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PERCEPTION OF WORK CONTEXT EXPLORATORY STUDY OF LOW-QUALIFIED OPERATORS

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Abstract: Many authors have emphasized the situated and distinctive character of action. The work context is often described as a resource or a constraint for action. However, few studies have examined the contextual elements that serve as a resource or a constraint in any given group. We believe that the individual's perception of the context needs to be taken into consideration when examining experience and work integration. In order to identify these contextual elements, we conducted semi-directive interviews with 69 workers. Content analysis revealed that when most participants were asked about their job, they answered in terms of the context and used contextual elements to describe it.

Key words: work context, perception, work experience, occupational interests.

1. Introduction

The concept of 'situated action', introduced by Suchman in 1987 [34], has had a powerful influence on the way in which researchers in the human and social sciences have come to conceive and consider action, notably in the analysis of work situations. Subsequently, a large number of authors in various disciplines including ergonomic psychology [18-19], sociology and cognitive anthropology [36] have stressed the importance of local circumstances and context in carrying out an activity. Furthermore, several studies [15], [21], [35] have highlighted the fact that action is always carried out within a particular context which facilitates or restricts, or even prevents the person from implementing and carrying out the activity.

In spite of these findings, actions to facilitate access to the labour market are generally based on analysing and assessing the person's skills, and rarely on the work context and conditions for carrying out tasks, although these involve a real learning process and often determine how well the work activity is carried out. Based on the work of Pignault and Loarer [27], [29], which showed the importance of the notion of context when planning professional career-building programmes, we believe that analysing and taking into account the context allows a better understanding of job experience and how it can be transferred. This is particularly true for the so-called low-qualified workers for whom mastery of contextual elements is

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undoubtedly more important than the initial mastery of tasks.

2. Background

2.1. Notion of context and contextualized activity

The importance of the local context was first highlighted in interactionist approaches, notably the work of Mead [24] and Schutz [32], and it then developed widely through ethnomethodology [11], [3]. In these approaches, the concept of context is based on phenomena of understanding and communication. The communicating agent's action is situated because it is directed by and dependent on the recipient's action. Situated action is inextricably linked to social interaction.

Later, cognitive ethnography, including studies by Lave [16], [17], again stressed the situated character of the activity and put forward the notion of 'situated cognition'. Lave's work clearly showed that the procedures learnt in a specific context (e.g. school) are not easily activated in a different context (e.g. daily life). This concept of 'situated' emphasizes in particular the use of environmental resources, perception and space [10], [33], [4]. The situation is seen first as an equipped spatial structure, the position of objects and space providing informational support for the activity. In order to act effectively, the individual must be able to understand the physical, temporal and spatial variables in his/her environment. Barab and Plucker [2] furthered this idea, advancing the concept of 'distributed cognition'. In the field of work analysis, Amalberti (quoted by Montmollin [25]) defined situated cognition as any use of knowledge in the 'here and now' that gives meaning to the activity for the operator. More recently, in the field of anthropology, cognitive Theureau [36] suggested studying the theoretical object that he called the 'course of action'. Defining the work activity as inextricably individual and collective, incorporated, situated and cultivated, he described the principle of the study and analysis of 'course of action', emphasizing the importance of taking into account the contextualized nature of the action.

Our study is based on the definition proposed by Montmollin [25], who observed that the word 'context' is taken from linguistics and refers metaphorically (the 'text' becoming the task) to the overall work situation (p. 98). Accordingly, we consider that the work activity depends not only on the various tasks to be carried out but also on characteristics of the environment and the physical, material and social conditions. The context is not external or peripheral to the work activity, but is part of it and should be taken into account in order to understand the processes involved in carrying out the activity. By extension, we see experience as a bringing together of theoretical, procedural and also environmental knowledge.

2.2. The subjective context

The literature in this field also indicates that this context is not a passive receptacle [6], [21]. In fact, individuals act and interact with the context in which they find themselves, and contextual information influences how they implement and carry out the activity.

The context has a subjective nature; individuals see and construct the context of their action. The study by Pignault and Loarer [28] with call-centre workers carrying out identical missions in the same company revealed differences in the way individuals described and experienced contextual elements such as the relationship with others and pressure of time. Teiger [35] found that what is perceived by some people as a resource can be seen as a constraint by others, and vice versa. Moreover, elements that are seen initially as resources can become constraints. Thus, the way individuals view the context is influenced by their background, their values and their past experience. Some contextual elements can be experienced as either facilitating or as making the job more difficult. According to Leplat [18], contextual elements are 'implicit demands' that act on the individual and the skills used (p.103). However, these 'demands' have different shades of meaning for different people.

So, what are these contextual elements that are seen as constraints or a source of difficulty for some, and as resources or facilitating elements for others?

2.3. The context defined as a resource or a constraint for action

As early as 1987, Suchman suggested that the situation of an action could be viewed as all the resources available for giving meaning to a person's actions and interpreting those of others [34]. Ten years later, Karsenty and Pavard [15] showed in turn how the context, defined as a set of resources contingent on the operators' activity, is used to give meaning to the work situation and enable workers to react in the most appropriate way possible. The authors proposed making a distinction between internal and external resources. These resources are in effect either *internal* to each operator (the contents of perceptual memory, of the memory of work, or of long-term memory) or external (work environment, behaviour of colleagues,

company rules, etc.).

The components of the contextual resources or constraints that have been identified are essentially physical and material [15], [30], temporal [12], [8] or social [7], [20], [13], [26]. The physical and social components of the environment are in fact closely, even inextricably linked. As observed by Proshansky in 1970 (quoted by Lévy-Leboyer, p.16) [22], 'the physical environment is as much a social as a physical phenomenon. The constructed world [....] is simply the specific expression of a social system that influences in a general way our activities and our relationships with others'.

While the facilitating or restricting nature of the context on the action has been highlighted in the literature, very few studies have examined in detail exactly which contextual elements play this role and for which groups of people. In this study, we therefore aimed to identify more precisely the elements that are seen as resources or as constraints for the activity of level-5 workers. Our first hypothesis was that when asked to talk about their work, people would spontaneously talk about aspects of the context, and particularly those elements linked to the physical and social context. We also hypothesized that it would be possible to rank the elements considered as making a job easy or difficult. Our final hypothesis was that elements that workers did or did not consider important would be found across different job sectors.

3. Method

3.1. Participants

Between 2003 and 2007, we took part in a European EQUAL project, called

Periscop, whose main aim was to improve employability of low-qualified the workers. We worked with 69 level-5 workers (BEP or CAP level = minimal vocational training certificate), composed of 41 men (59.42%) and 28 women (40.58%) with a mean age of 30.5 years (SD = 8.9 years). In this sample, 29 participants worked or had worked in a call centre (42%), 34 in industry (49.3%), and 6 in logistics (8.7%); 47 were temporary workers (68.1%), and 22 were job-seekers (31.9%).

3.2. Material and procedure

First, we analyzed the work-stations in nine companies in three different sectors: industry, logistics and services. We carried out open and systematic observations (using F-Jas [9] and PAQ software [23]) of the work situations and semi-directive interviews with the workers and their line managers. Analysis of the work situation allowed us to identify contextual elements specific to the jobs in each sector, and then by cross-checking we were able to identify issues and aspects common to all the groups.

For this study, we carried out semidirective follow-up interviews aimed at identifying more precisely the elements that make it easy or difficult to adapt to the job and give a feeling of success. In this way, we gathered the opinions, feelings and ideas expressed by 69 participants about what seemed easiest and most difficult, and also what they liked most and least in their job (or in their last job).

The interviews, which were carried out in temporary employment agencies or in vocational guidance centres, lasted between 20 and 45 minutes. They were all recorded with the consent of the participants and were transcribed in full.

3.3. Choice and presentation of the analysis tool

To identify the elements seen as resources or constraints for the activity, and to analyse in greater depth the way the participants themselves ranked the contextual elements, we used the Alceste text-analysis tool. This tool reveals text structure through lexical proximity, without identifying a priori the point of view to be characterized. It achieves this by breaking the text down into 'context units', corresponding roughly to the sentence, which is considered as the basic semantic unit within which co-occurrences of lexical forms are calculated [31].

We believe that it is important to clarify the 'intuitions' on which we normally base our understanding. The Alceste tool enabled us to minimize the distortions arising from our own subjectivity and to check the effects of the various possible types of inference. This method uses a identifies statistical approach that verbal homogeneous sub-sets of expressions within a given corpus of texts, based on their lexical profile. In this way, the method provides a partially objective analysis of the data; partial because creating categories is not in any way an interpretation of the data.

After transforming the transcriptions into a corpus meeting the norms for analysis by the Alceste programme [31], the cooccurrent lexemes in the utterances of a text were analyzed (based on the work of Benzécri [5]). The program provides statistical information about the corpus suggesting possible lines of interpretation. We then returned to the original text to understand the context in which the most frequent words occurred.

4. Results

4.1. Lexical analysis of discourse of callcentre operators about their work

First, we carried out an analysis of the whole of the corpus. In Alceste, the categories are based on word count.

Here, six stable categories, or 'lexical worlds', emerged from the corpus. For each category, Alceste provides a list of the most significant words. A Chi-square (χ^2) test reveals words strongly or weakly associated with a category and thus identifies the words that are most representative of a given group. In the word presentation, the + sign indicates a root word; for example, the word 'day +' could refer to 'days', 'daily' or 'daytime'.

Based on these categories, it is possible to establish the relationship of the individuals to their work, and more precisely to the work context. Categories 1 and 5 (composed of 17 and 12 contextual units respectively, representing 15.45% and 10.91% of the utterances selected for analysis) are characterized essentially by relationships with others and with time management. For example, the importance of team work and the relationship with peers and others is shown by the following forms: relation + $(\chi^2 = 35)$, contact + $(\chi^2 = 35)$, with $(\chi^2 = 30)$, client + $(\chi^2 = 18)$, *person* + ($\chi^2 = 11$), *colleague* + ($\chi^2 = 11$). The importance of time management is shown by forms such as morning + $(\chi^2 = 43)$, working hours $(\chi^2 = 43)$, and organise + ($\chi^2 = 25$). Both these categories include the words *atmosphere* ($\chi^2 = 6$ and

 $\chi^2 = 11$) and *team* ($\chi^2 = 6$ and $\chi^2 = 5$), stressing again the importance of the relationship with others at work.

Category 4 (comprising 13 contextual units, i.e. 11.82% of utterances analyzed) comprises words relating to carrying loads. For example, *carry* ($\chi^2 = 47$), *load* ($\chi^2 = 23$), *back* ($\chi^2 = 16$), *time* ($\chi^2 = 13$), *hard* ($\chi^2 = 10$) and *heavy* ($\chi^2 = 9$) are significant, associated with the question 'What do you find difficult?' (root word 'difficult' ($\chi^2 = 19$)).

Category 2 (comprising 18 contextual elements, i.e. 16.36% of the utterances analyzed) refers essentially to problems at work. The words *error* ($\chi^2 = 21$), *to happen* ($\chi^2 = 17$), *breakdown* ($\chi^2 = 16$) or *how* ($\chi^2 = 15$) highlight the inherent role of controlling and resolving problems in the activity.

Finally, categories 3 and 6 (composed of 16 and 34 contextual units respectively, i.e. 14.55% and 30.91% of utterances analyzed) are made up of words and action verbs specific to working in call centres. In category 3, the words reception + $(\chi^2 = 31)$, system + $(\chi^2 = 24)$, person $(\chi^2 = 22)$, and *help* $(\chi^2 = 18)$ are associated with the question 'what do you find easy?' (root word 'easy') ($\chi^2 = 16$)). On the other hand, the words *speak* ($\chi^2 = 25$), *telephone* $(\chi^2 = 22)$, supervise + $(\chi^2 = 18)$, hear $(\chi^2 = 17)$, and stress + $(\chi^2 = 13)$ are linked to the question 'what do you like least?' (expression 'don't like' ($\chi^2 = 10$)).

Following these initial results, we carried out a more detailed analysis. This involved a new breakdown of the corpus based on the first two questions ('What do you find easy in your work?' and 'What do you find difficult in your work?'). First, we carried out a thematic analysis, focusing on the meaning of the message and the apparent content (Bardin, 1996) [1]. We carried out a further lexical analysis of these two corpora using the Alceste tool. The results enabled us to check the elements that emerged from our thematic analysis.

4.2. Identifying the elements seen as resources or facilitating work

A certain number of contextual elements were perceived and described as facilitating the work task. Seven elements emerged from the content analysis. The most frequently mentioned element when participants were asked about what was easy or seen as a resource at work related to the work atmosphere, the team and relationships with others. It was mentioned most by workers in industry (five out of a total of seven), whereas it was not raised by people working in logistics. We also noted that a similar percentage of participants in each sector considered that not having to take initiatives was 'easy'; one worker in industry remarked that 'you do what you're told and it works'. The participants also commented on the repetitive nature of their work; repetition was mentioned by 7.25% of them as being easy.

Knowledge of tools, techniques and procedures also emerged. This element was found to be related to the two previous ones (not having to take initiatives and repetition). The participants explained clearly that their work tool frequently remained the same; they knew how it worked and could use it automatically. We observed that workers in the call centre also talked about tools and equipment. *'Contact with a variety of people'* also emerged as 'easy' for workers in the call centre. Finally, *training* (in-house when taking up the post) was seen by workers in industry as an element facilitating the job. One worker observed that 'It's good, when you arrive they tell you what to do.... So when you start working with the equipment, it's easy'.

Analysis with the Alceste software confirmed the predominance of these elements (team (5); colleague + (2); person + (6); talk (6); people (5); client + (5); relation + (4); help (3); contact + (2); communication < (2); machine + 16 (3); screen (2); work-station (2); simple + (2); training (3); information (2); to train (2)).

4.3. Identifying the elements seen as constraints or making the activity difficult

Here, thirteen contextual elements were regularly mentioned by the participants. *Work atmosphere, team and relationship with others* was again mentioned by 14.50% of the participants (adding the elements concerning relations with the work team and the line management), but this time as an element seen as making work difficult.

The *pace of work* was also mentioned as making the job difficult by 10.14% of the workers. A mechanic/fitter remarked that 'The question of time is really hard – you have to think about it every second... You have to keep up the pace... I don't want to be in a job with that sort of pressure any longer'. This element can certainly be seen in connection with the feeling of *pressure*, which was also extensively mentioned by workers in industry.

The majority of workers in industry also mentioned elements related to the environment and to physical constraints such as *carrying loads* and *postures to be adopted*.

Contact with different people was seen as a difficulty by 8.70% of call-centre workers. It will be recalled that some of them mentioned this as a facilitating element in their work. Other elements seen as being difficult by workers in this sector were: relationship with the line manager, supervision and stress management. A young call-centre worker explained that: 'In companies where I worked in sales, the supervisors... didn't talk to us, they yelled. So when you were on the phone, you couldn't hear a thing. It's really stressful. You just had to sell, and that's all.' Another confided: 'The pressure they put on you. It's hard when you feel you're being watched all the time.'

These participants were also aware of the quality of the *tools and equipment* used, commenting on the *lack of knowledge about the equipment*. A call-centre worker said that: 'The hardest thing and what took me longest was coordinating the computer and the telephone...to speak and answer at the same time on the computer. That's why the sales pitch mustn't be too complicated. Three times, every time it was too heavy, too complicated.' Another said: 'I've got an old hand-held telephone which crackles, so it's not easy and it's distracting for me and the person I'm speaking to.'

Finally, the majority of workers in the logistics sector mentioned the *work space* as a 'difficult' element. Here, it concerned problems due to the layout of the work space. A fork-lift truck driver stated that: 'There's no room to put things... You have to know how to manage the space. And then there are all the people; I was a bit lost at first because there were so many people around.'

After bringing together all the comments and carrying out our own analysis, we compared our results with those obtained with Alceste. We found a good match. The words identified and coded by the software clearly represent the selected elements: *time* (11); *telephone* (9); *machine* (8); *supervise* (6); *people* (5); *place* (5); *know* (5); *colleague* (5); *heavy* (4); *problem* (4); *work-station* (3); *work schedule* (3); *lack* (3); *concentrate* (3); *pace* (3); *tool* (3); *back* (2); *client* (2); *second* (2); *relationship* (2); *relation* (2); *computer* (2); *supervise/watch* (2); *physical* (2).

Finally, we analyzed the workers' answers about what they liked most and least, and we also looked at the distribution of the answers by job sector. To do this, we carried out a new thematic analysis on the two corpora (what you like most/least in your work) and a further lexical analysis on each of these corpora with Alceste.

4.4. Identifying contextual elements common to all sectors

The first element, mentioned by 16 participants (23.19% of the sample), concerned the work atmosphere, the team and relations with others. This topic was raised by the same number of workers in the call centre (7) and in industry (7), and was also mentioned, although less frequently, by the logistics workers (2). One worker in industry replied: 'With my team, with my colleagues, it's great. It happened naturally. And even with my foreman - he's young and we get on.' A call-centre worker concluded by saying that: 'In the end, the most important thing is that there's a good atmosphere in the group.'

The second element (17.39% of the

sample) concerned *contact with a variety of people*. However, this emerged as being particularly important among call-centre workers (11 workers, i.e. 15.94%).

We found an almost identical pattern with the third and fourth elements (*variety* and the *possibility of organizing and seeing the result of one's own work*) mentioned essentially by workers in industry (6 and 5 workers, respectively). As one of these workers explained: 'What I like, it's the creative aspect. At the beginning, you've got a bit of material, and at the end you've got a finished object. And with experience, I could make the whole piece from A to Z. It's art, even if it's less well-paid (laugh).'

The fifth element, *tools and equipment*, was mentioned by the same number of workers in industry and in the call centre (2 workers each), and by one worker in the logistics sector, who observed: 'What I like, it's the computer system to scan the products; I enjoy using the computer.'

Finally, the feeling of *autonomy* was mentioned by three participants, two in industry and one in logistics. A fork-lift truck driver said: 'I get on with things on my own, and that suits me. You see, I've got experience and I don't need anyone on my back. That's why I'm alone, and that's fine by me.'

This description was confirmed by the Alceste lexical analysis. The frequency of the words in relation to these themes is significant. The software detected and coded a whole series of words, including: *atmosphere* (15); *team* (13); *colleague* (2); *people* (6); *say* (6); *contact* (6); *relation* (4); *help* (4); *talk* (4); *client* (3); *technician* (2); *find* (2); *understand* (2); *interest* (2); *think* (2); *move* (3); *vary* (3); *new* (3); *change* (2); *material* (2); *machine* (16);

computer (4); *organise* (4); *alone* (4); *can* (3); *responsibility* < (2); *free* (2).

We then carried out the same analysis of the answers to the last question: 'What do you like least in your work?' The answers were more scattered, and twelve distinct contextual elements emerged from the content analysis. Three of the elements mentioned above as frequent responses to the reverse question were also found here: tools and equipment; work atmosphere, team and relations with others; contact with various people. However, the distribution of answers differed in the three sectors. Tools and equipment was mentioned most by call-centre workers, while atmosphere and team was mentioned most by workers in industry. Moreover, variety was not mentioned here, but repetition was raised by workers in the call centre and logistics sectors. The issue of design and view of the final result did not emerge either. The most frequently mentioned element related to production quota (10.14% of the sample), or as one call-centre worker put it: 'the fear of not meeting targets'. This element was mentioned by workers in all three sectors, but particularly those in the call centre. Production quota can be linked to work schedule, which was mentioned most by call-centre workers (three out of four), whereas it was not mentioned by any of the workers in industry. One call-centre worker commented: 'What bothers me in telemarketing is that quantity is more important than quality. Someone who makes three calls in ten minutes is considered better than someone who makes one call in nine minutes, when they don't even know the result. There isn't time to do a good job.'

The relationship with the line manager

was also mentioned by four call-centre workers. A link could be made between this element and *supervision*, which was mentioned by one participant in each of the three sectors.

Finally, we found a whole series of related elements to the physical environment, such as noise, the work space, or the risk of accidents. Noise was mentioned by two workers in the call centre, two in industry and one in logistics. The work space was commented on mostly by people working in the call centre. By contrast, the risk of accidents was mostly mentioned by workers in industry. Some participants (notably those in industry) even commented on 'the environment' as a whole; for example, one person said: 'an environment like that doesn't suit me any longer. Being in dirt and dust all the time is exhausting.'

The Alceste programme selected and coded a series of words linked directly to the chosen elements. The following adjectives, nouns or verbs illustrate clearly the topics raised and discussed above: productive (3); working hours (5); minute+ (4); time (13); (coffee) break + (2); supervise (4); noise + (6); risk + (4); danger + (3); environment (2); factory + (2); dirt + (3); steam + (2); dust + (2); atmosphere (4); colleague + (2); team + (2); people (4); client + (2); load + (3); machine + (3); tool + (2); breakdown + (3); error + (4); quantity + (2); quality +(2).

5. Discussion and conclusion

The initial results confirm our hypothesis that workers who are asked to talk about their work mostly and spontaneously mention contextual elements as defined above. Elements relating to the social context (relationships with others and atmosphere in the work team) were raised significantly by the workers. For the workers themselves, the elements that we describe as 'contextual' thus appear to be particularly important when describing and carrying out their activity.

This study enabled us to identify more precisely the contextual elements that workers see as a resource or a constraint. We were then able to rank these contextual elements, as some are clearly seen as being more important than others. The results are in line with those presented previously in the literature. For example, the workers in our study frequently mentioned work atmosphere, team and relationships with others, an element which is found consistently in studies on work and work activity.

We can thus propose a list in rank order of the elements considered (a) as resources or facilitating, and (b) as constraints or making the job difficult.

In decreasing order, the elements seen as resources or facilitating are: (1) work atmosphere and team, mentioned 7 times; (2) not having to take initiatives, mentioned 6 times; (3) repetition, mentioned 5 times; (4) knowledge of tools and techniques, mentioned 5 times; (5) tools and equipment, mentioned 3 times; (6) contact with a variety of people, mentioned 3 times.

The elements seen as constraints or as making the job difficult concern: (1) difficulty linked to carrying loads and to work posture, mentioned 8 times; (2) the work schedule, mentioned 7 times; (3) pressure and stress management, mentioned 7 times; (4) contact with a variety of people, mentioned 6 times; (5) lack of knowledge of tools and techniques, mentioned 5 times; (6) the work atmosphere and team, mentioned 5 times; (7) relationship with the line manager, mentioned 5 times; (8) tools and equipment, mentioned 3 times; (9) supervision and how the activity is supervised, mentioned 4 times; (10) the work space, mentioned 3 times.

We can see that the same contextual element can be considered as a constraint or as a resource by different workers. For example, work atmosphere and team work, contact with a variety of people, and (lack of) knowledge about tools and techniques are all mentioned both as a resource and as a constraint. The importance of the relationship with others is clearly highlighted, in line with previous findings [7], [20].

Finally, as our aim was to foster discussion about the means of transferring experience, we investigated whether there were differences in preferences across activity sectors, or whether there are elements that were common to the three groups (call centre, industry and logistics). Our results revealed differences and common points. For example, some elements, such as work atmosphere and team, and tools and equipment, were mentioned by the same number of workers in the call centre and in industry. We also observed that elements such as a production quota to be met or a work schedule are seen to be hindrances or disliked by workers in all three sectors.

Another interesting observation is that there is no systematic link between preferences and what is seen as easy. For example, some participants said that they enjoyed variety and mentioned repetition as an 'easy' element of their work. By contrast, there appears to be a stronger correlation between what is liked least and what seems difficult. For example, the work schedule was quoted as being difficult by 10.14% of the workers interviewed and also as what they liked least by 5.80% of the participants.

We therefore believe that it is important to take these elements into consideration for the work integration of low-qualified workers. Technical know-how is not enough to feel at ease and efficient in a given work situation [29].

However, we should look critically at how the initial questions were formulated. We would undoubtedly have had more precise results for the analysis had we explained what we meant by 'difficult'. Some participants answered in terms of complexity, others in terms of unpleasantness, or even in a few cases of danger.

We are currently continuing our research into the notion of subjective context. How can we explain individual differences in the way the same work context is experienced? As previously shown by Joulain [14], gender affects the perception of work situations; it would thus be interesting to study the impact of a set of socio-demographic variables. Moreover, it would be interesting to see whether there are other conative or dispositional variables that could explain this differential sensitivity to the work context. Finally, we are investigating how it is possible to improve contextual elements, particularly those which are the most negatively perceived.

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