

Using Multiple Paradigms in Organizational Research: First Results

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1. INTRODUCTION

In recent years, great attention has been devoted to understanding how the assumptions researchers bring to their subject of inquiry influence what is perceived and recorded. For organizational analysis, such processes have been most systematically investigated through the concept of «paradigm», and other kindred notions offered in explanation of the major alternative frameworks used in the study of organizations.

Such developments have been part of a general explosion of «kuhnism» in social science, with several books and articles using the «Structure of Scientific Revolutions» (SSR) thesis when accounting for theoretical and methodological change. In this literature we find writers suggesting that a period of normal science has given way to a current «crisis» phase in organization theory, several incommensurable paradigms being in competition following the relative decline of the systems-structure approach (Friedrichs, 1970; Kuklick, 1972; Ritzer, 1975; Burrell & Morgan, 1979; Benson, 1983). Indeed, we have apparently seen some of the classic symptoms of «science in crisis» with writers arguing on the one hand for (almost sectarian) advances in new ways of thinking (Burrell & Morgan, 1979), while on

the other for defending the long established principles of orthodoxy (Donaldson, 1985).

In this paper, I wish to consider issues relevant to this debate about the paradigmatic status of social science. However, whereas elsewhere I have addressed some of the theoretical questions regarding the use of Kuhn's thesis in social science. Here I will focus on the more pragmatic issue of employing alternative «paradigm» debate in organization theory. The paper outlines a research programme using several paradigms for analysing work organization, with results being presented from an exploratory first study into job characteristics. The fieldwork represents a first paradigm (functionalist organization theory) from which to appreciate work behaviour, further paradigms being used in three later investigations. The objective of the research, overall, has been to analyse an organization from a variety of quasi-exclusive frameworks in order to gain a richer understanding of the phenomena under study.

2. PARADIGMS IN SOCIAL AND ORGANIZATIONAL THEORY

Paradigm is a problematic concept. It is one of those notions that everyone seems to have a theory of, but very few a working definition for. Confusions abound. However, given the concept's case history from Kuhn (Kuhn, 1962) onwards, I would argue that a lack of con-

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ceptual unity is not surprising. Indeed, I shall introduce the research programme by explaining some of the reasons for confusion in this area. By so doing, I will attempt to situate the model used in our research (Burrell & Morgan, 1979) by relating it to the current debate about paradigms in organization theory.

When sociologists have used paradigm as an organizing concept, critics have soon been at hand to document examples of their lack of sophistication. Although some reviewers (White, 1983), suggest that the concept is a vital medium for fathoming, for example, the tacit assumptions of community science, more typically analysts have highlighted numerous instances of its less accomplished use; as in the case of Parks *et al.* (Parkes, 1976) referring to an «individual's paradigm»; Van Strien's (Van Strien, 1978) use of a «practical paradigm»; or in works employing paradigm as a casual alternative for theory, discipline school or method (Effrat, 1973). Given such scope, critical assessments have come in many forms. While some have faithfully uncovered inconsistencies in an attempt to improve debate (Harvey, 1982), others have been satisfied with treating the concept lightly (Eilon, 1981); even to the extent of suggesting it be dismissed, *tout court*, from any future articles (Mitzberg, 1978). Others still, have reviewed the literature and suggested that nearly all of those borrowing the concept fail to use Kuhn properly (Eckburg & Hill, 1979). Indeed, one theme uniting the majority of critics is the proposal that while they, the critics, *have* read Kuhn (and thus know how things should be) many sociologists, in contrast, have either *not read* Kuhn, or, if they have, have not read him properly. It is argued, *a la* Pinder and Bourgeois (Pinder & Bourgeois, 1982), that where sociologists have borrowed concepts from the philosophy of science they have borrowed erroneously. Writers in the borrowing field are seen as largely incapable of detecting misinterpretations in what they seek to import, with, as such, the net value of these transactions being negative rather than positive.

There are, however, many problems with the claims made by the critics. Important for as is their willingness to evaluate the use of paradigm as an heuristic (sociological) tool against some apparently sacrosanct axioms pro-

vided by the progenitor, Kuhn. Critics such as Eckburg and Hill — who state that «exemplar» is the final, definitive explanation of paradigm — fail to acknowledge Kuhn's failure to come to any final operationalisation are legion, several reviewers documenting how his attempts to clarify the concept have been fraught with inconsistency and ambiguity. The well know process by which the twenty-one uses of paradigm identified by Masterman (Masterman, 1970) were reduced to four elements in Kuhn's «disciplinary matrix» (Kuhn, 1971) has been one which has failed to produce a clear and unequivocal definition to satisfy his doubters (Shapere, 1971; Musgrave, 1971). Shapere (Shapere, 1971) in particular notes how Kuhn changes tack several times in his «later» works, thus failing to decide whether the disciplinary matrix shall be considered a «substitute» (Kuhn, 1970) or «replacement» (Kuhn, 1974) for paradigm.

There is irony here as well, for while critics have chastised sociologists for analysing their discipline inconsistently (i.e., the sociology of sociology), they at the same time have failed to note Kuhn's own textual variegation regarding paradigms and social science. Although Eckburg and Hill illustrate many disparities among paradigm schemes, they nevertheless fail to reflect on Kuhn's vacillations over the paradigm status of social science. Although Kuhn has been consistent in suggesting that sociology is immature, Bryant notes how he offers different reasons at different times, i.e., firstly in SSR (Kuhn, 1962) that sociology is «pre-paradigmatic» and therefore «imature»; secondly, in «Postscript» (Kuhn, 1970) that is «multi-paradigmatic» but immature because its paradigms lack exemplars; while thirdly, in «Reflections on My Critics» (Kuhn, 1972) that sociology is «multi-paradigmatic» but immature because no one paradigm is shared by all the discipline members. Given this situation it is not surprising that informed analysts have said of paradigm that this «notoriously elusive» (Giddens, 1976) concept may in fact «believe precise definition» (Chalmers, 1978).

Given this lack of security, it should not surprise us that in recent years there has been a trend for social scientists to feel less constrained by Kuhn when using the concept. Whereas earlier accounts tended to include

detailed transpositions of his ideas (Friedrichs, 1970; Ritzer, 1975), later users have been inclined to take a quasi-Kuhnian explanation as read. Writers have tended either to give novel definitions relating to the practices and assumptions of community science (Burrell & Morgan, 1979; Benson, 1983) or else to take the SSR thesis for granted, often to the extent of giving a definition seemingly in afterthought (Pondy & Boje, 1980; Barnes, 1975). Indeed, Lincoln (Lincoln, 1985) suggests that it has almost become *passé* to relate paradigm back to its origins; a point well made by the contributors to her volume, where Kuhn is referenced but once in a complete work devoted to «the paradigm revolution».

Organization theorists have in fact increasingly drawn upon a fier and more overarching *Weltanschauung* image of paradigm. Unlike Kuhn who in his later works (Kuhn, 1970; Kuhn, 1970; Kuhn, 1974) is seen to concentrate more upon concrete «exemplars», writers have found the depiction of the «meta-theoretical antecedents of community science» more important than identifying classic laws or theories. It is the essential rather than the particular which is of concern. Indeed, many commentators have suggested that if Kuhn had been willing to settle for the more limited use of paradigm (exemplar) from the start, then his work would not have raised half the interest it subsequently generated. Both Musgrave (Musgrave, 1971) and Shapere (Shapere, 1971) argue that in trying to disentangle the concept (i.e. in the four elements of the disciplinary matrix) Kuhn only weakened the argument. Although he never explicitly clarified how sociological uses were related to concrete exemplars, and in turn how the ruling paradigm determines the course of research programmes, nevertheless, it was this very positing of the hegemonic unseen unity and controlling status of paradigm which provided the challenging appeal, i.e. that there exists an overarching disciplinary *Zeitgeist* that specifies the manner by which community scientists view the world, and which determines what will count as acceptable problems and solutions. Kuhn's attempts at clarification are seen as muting the controlling status of the paradigm and as such, «abandon(ing) what was, however obscure, one of the most provocative and

influential aspects of his earlier view» (Shapere, 1971: p. 707). As Musgrave suggests, the «retreats» visible in Kuhn's later works make him «but a pale reflection of the old revolutionary Kuhn» (Musgrave, 1971: p. 296).

In recent years then, social scientists have accounted for community science by emphasizing a sociological image of paradigm, the heart of which is a consensus theory of truth. Analysts have become less concerned with relating definitions of paradigm back to Kuhn as instead they have *appropriated* his concept in order to explain epistemological differences between major theory groups. Researchers keen to explain community structure have been concerned above all with the fact that paradigm works; that we can use it as a template for outlining the boundaries of community terrain. On having specified the limits of epistemological perception, we can then induce the constituents of our «invisible colleges». Locating empirical exemplars is an exercise which is secondary to denoting the assumptions scientists bring to their study and which then influence and guide their actions (cf. Imershein, 1983; Ritzer, 1981). The *Zeitgeist* is well represented by Lincoln (Lincoln, 1985) who in her introduction suggests, «a paradigm is much more than a model or pattern; it is a view of the world... that reflects our most basic beliefs and assumptions about the human condition» (p. 29).

Therefore, of late, the journals of organizational analysis have been replete with paradigm theses based on epistemological schism. Here, the main tempo has been for explaining research activity through polarising phenomenological and positivist (and especially hypothetic-deductive) «paradigms». While in sociology the use of such dichotomies has had a much longer tradition (Douglas, 1971; Walsh, 1972; Lehman & Young, 1974) with the notable exception of David Silverman's work, only relatively recently have such distinctions been used to dissect organization theory (Sanday, 1979; Morgan & Smircich, 1980; Evered & Louis, 1981; Sanders, 1982; Morey & Luthers, 1984), these divisions bringing forth a cavalcade of methodological choices and developments (e.g. outsider-insider, soft-hard, thick-thin, emic-etic, idiographic-nomothetic, subjective-objective). Within this literature, the account which has caught the

imagination more than any other has been the four-paradigm scheme of Burrell and Morgan (Burrell & Morgan, 1979: see below), several commentators nothing the power of this model for mapping the intellectual terrain of social science. The main reason for this popularity has been the claim that its paradigms interpret the organizational world in qualitatively different (and indeed incommensurable) ways, this giving rise to speculation about using the model, empirically, to generate alternative interpretations of the subject matter (Barley, 1980; Morgan, 1981; Louis, 1983). This has indeed been the point of departure for the present research programme where the Burrell and Morgan scheme has been used as the foundation for a first pluri-paradigm study of organizational behaviour.

3. A MULTIPLE PARADIGM STUDY

3.1. *The Burrell and Morgan Model*

The empirical results presented later are from a first multiple paradigm study in organizational analysis. Here positions representative of the four paradigms identified by Burrell and Morgan (Burrell & Morgan, 1979) have been used to obtain alternative images of work behaviour. Burrell and Morgan's work can be seen as the major contribution within the recent literature attempting to use epistemology as a basis for dissecting major orientations in other subject areas (Griffiths, 1983; Hopper & Powell, 1985).

The basis of the model is as follows. Burrell and Morgan (Burrell & Morgan, 1979) identify four paradigms through linking subject-object debates about the «nature of social science» with «consensus-conflict» debates in the «theory of society». The authors chart paradigm locations in organizational analysis by using a framework which also situates theoretical positions in sociology, social psychology and even areas of experimental psychology, the result being a scheme capable of locating all social science output within four ideal-type paradigms — (1) functionalist; (2) interpretative; (3) radical humanist; and (4) radical structuralist.

Burrell and Morgan dissect social science by

reference to the philosophers tool kit of ontology and epistemology. They concentrate upon the meta-theoretical assumptions made by different schools and, on identifying such assumptions, seek to plot various theoretical positions of their four-paradigm model. They argue that all social scientists — implicitly or explicitly — approach their discipline via assumptions about both the nature of the social world and how it should be researched. For the former, decisions are made concerning: «the very essence of the phenomena under investigation» (ontology); «the grounds of knowledge» (epistemology); «the relationship between human beings» (human nature); and finally «the way in which one attempts to investigate and obtain 'knowledge' about the real world» (methodology). For assumptions about the «nature of society» Burrell and Morgan invoke the attempts by social theorists (Lockwood, 1956; Dahrendorf, 1959) to distinguish between «those approaches to sociology which concentrate upon the nature of social order and equilibrium... and those concerned with the problems of change conflict and coercion» (p. 10).

Through this polarisation, the «conservative» functionalist and interpretative paradigms are contrasted with the conflict based «radical» humanist and structuralist paradigms. Conversely, for the nature of social science, functionalist and radical structuralist theories, which accept an objectivist «scientific» stance towards social analysis, are contrasted with the more subjectivist emphases of phenomenological or existentialist/humanist approaches. Burrell and Morgan (1979) feel their paradigms are «contiguous but separate — contiguous because of the shared characteristics, but separate because the differentiation is... of sufficient importance to warrant treatment of the paradigms as four distinct entities» (p. 23). As such the four paradigms define fundamentally different perspective for the analysis of social phenomena. They approach this endeavour from contrasting standpoints and generate quite different concepts and analytical tools» (p. 23).

In sum, the functionalist paradigm rests largely upon the premise that society has a real concrete existence and a systematic character, and is directed to the production of order and

regulation. The social science enterprise is believed to be (as far as possible) objective and value-free, the scientist being distanced from the objects of study through the rigour of the scientific method. The paradigm thus possesses a pragmatic orientation; it attempts to understand society through the production of useful and usable knowledge.

In the interpretative paradigm the social world is seen as having a «precarious ontological status»; it suggests that social reality should not be accorded the status of external concrete existence, but rather be considered the product of intersubjective experience. Therefore, instead of the social world being comprehended from the standpoint of the observer, it is understood from the position of the active participant. Here the social theorist seeks to understand the processes through which multiple shared realities are created, sustained and changed. The interpretive paradigm shares with the functionalist the assumption of an underlying regulation and order in human affairs, but in contrast holds that a purely «objective» social science is specious.

The radical humanist paradigm shares with the interpretive assumption that reality is socially created and sustained, although this assumption is tied to the «pathology of consciousness» whereby actores are seen as prisoners of their existence. Thus, the critique highlights the alienated modes of thought characteristics of life in modern industrial societies. Capitalism is particularly subject to attack in the humanist's concern to link thought and action as a means of transcending alienation.

The final paradigm, the radical structuralist, also develops a radical critique of society, but one at odds with the humanist in being tied to a materialist conception of the social world. Here, reality exists independently of the way in which it is perceived and reaffirmed. For the radical structuralist the social world is characterized by intrinsic tensions and contradictions which eventually result in qualitative change in the system as a whole.

3.2. *Work Organization in the Fire Service*

The research into the Fire Service has thus

used the Burrell and Morgan model as the basis for its research design. The work has been exploratory, here attempting to conduct a first multiple-paradigm investigation, the aim of which is to illustrate the depth of insight from bringing multiple perspectives to bear on the subject matter. In so doing, for analysis, the research has employed three approaches cited as alternatives to the functionalist «systems orthodoxy», i.e. phenomenology (interpretive paradigm); Critical Theory (radical humanist paradigm); and Marxian structuralism (radical structuralist paradigm). In conducting the research, the investigations have commenced with an orthodox functionalist investigation (a questionnaire survey: see below) and then continued by conducting investigations from the latter paradigms (in the order outlined above).

In realising paradigm studies the process has involved; firstly, choosing a theoretical standpoint representative of the type of work within a paradigm; secondly, of immersing oneself within literature related to the particular area of study (to the exclusion of literature from other paradigms); while thirdly, and importantly, of nothing the (metatheoretical) assumptions upon which the study must be based in order to be a) reflective of a particular paradigm approach and b) of qualitative difference from work undertaken in other paradigms.

Paradigm assimilation has been achieved by using the Burrell and Morgan model as the basis for appreciating the methods and orientations of various theory communities. Paradigm movement has been accomplished by seeking to phenomenologically «bracket» the assumptions of a learned paradigm in order to develop those of another — initially through immersion into its core literature. It is therefore an anthropological method that has been developed, the object being to produce authentic paradigm research accounts (Giddens, 1976). Thus the research outlined below is at once both an example of this process *and* a genuine piece of empirical work. In the terms of the ethnomethodologists, it is an attempt to «bring off» a «representative reading».

3.3. *The Functionalist Paradigm: Choice of Approach*

For the functionalist study presented here, the

first concern was to choose a theoretical position from which to conduct research. For this paradigm Burrell and Morgan offer four main theoretical streams: Social System Theory and Objectivism; Theories of Bureaucratic Dysfunctions; Action Frame of Reference; Pluralism. Of these, Social System Theory is found at the heart of the paradigm; work representative of what Silverman (Silverman, 1970) and others term the «systems orthodoxy». By far the bulk of work reviewed by Burrell and Morgan falls under this category, here being material typical of that found on mainstream organizational behaviour courses: e.g. work that starts with Taylorism and Classical Management Theory, moves on through Hawthorne and neo-Human Relations, through Socio-Technical Systems and Structural-Functionalism, and finally to Contingency Theory.

As in negotiating access it was agreed that job motivation, satisfaction and design would form a basis for the study, the Social Systems literature was reviewed in order to find current theoretical perspectives. This review suggested the job characteristics approach to be the most prominent development in the job motivation/ design field, and especially work by Hackman and Oldham (Hackman & Oldham, 1975; Hackman & Oldham, 1976; Hackman & Oldham, 1980) on the Job Diagnostic Survey. Therefore, to conduct an investigation characteristic of work in this area, the study focussed on what a mainstream organizational psychology approach could tell us about the work orientations of firemen. Here the researcher completed an investigation typical of work produced in the functionalist paradigm, this research, like the three remaining paradigm studies, representing a self-contained piece of analysis. Details from this research, together with the results, are now presented as an orthodox social-psychological investigation, the data forming a first paradigm from which to understand Fire Service work behaviour.

4. PARADIGM CASE RESEARCH

As noted, the job characteristics approach developed by Hackman and Oldham (Hackman & Oldham, 1975; Hackman & Oldham, 1976;

Hackman & Oldham, 1980) was chosen as the theoretical and methodological basis for the first stage of research. Therefore in line with the paradigm assumptions underlying this approach, we present a summary of the research in *traditional empirical format*. Here we describe the Hackman and Oldham model before in turn giving details of the sample, method and results.

4.1. *Functionalist Paradigm Case Details: The Job Characteristics Approach*

As noted, the case revolved around the use of the dominant work motivation theory currently available in the literature — that of Hackman and Oldham (Hackman & Oldham, 1980). The central thesis is that: «five ‘core’ job dimensions are seen as prompting three psychological states which, in turn, lead to a number of beneficial personal and work outcomes» (Hackman & Oldham, 1976: p. 255).

If we first examine the three *psychological states*, we find the elements of this «casual core» defined as:

1. *Experienced Meaningfulness of the Work*
The degree to which the employee experiences the job as one which is generally meaningful, valuable and worthwhile.
2. *Experienced Responsibility for Work Outcomes*
The degree to which the employee feels personally accountable and responsible for the results of his work.
3. *Knowledge of Results*
The degree to which the employee knows and understands how effectively he performs the job.

Hackman and Oldham outline the relation between these psychological states as follows: «the model postulates that an individual experiences positive affect to the extent that he *learns* (knowledge of results) that he *personally* (experienced responsibility) has performed well on a task he *cares about* (experienced meaningfulness)» (pp. 255-6, emphasis in original). The authors suggest that this «positive affect» has a reinforcing influence upon the employee which acts as an incentive for increased future performance. It follows logically that

poor performance denies the reinforcement of intrinsic rewards. However, Hackman and Oldham feel that the job incumbent may well decide to try to regain such intrinsic benefits by future increased performance, this fostering as a result, «a self-perpetuating cycle of positive work motivation powered by self-generated rewards, that is predicted to continue until one or more of the three psychological states is no longer present» (p. 256).

As explained, five *core job dimensions* foster the emergence of the three psychological states. The first psychological state, «experienced meaningfulness», is anticipated by the three core dimensions of «skill variety», «task identity», and «task significance».

The first dimension here, skill variety, is defined by Hackman and Oldham as «the degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee» (p. 257). Here is an amalgamation of Turner and Lawrence's (Turner & Lawrence, 1965) «variety» and «knowledge and skill» requisite task attributes, the former being regarded as an activity while the latter a mental state. In their work design manual, Hackman and Oldham (Hackman & Oldham, 1980) suggest that the link between skill variety and experienced meaningfulness is «wired in», citing research by White (White, 1959) and Kagan (Kagan, 1972) as showing how at all developmental stages individuals search for opportunities to explore and manipulate their environment and to test skills.

The second core dimension, «task identity», is defined as «the degree to which the job requires completion of a 'whole' and identifiable piece of work; that is, doing a job from beginning to end with a visible outcome» (p. 257). This dimension again descends from Turner and Lawrence who listed this as an associate task attribute, the rationale stemming back to the earlier experimental work of Osiviankina (Osiviankina, 1928) and Zeigarnik (Zeigarnik, 1927) on closure, i.e. that subjects care more about what they are doing when they are allowed to complete a «whole» task. Thus, an employee is more likely to feel that a job is meaningful if he is providing a full unit of service instead of a fragmented part.

The final core dimension linked to «experienced meaningfulness» is «task significance», or, «the degree to which the job has a substantial impact on the lives or work of other people, whether in the immediate organization or in the external environment» (p. 257). Here Hackman and Oldham (Hackman & Oldham, 1980) propose that if a job is crucial to the lives of others, then employees experience greater meaningfulness. For example, they suggest that a worker tightening nuts on a decorative mirror will not experience as much task significance as one tightening nuts on a aircraft engine.

The second psychological state, «experienced responsibility», is fostered by the core dimension of «autonomy», defined by Hackman and Oldham (Hackman & Oldham, 1976) as, «the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out» (p. 258). If a job is to be high on autonomy results must depend upon the efforts of the job incumbent. The rationale is that greater autonomy gives the employee greater feelings of responsibility, the employee becoming more personally accountable.

The final psychological state, «knowledge of results», is linked to the core dimension of «job feedback», or, «the degree to which carrying out the work activities required by the job provides the individual with direct and clear information about the effectiveness of his or her performance» (p. 258). Hackman and Oldham outline two forms of «feedback». The above «job feedback» refers to that gained «directly from the job», i.e. a form that can be designed into a job. A second form, «feedback from agents», refers to that from, for example, a supervisor who makes judgements about levels of performance.

The five core job dimensions are combined to give a «motivational potential score» (M.P.S.) illustrating whether or not the job contains motivating characteristics. Two methods have been devised for assessing M.P.S.: multiplicative and additive. The multiplicative method is the most widely employed and forms the basis for the American norms (Oldham & Hackman, 1979) (see Table 1).

The rationale of M.P.S. is that if a job in-

TABLE 1

1. Multiplicative M.P.S.

$$\text{M.P.S.} = \frac{\text{Skill Variety} + \text{Task Identity} + \text{Task Significance}}{3} \times \text{Autonomy} \times \text{Feedback}$$

2. Additive M.P.S.

$$\text{M.P.S.} = \text{Skill Variety} + \text{Task Identity} + \text{Task Significance} + \text{Autonomy} + \text{Feedback}$$

cumbent reports a high score for the five job dimensions, then a number of positive personal and work *outcomes* will ensue. These outcomes are listed as: «high satisfaction with the work motivation», «high quality work performance», «high satisfaction with the work», and «low absenteeism and turnover».

The final main section of the model is one influenced both by «individual differences» psychology, and previous findings by Turner and Lawrence (Turner, 1965) and Hulin and Blood (Hulin & Blood, 1968) on variations in subcultural work orientations. Hackman and Oldham include a variable for *individual growth need strength*», stressing that employees with strong growth needs may not value job enrichment, or even perceive its existence.

4.2. Job Diagnostic survey

Hackman and Oldham (Hackman & Oldham, 1975) have devised an instrument for measuring job redesign needs of based on the job characteristics model — the «Job Diagnostic Survey» (J.D.S.).

The J.D.S. takes the form of an 11 page questionnaire used to gain measures of individual responses in terms of the differing presented in the theory. The questionnaire takes a measure of each variable in at least two of its seven sections. Each section uses a differing response layout in order to improve reliability, while in essence seven point scales are used throughout (the one exception is converted to seven points on analysis). Variables are measured

from responses given to at least three questions, the score for analysis being that of the mean of the responses. The problem of «response sets» is offset by some questions being scored in reverse scale order.

4.3. Method

The research process itself was as follows. The main aim was to assess how full-time firemen evaluate job characteristics in terms of motivational potential. Coupled to this, the host organization requested attitudinal data for three specific groups differentiated by age and length of service. The result was a design in which 110 questionnaires were distributed to firemen (i.e. those below Leading Firemen rank) meeting the following criteria: firstly, men within their probationary period (i.e., with less than two years experience) who were under 25 years old; secondly, «qualified» firemen of under 30 years of age and who had less than eight years service (subjects from a 5-7 years range were chosen) and, thirdly, firemen over 35 years old and who had at least 15 years service. The objective was to obtain information relevant to understanding changing orientations in a fireman's career. As such the design sought to cap (1) the attitudes of probationers who were still coming to terms with the organization; (2) of men who had reached «qualified fireman» status (usually achieved after 3-4 years service) but for whom a second career was possible; and (3) of firemen who had presumably made the Fire Service their career, but had not secured significant career

advancement (i.e. to at least first level supervision). The research wished to find the critical job dimensions upon which groups differed in terms of their perceptions of the job's motivating potential. A total of 93 J.D.S. questionnaires were returned from the sample giving a response rate of 85%. The sample of respondents was made up as follows: trainees/probationers (n=21); 5-7 years (n=41); 15-25 years (n=31).

4.4. Analysis

In tabulating the data, J.D.S. scores were calculated by use of the Hackman and Oldham (Hackman & Oldham, 1980) scoring key. The scores for each scale were obtained by producing the mean average for respondents. An additive M.P.S. score was also calculated.

The J.D.S. is essentially a split-plot repeated measures design and in the present research gives ordinal data for two factors — sample groups and J.D.S. dimensions. Therefore a non-parametric 2-way Analysis of Variance is optimal, this available only in the Friedman test which provides a 2-way Anova for equal cell sizes. As the condition of equal cell sizes could not be met, as an alternative, a set of Kruskal-Wallis 1-way Analysis of Variance were computed, one test being carried out for each J.D.S. dimension. The Kruskal-Wallis test in analogous to a parametric one-way analysis of variance but for ranked data, the formula for assessing group differences being straightforward using the H statistic.

The significance tests, as with the later Pearson and Spearman correlations, were computed (Nie, 1970). For the Kruskal-Wallis test, both the primary significance figures and those corrected for ties were conducted. Sample frequency data in the form of means and standard deviations were also computed for the J.D.S. dimensions.

5. RESULTS

5.1. Core Job Dimensions

Significant results were found for four of the seven scales assessed by the J.D.S.: Task Identity,

Autonomy, Feedback from Job, and Feedback from Agents.

For Task Identity the Kruskal-Wallis test produced a significance figure of .0376. the 15-25 years group (33.5) is at a large distance from the other two groups — Probationers (50.8), and 5-7 years (46.1). Significance, again at the .05 level, occurred for the Autonomy scale. Large differences between the the Mean Rank of 48.5 for the 5-7 years, and the lower scores of 37.5 and 35.0 for Probationers and 15-25 years respectively were observed. The most statistically significant result occurred on the Feedback from Job dimension. Here the 15-25 years group (29.4) offered scores far below the 5-7 years (46.9) and Probationer (59.4) groups; the significance figure is .0003. The other feedback dimension, that for «Agents», also proved significant, this time at the .01 level. Again the 15-25 years group (31.7) gave ratings substantially below the Probationers (52.5) and the 5-7 years group (47.0).

Motivational Potential Scores (M.P.S.) reflected the trend of the 15-25 years group to consistently score lower than other groups. While the multiplicative M.P.S. scores of the Probationers (128) and the 5-7 years group (123) were in the former exactly the same as, and in the latter, close to, the Hackman and Oldham (Hackman & Oldham, 1980) «All-Jobs» norm of 128, the 15-25 years groups averaged an extremely low 84. The 15-25 years group scored lower than Probationers and the 5-7 years group on all core job dimensions.

Fire Groups came out higher on Skill Variety and Task Significance, but lower on Task Identity, Autonomy and Feedback from Job, when compared with U.S. «All-Jobs» norms. While, as noted, the U.S. All-Jobs M.P.S. norm is 128, the overall M.P.S. for the present sample was only 109.

5.2. Critical Psychological States

A significant difference was found for Experienced meaningfulness (.0218). The Mean Rank scores again show the Probationers with average of 58.4, the 5-7 years group with 42.8, and the 15-25 years group with the low score score of 35.2. An inverse pattern for the Fire Groups in comparison with the U.S. norm scores was

observed. Here the Fire Groups scored highest on Experienced Meaningfulness and Knowledge of Results, while lowest on Experienced Responsibility.

5.3. *Affective Outcomes*

For Affective Outcomes a significant group difference was found for Growth Satisfaction (.0436). The Probationers again produced a high Mean Rank score of 57.2 as compared with the low 36.0 score of the 15-25 years group. The profiles outline how the 15-25 years group again recorded the lowest scores on each factor. Although the Probationers averaged the highest score for Growth Satisfaction and Internal Work Motivation, they yielded the highest average on General Satisfaction to the 5-7 years group. The Fire Groups averaged higher than the U.S. All-Jobs norm on every factor.

5.4. *Context satisfactions*

Of the four Context Satisfactions only Pay Satisfaction gave a significant group difference, with a figure of 0.257. Here Probationers (59.9) reported a substantially higher mean rank than either the 5-7 years group (37.4) or the 15-25 years group (41.9). Probationers record the highest average scores for pay, Social, and Supervisory satisfactions, but the lowest for Job Security. Fire Groups scored higher than the U.S. norms on every factor, and substantially so for Job Security, Social Satisfaction and Supervisory Satisfaction.

5.5. *Growth Need Strength*

For Growth Need Strength a significant group difference was found for «Job Choice» G.N.S. The large Mean Rank variation between the 5-7 years group (49.5) and the 15-25 years group (32.2), gave a significance figure of .0104. Unlike previous profiles where the Probationer group had scored consistently the highest, the 5-7 years group the greatest Growth Need Strength. Here, Fire Groups scored consistently lower than the U.S. norms, and especially so for the «Job Choice» scale.

5.6. *J.D.S. Scale Intercorrelations*

Intercorrelations were computed using both

Pearson Product-Moment and Spearman Rank Order correlation methods.

For relationships between the core job dimensions and their corresponding critical psychological states, no substantial correlational differences were found between the present research and those of Oldham *et al.* However, certain points can be noted. The coefficients from this research proved encouraging regarding relationships between Skill Variety, Task Identity and their corresponding psychological state of Experienced Meaningfulness. Correlations proved more positive in the present study, relationships between the other two psychological states (i.e. Experienced Responsibility, Knowledge of Results) and their corresponding job dimensions (i.e. Autonomy, Feedback from Job) were less favourable, this being more noticeable in the Job Feedback — K.R. relation.

Certain unhypothesized relationships emerged. Skill Variety had a stronger correlation with Experienced Responsibility than its own core job dimension, Autonomy. Indeed, Autonomy had a stronger correlation with both Experienced Meaningfulness and Knowledge of Results, than with its own psychological state of Experienced Responsibility.

For intercorrelations between the five core job dimensions, we find moderate relationships essentially consistent with the results of Oldham *et al.* (Oldham, Hackman, & Stepina, 1979). The two non-M.P.S. job dimensions, Feedback from Agents and Dealing with Others, gave results consistent with Oldham *et al.* in having generally lower correlations with other J.D.S. scales; although they have moderate correlations with Skill Variety and Task Significance. Growth Need Strength correlations were seen to be independent of measures for core job dimensions, critical psychological states, and personal work outcomes, although modest correlations were found with Internal Motivation and Skill Variety.

Finally, analysis of the internal scale correlations reveals certain anomalies concerning the questionnaire items comprising each J.D.S. dimension (Hackman & Oldham, 1980). The low internal consistency for the Autonomy scale is in part due to the low correlation in section 2 of item 9 with item 13, a correlation of only .03. For Dealing With Others, item 6 section

2, has low correlation with the other items in this scale, i.e. .07 with item 2 section 2, and .11 with item 1 section 1. Of the critical psychological states, the correlation of item 6 section 5, with item 4 section 3, on the Experienced Meaningfulness scale received only a score of .13. Even lower interim correlations were found in the Experienced Responsibility scale. Here item 12 section 3, had low correlations with both item 1 section 3 (.05) and item 4 section 5 (.11). A low internal consistency result for Internal Work Motivation was partly due to several poor interim correlations in this scale: notably item 2 section 3, had little correlation with item 1 section 5 (.08), item 9 section 5 (-.02), and item 14 section 3 (.12). This last item also has a low correlation with item 10 section 3. The large Job Choice G.N.S. scale gave many low interim correlations, this in accord with the doubts about reliability expressed by previous researchers (Crowley, 1981).

6. CONCLUSIONS

This paper has presented initial results from a first «multiple paradigm» study of a large organization. In so doing, there have been two main objectives: firstly, to outline how such a methodological can provide insight by assessing subject matter from several perspectives and secondly, and more pragmatically, to offer empirical results from the first stage of field-work. Therefore, while the initial sections of the paper have discussed the linking of a theoretical scheme to a formal methodology, the latter stages have shown how paradigm research is enacted, here presenting results from a first «functionalist» investigation.

This first empirical study has formed an initial data base against which results from later paradigms can be contrasted. It has provided attitudinal data regarding the perceptions firemen have of their work at various career stages. Here, not only has the research documented a general reduction in the expression of positive responses with age and tenure, but also how the intensity of change differs greatly over the range of job characteristics assessed. Indeed, all sections of the results show these

variations, with the most notable differences being signalled by statistical significance.

However, while the results clearly outline how with age and tenure firemen perceive their job as holding less motivating potential, the method as employed is still extremely restricted. By its very nature the research instrument fails to appreciate many factors that are crucial for understanding the fireman's orientation to the task system. Fundamental here is an awareness of subjective experience, and thus of how firemen interpret and make sense of their «life-world» of work. While the research has so far collected ratings on a standard instrument, the question remains of what this process tells us about the *meaning* ascribed to such symbols? To use Garfinkel's (Garfinkel, 1967) term, which aspects of the work context is the subject «indexing» when making numerical evaluations of «autonomy», «experienced meaningfulness» or «general satisfaction»? What are the contextual explanations which justify these ratings as valid and adequate impressions of the work process? We could argue that the reality emerging from our present results is as much a function of an agenda set by the questionnaire's designers as it is of that experienced by firemen. Here the psychometricians bent for objectivity, standardization and comparison, assume a world that is hard, external and largely knowable to all, instead of one that is fluid, gossamer-like and created and reproduced through intersubjectivity. In the latter world it is the subjects who are seen as the definers of reality *par excellence*; it is they who are the competent language users and not the detached social scientists.

Of course the latter points are not the only paradigm blindspots we can note from the methode. By use of the Burrell and Morgan framework we can suggest many more. Is there not within the Job Characteristics Approach an underlying set of assumptions about the nature of industrial capitalism these based on values of functional integration, consensus and managerial prerogative? Here the dominant orientation is the belief that job dissatisfaction (not «universal alienation») is an aberrant condition which can, like a medical problem, be diagnosed and remedied. The goal of job redesign is indeed assumed to be one of improving the

quality of working life instead of developing techniques for intensifying labour (Kelly, 1982). The tools of administrative science are seen as valid mechanisms for improving welfare and productivity, rather than media for cementing a specious workplace hegemony.

Put simply, while our initial paradigm can give us empirical data from which to draw inferences, the poly-paradigmatic nature of social research means that there are always facets of behaviour it must fail to account for. The positivist and largely conservative assumptions of «systems orthodoxy» preclude orientation to the forms of analysis produced by adopting phenomenological, critical-humanist or Marxist frameworks, i.e. positions consistent with the remaining paradigms of the Burrell and Morgan model.

Therefore, what the Fire Service research is attempting to accomplish is a detailed case study in order to access wider insight into the nature of the subject matter. Whereas the present work on job characteristics has provided an initial basis for understanding work organization, this has been complemented by three further studies founded on the premises of the «interpretive», «radical humanist» and «radical structuralist» paradigms. In these later studies, the organization is analysed in terms of it representing: 1. an arena within which a culture of firefighting is created and sustained (interpretive); 2. a set of practices serving to sediment ideological hegemony (radical humanism); and 3. the point of production in the labour process (radical structuralism).

BIBLIOGRAFIA

- Barley, S. (1980). Review of Burrell and Morgan. *Sloan Management Review*, 19: 92-4.
- Barnes, B. (1981). *T. S. Kuhn and Social Science*. London: Macmillan.
- Benson, J. K. (1983). Paradigm and Praxis in Organizational Analysis. *Research in Organizational Behaviour*, 5: 33-56.
- Burrell, G. & Morgan, G. (1979). *Sociological Paradigms and Organizational Analysis*. London: Heinemann.
- Chalmers, A. F. (1978). *What is This Thing Called Science?*. Milton Keynes: Open University Press.
- Crawley, R. C. (1981). Air Traffic Controller Reactions to Computer Assistance. *Unpublished PhD thesis*. University of Aston in Birmingham.
- Dahrendorf, R. (1959). *Class and Class Conflict in Industrial Society*. London: Routledge and Kegan Paul.
- Donaldson, L. (1985). *In Defense of Organization Theory: A Reply to the Critics*. Cambridge: Cambridge University Press.
- Douglas, J. D. (1971). The Rhetoric of Science and the Origins of Statistical Thought: The Case of Durkheim's «suicide». In *The Phenomenon of Sociology* (E. A. Tiryakion, Ed.), New York: Appleton-Century-Crofts.
- Eckburg, D. L. & Hill, L. Jr. (1979). The Paradigm Concept and Sociology: A Critical Review. *American Sociological Review*, 44: 925-937.
- Effrat, A. (1973). Power to the Paradigms. In *Perspectives in Political Sociology* (A. Effrat, Ed.), New York: Bobbs-Merrill.
- Eilon, S. (1981). Paradigms, Gestalts and the Obfuscation Factor in Organization Theory. *Omega*, 219-225.
- Evered, R. & Louis, M. R. (1981). Alternative Perspectives in the Organizational Sciences. *Academy of Management Review*, 6: 385-395.
- Friedrichs, R. W. (1970). *A Sociology of Sociology*. New York: Free Press.
- Garfinkel, H. (1967). *Studies in Ethnomethodology*. Englewood Cliffs: Prentice Hall.
- Giddens, A. (1976). *New Rules of Sociological Method*. London: Hutchinson.
- Griffiths, D. (1983). Evolution in Research and Theory: A Study of Prominent Researchers. *Educational Administration Quarterly*, 19: 201-221.
- Hackman, J. R. & Oldham, G. R. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology*, 60: 159-170.
- Hackman, J. R. & Oldham, G. R. (1976). Motivation Through the Design of Work. *Organizational Behaviour and Human Performance*, 16: 250-279.
- Hackman, J. R. & Oldham, G. R. (1980). *Work Redesign*. Massachusetts: Addison-Wesley.
- Harvey, L. (1982). The Use and Abuse of Kuhnian Paradigms in the Sociology of Knowledge. *Sociology*, 16: 4-18.
- Hopper, T. & Powell, A. (1985). Making Sense of Research into the Organization and Social Aspects of Management Accounting. *Journal of Management Studies*, 22: 429-465.
- Hulin, C. L. & Blood, M. R. (1968). Job Enlargement, Individual Differences and Worker Responses. *Psychological Bulletin*, 69: 41-55.
- Imershein, A. W. (1983). Review of Ritzer. *Contemporary Sociology*, 12: 345-346.
- Kagan, J. (1972). Motives and Development. *Journal*

- of *Personality and Social Psychology* 22: 51-56.
- Kelly, J. E. (1982). *Scientific Management, Job Redesign and Work Performance*. London: Academic Press.
- Kuhn, T. S. (1962). *The Structure of Scientific Revelations*. Chicago: University of Chicago Press.
- Kuhn, T. S. (1970). *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press, Second Edition (Enlarged).
- Kuhn, T. S. (1970). *Reflections on My Critics*. In *Criticism and the Growth of Knowledge* (Lakatos & Musgrave, Eds.), London: Cambridge University Press.
- Kuhn, T. S. (1970). *The Logic of Discovery or Psychology of Research?* In *Criticism and the Growth of Knowledge* (Lakatos & Musgrave, Eds.), London: Cambridge University.
- Kuhn, T. S. (1974). Second Thoughts on Paradigms. In *The Structure of Scientific Theories* (F. Suppe, Ed.), Chicago: University of Illinois Press. (Also reprinted in T. S. Kuhn. *The Essential Tension*, *op. cit.*)
- Kuklick, H. (1972). A Scientific Revolution: Sociological Theory in the United States. *Sociological Inquiry*, 43: 2-22.
- Lehman, T. & Young, R. T. (1974). From Conflict Theory to Conflict Methodology: An Emerging Paradigm for Sociology. *Sociological Inquiry*, 44: 15-28.
- Lincoln, Y. (Ed.) (1985). *Organization Theory and Inquiry: The Paradigm Revolution*. Beverley Hills: Sage.
- Lockwood, D. (1956). Some Remarks on the Social System. *British Journal of Sociology*, 7: 134-143.
- Louis, M. R. (1983). Review of Burrell and Morgan. *Sloan Management Review*, 19: 92-94.
- Masterman, M. (1970). *The Nature of a Paradigm*. In *Criticism and the Growth of Knowledge* (Lacatos & Musgrave, Eds.), London: Cambridge University Press.
- Mintzberg, H. (1978). Mintzberg's Final Paradigm, Letter to the Editor. *Administrative Science Quarterly*, 23: 635-636.
- Morgan, G. & Smirchich, L. (1980). The Case for Qualitative Research. *Academy of Management Review*, 6: 431-450.
- Morgan, G. (1981). Paradigm Diversity: Threat or Opportunity? *Unpublished Working Paper*. Toronto: York University.
- Morey, N. C. & Luthers, F. (1984). An Emic Perspective and Technoscience Methods for Organizational Research. *Academy of Management Review*, 9: 27-36.
- Musgrave, A. (1971). Kuhn's Second Thoughts. *British Journal of the Philosophy of Science*, 22: 287-306.
- Nie, N. H. et al. (1970). *S. P. S. S.* New York: McGraw-Hill.
- Oldham, G. R. Hackman, J. R., & Stepina, L. P. (1979). Norms for the Job Diagnostic Survey. *Journal Supplement Abstract Service (J.S.A.S) Catalogue of Selected Documents in Psychology*, 9: 14-37.
- Osviankina, M. (1928). The Resumption of Interrupted Activities. *Psychologisch Forschung*, 9: 1-85.
- Parkes, M. S. et al. (1976). A Generalitized Model for Automating Judgemental Decisions. *Management Science*, 16: 841-851.
- Pinder, C. C. & Bourgeoise, V. W. (1982). Borrowing and the Effectiveness of Administrative Science, (Unpublished) Working Paper 848. University of British Columbia.
- Pondy, L. R. & Boje, D. M. (1980). Bringing Mind In *Frontiers in Organization and Management* (W. M. Evan, Ed.), New York: Praeger.
- Ritzer, G. (1975). *Sociology: A Multiple Paradigm Science*. New York: Allyn and Bacon.
- Ritzér, G. (1981). *Toward an Integrated Sociological Paradigm: The Search for an Exemplar and an Integrated Image of the Subject Matter*. Boston: Allyn and Bacon.
- Sanday, P. R. (1979). The Ethnographic Paradigms. *Administrative Science Quarterly*, 24: 527-538.
- Sanders, P. (1982). Phenomenology: A New Way of Viewing Organizational Research. *Academy of Management Review*, 7: 353-360.
- Shapere, D. (1971). The Paradigm Concept. *Science*, 17: 706-709.
- Silverman, D. (1970). *The Theory of Organizations*. London: Heinemann.
- Turner, A. N. & Lawrence P. R. (1965). *Industrial Jobs and the Worker*. Cambridge, Mass.: Harvard University Press.
- Van Strien, P. J. (1978). Paradigms in Organizational Research and Practice. *Journal of Occupational Psychology*, 51: 291-300.
- Walsh, D. (1972). Sociology and the Social World. *New Directions in Sociological Theory* (P. Filmer, et al., Eds.), London: Collier-MacMillan.
- White, O. F. (1983). Improving the Prospects for Heterodoxy in Organization Theory. *Administration and Society*, 15: 257-272.
- White, R. W. (1959). Motivation Reconsidered: The Concept of Competence. *Psychological Review*, 66: 297-333.
- Zeikarnik, B. (1927). The Memory of Completed and Uncompleted Actions. *Psychologisch Forshcung*, 9: 1-85.

ABSTRACT

The paper outlines a study examining Fire Service work organization from positions consistent with Burrell and Morgan's (1979) four sociological para-

digms (functionalist; interpretive; radical humanist; radical structuralist). Data are given from an exploratory «functionalist» investigation of job characteristics and work motivation. Here the Job Diagnostic Survey (Hackman and Oldham 1976, 1980) is used to assess the work's motivating potential, results being presented both for the sample (N=93) in general, and for three groups of firemen differentiated by age and length of service. Although the overall «motivational potential score» is below the United States «All-Jobs» norm, firemen report generally high motivation characteristics in their work. In comparing groups, a consistent pattern is found whereby scores for both motivation and satisfaction decrease with age and length of service. For this trend, Analysis of Variance finds statistically significant results for 8 of the model's 19 scales: notable here are group differences for task identity, autonomy and feedback. Finally, analysis of scale intercorrelations reveals several relationships not hypothesised in the model. The direction of further paradigm studies is outlined.

RESUMO

Tendo por base a distinção de paradigmas sociológicos realizada por Burrell e Morgan (1974) procurou-se, neste artigo, estudar a organização do trabalho no serviço de Bombeiros. Os dados referem-se a uma investigação exploratória, de carácter funcionalista, das características das funções e da motivação para o trabalho. Na medida da motivação potencial do trabalho foi utilizada a J. D. S. de Hackmen e Oldham (1976, 1980) tendo-se recolhido dados junto de 93 indivíduos de idades e tempo de serviço diferenciados por três níveis. Apesar do resultado da motivação potencial para o trabalho se situar a um nível inferior à norma para os EUA, os trabalhadores descrevem o seu trabalho como contendo aspectos motivadores. Observa-se, porém, um decréscimo na motivação e na satisfação com a idade e o tempo de serviço, nomeadamente nas escalas de identidade da tarefa, autonomia e *feedback*. Por fim, a análise das intercorrelações revela efeitos não previstos no modelo.