor question the Taylorist and authoritarian structure in DPCs. Analyzing the reasons for strikes in the period 1983-1988 in Brazilian DPCs, one may observe that only 16.2% of non-worked hours were due to strikes associated to demands to improve work organization in the form of eliminating the "minimum interaction model," studying the risks for occupational health, and decreasing working hours. Most strikes (82.9% of non-worked hours) were pay-claims (see Table 6). Behaving in this way, information workers not only preserve the Taylorist work organization but also reinforce it by emphasising the "Homo Economicus" supported by Taylor.

Table 6: Reasons Presented for the Strikes in Brazilian DPCs

Reasons	Number of Strikes	Number of Hours Stopped	% of Hours Stopped	Number of Workers on Strike	% of Workers on Strike
Wages	42	5,024	82.9	83,016	83.1
Organizational	10	984	16.2	13,753	13.8
Protest	03	52	0.9	3,150	3.1

On the other hand, one may also observe that even when consenting, workers can resist too:

"I am not criticizing the situation, I believe it could improve and give you more opportunities to learn, to find out aspects of how the computer functions. Here you stay imprisonned in work. Sometimes you have to escape to research and to learn more about the system, on your own, and only if you can have access to more manuals, because there are many things that you are not allowed to touch" (Computer Operator).

"The computer is an almost perfect machine, but it enslaves a lot, it enslaves too much" (Data-Entry Clerk).

In the first comment, the computer operator is resisting the deskilling process, "escaping" to study a little bit more. The association of negative images with computers, e.g., "a machine that enslaves too much," is also a way to resist. However, it is also possible to observe a direct resistance to the Taylorist work organization in Brazilian DPCs.

Resistance

In February 1987, a group of data-entry clerks, resisting Taylorism in the largest Brazilian DPC (ORG1), proposed an

alternative form of work organization. The group was created in a meeting where there were management representatives, supervisors, data-entry clerks and data-preparation clerks representatives and the members of CRE[13]. The main objective of this meeting was to discuss the production problems at this branch office of ORG1.

A proposal for organizational change was generated when the production manager posed a challenge to the data-entry clerks who were present at the meeting: "if you know another way to work, then do it." The data-entry clerks answered: "we know and we are going to do it!". And they did it. The creation of a data-entry group was then negotiated, the Self Managed Group (SMG), which would be the embryo of an organizational change in the data-entry sector at ORG1. The main characteristics of the SMG were: 1) no supervisors; 2) control of their own timetables; 3) control of their administrative tasks (e.g., control of absenteeism, holiday schedules, etc.); 4) direct reporting to the general manager of the branch office (Self Managed Group, 1987).[14]

The group was formed by 26 data-entry clerks. Two of them were elected as group coordinators, on a monthly rotation basis. Their main objective was "to minimize the dissatisfaction level of automated work, through more technical knowledge and more involvement with interest in their work, with responsibility and dignity that are characteristics of human beings. Consequently, it would eliminate the problems with supervisors and the pressure on workers to produce more, because they would be conscious of the origins and objectives of what they were doing then, engendering in this way more satisfaction in performing their tasks" (Self Managed Group, 1987).

The SMG received training courses from a technical operator that was chosen by them, to learn how the machines and the system functioned. They also learned the procedures related to the administrative tasks. Two aspects were very important in this new form of work organization: first, the elimination of two levels in the hierarchy of the data-entry sector. This was a very

13 The CRE - Commission of the Employees' Representatives - is a commission of employees officially recognized by the company, which represents the workers' interests.

14 We use here the report written by the members of the Self-Managed Group. We also have another report, written by the management of the DPC(see Serpro, 1987), but we prefer to use the data-entry clerks' point of view because we are trying to analyze here the work organization from the workers' perspective.

important change not only because the information work is organized in a rigid hierarchical way, but also because the whole society is based on rigid hierarchical structures that make it difficult for people to foresee a different way to organize their lives and work (Castoriadis, 1983).

This group of data-entry clerks could see a new form to work out of the hierarchical model. More than questionning the hierarchical structure at ORG1, the SMG also questioned and abandoned their own internal hierarchical structure. Their internal decisions were reached collectively through meetings in which they discussed their problems and how to deal with them. Thus, in questioning the hierarchy of command, they were questioning directly the Taylorist work organization:

"We are a whole" (Data-Entry Clerk in SMG).

A second important aspect, related to their decision-making process, is that their practices were inspired by self-management (autogestion) models, as one may see, for example, in their everyday practices:

"If anybody makes any mistake, we make a meeting and we criticize it. Then we really see the mistake. It is not like in the past when someone called and scolded you. Nowadays, we make a meeting and then we make the criticism, if there are three or four people criticizing you, then obviously, you were making a mistake" (Data-Entry Clerk in SMG).

"Today, instead of ordering something, you pass the information, it is quite different" (Data-Entry Clerk in SMG).

"If the coordinator starts to behave in an authoritarian fashion as the old supervisors, we make a meeting and discuss the problem. It happened! We made a meeting, we discussed the problem, we presented our points of view to the coordinator and concluded that he was not prepared to assume the coordination of the group. He decided to leave the coordination, and to wait a few months to reassume it. We talk, as much as we can, to find a common solution" (Data-Entry Clerk in SMG).

In the last comment, one may observe clearly the self-administered practice of the SMG. A data-entry clerk, assuming the coordination of the group, started to reproduce the authoritarian model of the past supervisors. Then, the group made a meeting, they discussed the problem and they concluded that this data-entry clerk was not prepared to assume the group coordination. He was deprived of the coordination and he entered the line again to assume the coordination later. It is interesting to notice that the blame was also shared collectively. Instead of blaming the data-entry clerk for reproducing an authoritarian posture, the SMG argued that the group itself was guilty for not perceiving that he was not prepared to assume the group coordination. Organized in this way, the work in this data-entry sector had effectively changed. Gone were the electronic monitoring, the pressure for production, the pressure of the supervisors. Data-entry work was no longer only a transcription, but it incorporated other tasks and the control over the work process.

It must be pointed out that this experience was not a simple "job enrichment" experience because those changes were not done in an individualistic way, but collectively and the decisions were always taken collectively, as the comments above highlight. Thus, the SMG eliminated the restrictions that exist in the job enrichment: "one such restriction is that the changes are highly individualised (...) even if it is clear that the individual job content can be significantly broadened by job enrichment, it is equally clear that an automatic increase in interaction among workers does not necessarily follow" (ETUI, 1981:103).

Otherwise, the SMG cannot be considered as an "autogestion" because although there was a reduction in the hierarchy in the branch office of ORG1, it did not mean that it disappeared completley. The co-existence of "autogestion" and hierarchy is not possible, even if it is a reduced one. However, the SMG maintained several aspects of self-administered work, and one of the most important one was the collective decision-making, which differentiates it from other experiences and practices of organizational change. Another self-administered characteristic was the absence of hierarchy within the group. The group coordination was not considered as another job in a higher hierarchical level and it made possible the elimination of the competition among data-entry clerks of the SMG, as an hierarchical system is based mainly on competition (Castoriadis, 1983). Hierarchy in wages did not exist either: every data-entry clerk was paid the same wage despite being coordinator or not. In this way, an interested participation could happen in its real sense, as highlighted by Castoriadis (1983), to solve the problems of the group.

"Everybody is a leader here, we all are coordinators here" (Data-Entry Clerk in SMG).

Thus, one may say that the SMG broke with the Taylorist work organization that exists in Brazilian DPCs as their organizational change reached the three general categories proposed by Littler(1978): the division of work; the control structure; and the implicit relationship. The rupture of Taylorist patterns could be felt and perceived by the data-entry clerks. Asked to compare their working life before and after the organizational change:

"The work didn't change. The job is the same. What has changed is the way we do it. Now we work more at ease. I believe that we are more conscious of what we are doing. Then, I think that it is much better now" (Data-Entry Clerk in SMG).

'There is not much pressure on us, we keep on having to work, we have the same responsibility, but there is lesspressure. Look, I have been working here for 15 years, and only now I know what I am doing. Only now I know what is a computer" (Data-Entry Clerk in SMG).

"Now is the heaven, I am not going to tell you that it is perfect because it will never be like you want, but there is no comparison with the old times. We cannot compare! Comparing with the heaven and the hell, before it was hell and now we are in heaven" (Data-Entry Clerk in SMG).

"It is much better in several ways, for example we have more freedom to work. We have access to things that we never had before. Now we know the machines better" (Data-Entry Clerk in SMG).

"Ah! Now is wonderful! Now I work with pleasure, I love to work. We are much more unified, we do not have problems any more with our coworkers. When we have a problem we discuss it with the group. There is no more humiliation. It changed! It changed everything" (Data-Entry Clerk in SMG).

"Look, at my group now the work is humanized. People helpeach other, and we are more unified. Everybody is together. We may talk, we may laugh, but we are producing and producing in the same way. Before they did not let us talk" (Data-Entry Clerk in SMG).

It may be observed in all comments and interviews that there was a unanimous feeling that it was much better to work in the new organizational basis with less pressure. Secondly, it may be observed that even if the tasks were the same, "the way" of doing them had changed and finally, a decreasing number of health problems could also be felt:

"There was much pressure on us. You could not be happy, there was much pressure, you had to be sad, you had to work. I got sick, I had hypertension problems, because I was too stressed, I could not talk, then I got stressed, and I had also problems with my neck. I spent a whole month going to the doctor. I spent a whole month with headaches and I needed to work. It was horrible. Now I have no problems any more. I like to work and I work with pleasure" (Data-Entry Clerk in SMG).

Finally, a great feeling of union could also be observed among data-entry clerks of the SMG.

The Resistance to the Resistance

However, this organizational change process did not happened without interference, in a pleasant and collaborative way, with no resistance. In fact, it was a process of struggle that the SMG faced for 18 months with much resistance that can be "diffuse, as the irreverence of the humour (...) but also located in collective actions" (Chaui, 1986, p.63). A diffuse form of resistance to the SMG was the jokes made against them:

"At first we had much fear to do something wrong and they scared us a lot: "be careful if you delete everything you are going to be in a deep trouble" Now I know it is a lie! We can delete only what is to be deleted, but in the way they scared us, we really got scared" (Data-Entry Clerk in SMG).

'There were many jokes: the other data-entry clerks told us "this is very easy, you are doing in this way only to do nothing" (Data-Entry Clerk in SMG).

'They made jokes: "This DPC is going to close down. It is a mess now" I believe that they thought we had not the competence to do it" (Data-Entry Clerks in SMG)

There was also resistance located in collective actions organized by groups of people that were against the experience, such as, several anonymous letters that were distributed at ORG1, making criticism to the high level management and to the sectors that were supporting the experience, mainly the Human Resources Department and Superintendency of the branch office in São Paulo of ORG1. At any moment, the pictures described in those letters could be seen [15], as the images of "chaos" and "mess". There were also references to the "destruction of the

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15   For a copy of the letters see Soares (in press).

hierarchical structure of the company" and the implementation of anarchy.

Thus, it may be perceived that the work of SMG was not developed in a harmonious climate where everybody was collaborating for the success of the experience. However, despite all the resistance, the SMG was the most productive group of the morning shift[16], as may be observed in Table 7.

Table 7: Productivity Level among Data-Entry Groups in the Morning Shift Compared with the Self Managed Group

Date Groups	Jan. 87 %	Feb. 87 %	Mar. 87 %	Apr. 87 %	May. 87 %	Jun. 87 %	Jul. 87 %	Aug. 87 %
Self-Managed	83.9	83.1	88.9	87.8	88.8	87.8	91.3	86.0
81.203	79.1	75.8	72.9	75.3	78.4	77.7	82.2	77.7
81.205	78.6	79.3	78.8	77.9	87.1	88.9	91.1	90.1
81.301	-	61.5	55.0	67.2	85.4	87.7	80.9	71.6
81.302	-	-	-	71.2	81.0	79.5	81.8	75.4

Source: ORG1

It may also be observed that another variable absenteeism after the beginning of the self-managed group, decreased 73.6% on the average. The SMG, previously had the highest level of absenteeism, the group with the lowest absenteeism level.

Another source of resistance was, curiously, the Trade Union of Information Workers in Sao Paulo. To understand this memorable aspect, some historical and political aspects must be introduced. In every state of Brazil, there is the State Trade Union of Information Workers, which has a national association joined by all state trade unions. The national association (FENADADOS), then, was broke with Sao Paulo State Trade Union, which was identified with employers'interests in a clear disagreement with FENADADOS.

Moreover, the State of Sao Paulo Trade Union broke with the CRE of ORG1 that was participating and giving political support the SMG. Therefore, the São Paulo State Trade-Union was against the SMG. It must be highlighted that a main reason

for this rupture was the size of ORG1, which is the largest DPC in Brazil. The Sao Paulo State Trade Union forbade the unionization of ORG1's workers, attesting that as they were federal workers, they were not allowed to be unionized[17]. In fact, as ORG1 is the largest DPC in Brazil, if part of its workers were unionized, they would easily have enough power to elect the staff of the Sao Paulo State Trade Union. This position of the Sao Paulo State Trade Union, in the state that comprises the most information workers[18], is one the reasons for the low indices of unionization in this sector. Besides, it allows the introduction, with no contestation, of strategies and new technologies (e.g., telework, bar coding), which are breaking up the information workers'movement [19].

Finally, another point must be considered: the ORG1's CRE was associated with the FENADADOS and the representative of CRE, who was at the meeting when the experience was born, at that moment, as the vice-president of the FENADADOS. Thus, with this background, the São Paulo State Trade Union expressed its position against the SMG and among other forms of pressure, they conducted a strike of supervisors, which became known as the "Thursday Strike." On that day, all data-entry clerks worked without stopping production, without supervisors, as it was not expected either by the Sao Paulo State Trade Union or by the supervisors themselves. The strike was a disaster for them because it worked as a positive reinforcement to the SMG as all data-entry clerks entered and worked with the help of the SMG. Thus, the DPC functioned as if nothing happened. All production targets were achieved for the day and the SMG experience was spread over the whole data-entry sector at that branch office of ORG1.

Management position on the SMG organizational change was, in a way, a form of resistance too, as it was ambiguous and divided. High management of ORG1 accepted the experience,

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16 It must be pointed out that one can only compare the productivity levels in the same working shift, mainly, because of the differences related to the biological clock that may interfere in many ways with productivity levels.

17 It must be highlighted that this argument, as far as I know, was used only by this trade union in Sao Paulo. In other states, trade unions accepted the unionization of workers from the branch offices of ORG1. At that time, the unionization of federal workers was one of the points for which unions were fighting.

18 In 1985, according to the data of SEI(1987) - Special Secretary of Informatics - 39.6% of all information workers and 40.7% of the data entry clerks in Brazil were located in the State of Sao Paulo.

19 See Soares (in Gahiket forthcoming) for the discussion of the introduction of telework as a strategy to breakup the workers' movement and to stop the increasing numbers of strikes in Brazilian DPCs.

because one of their objectives was the "humanization of work" on a national level. It is worth mentioning that although other experiences were tried in other states, from top to bottom, the SMG that was born from bottom to top, was the only experience which was giving good results and, for that reason, it became a good example to show off.

> "I believe that there was no way back from the self-managed group. There is no way to deny their progress" (Superintendent of ORG1 in the Sao Paulo Branch Office).

> "We fell in love with the self-managed group. The experience was proving the human side of the experience of organizational change" (General Manager of Human Resources).

On the other hand, another sector of high level management of ORG1 was, clearly, against the SMG (e.g., the Production Engineering Sector).

> "I respected it because it was established and as I advocate this thing of authority, I accept it, but I do not agree" (General Manager of the Production Engineering Sector).

Another point that must be highlighted is that even "accepting" the experience, the high level management of ORG1 had not accepted, fully, the elimination of the supervision of the SMG, even if it is being productive. In fact, they had not accepted the changes in the hierarchy of ORG1, which were brought about by the workers:

> "We are not eliminating the supervision and this is one of our fights with the SMG (...) I keep on insisting with them that until today they had bad experiences with supervisors, but a good supervisor is not like this. A good supervisor is very nice" (General Manager of Human Resources).

> "The problem that existed was the supervision, to work without supervisor, and the point is not really this" (Superintendent).

On the other hand, the hierarchical change was a fundamental point for the SMG and this position was clear for them:

> "It seems that we were talking in Greek! We do not want supervisor, we don't need supervisor and it is useless to change the name of it!" (Data-Entry Clerk in SMG).

In the meantime, there was a change in the Brazilian Federal Government and the high staff of ORG1 was changed and, with this change, the SMG became more attacked as it was identified as an example of management from the previous staff. Although the new President of ORG1 had said that " the workers will have all the support from the high management staff to develop a mature relationship between workers and management to achieve the organizational objectives and to increase the value of our workers," in practice, this comment turned out to be rhetorical.

On August 11th, in 1988, a pay-claim strike was started in ORG1; it lasted for 17 days. It was a national strike and the SMG was not conpected, in any way, to it. Unfortunately, the strike, which was managed by police troops, dogs and much violence, was used as a pretext to end the SMG. Some 327 workers were fired, mainly data-entry clerks, five of them from the SMG, and the CRE representative who was at the SMG was suspended, as she could not be fired because of her trade unionist prerogatives.

Conclusion

Despite being considered the profession of the future, information workers, in Brazil, work under Taylorist patterns with much pressure, high control, within a rigid discipline, with almost no control over their work process. Information work involves less and less content. Thus, one may consider that the "profession of the future" is another myth created around computers. It is an image that tries to show the reality as it could be or as it should be. The function of the myth, as pointed out by Barthes (1985), is to deform the reality instead of making it disappear.

The Self Managed Group was a resistance manifestation against this hard reality. They showed us that work organization is not unique and fixed, as proposed by Taylor in his "the one best way" approach. There are several ways to do the same task and workers alway know better than anybody else how to do their work. The SMG highlighted the current production management philosophy that exists in Brazil, based on Taylorist patterns and unable to accept new forms of work organization, even when they mean higher levels of productivity. It also highlighted the fragility of Brazilian trade unions, which are, with rare exceptions, much more worried about political aspects and personal relations of power than about the real necessities of workers.

Moreover, the SMG showed us that another way exists and that it is possible. A new form of work organization, based on more autonomy, more control over the work process and responsibility to workers, is not an impossible dream in Brazil. Although they did not reach their end, at least, they showed us a way to improve working conditions and work organization. In showing many weak points in the "worlds of work " in Brazil, the SMG gave countless paths for whoever searches for a way out of the Brazilian crisis.

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