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WORK PATTERNS IN RESEARCH ORGANISATIONS:
A CASE STUDY
OF SOME SOCIAL ASPECTS OF SCIENTIFIC KNOWLEDGE DEVELOPMENT

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Richard Lubomir Hes

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ABSTRACT

This thesis involved an investigation of some social aspects of scientific knowledge development. In particular, it focused on the "work patterns" of problem solvers and the "effects" research organisations have on them. The proposed theories were tested in one government research organisation.

The "work patterns" of problem solvers were defined in terms of three stages of work (the Work Programme Development, the Idea Generation of specific projects, and the Problem Solving of these specific projects). It was hypothesised and substantiated, using the log-linear modelling technique, that each stage of work is associated with a distinctive pattern of communication, conceptualised in terms of six dimensions (sources of information, types of information, circumstances and modes of information transfer, and the effects of the information). It was shown that the Work Programme Development occurs in response to information, passively received, from external sources during formal circumstances. Ideas for specific projects are generated on the basis of scientific information acquired from journals. In solving specific projects, problem solvers actively consult internal sources, in informal circumstances.

The "effects" of organisations on the work patterns of problem solvers were considered by investigating the effects of (a) three organisational properties (analytic, structural, and global) on internal flows of communication, and (b) those environmental properties on external patterns of communication which could have been investigated in a case

study situation. Hypotheses were derived from the resource dependence theory of organisations which was proposed by Pfeffer and Salancik (1978).

The investigation of the effects of the research organisation on the internal flows of communication used locally optimal tests and showed that all three properties of organisations influence the formation of these communications. Internal communications occurred mainly within structural and global constraints, and among people who had similar attributes (analytic properties). Some evidence was found that close physical proximity, which had a strong influence on internal communication, could be overcome by colleague networks, which formed among people with similar analytic properties (autonomy, work related orientations and socially recognised work competence). Informal networks also played an important role in the formation of colleague networks.

The investigations of the effects of the research organisation on the patterns of external communication indicated that the vast majority of information which was received from external sources came from other research organisations, and the amount declined with increasing distance from the focal organisation. The very limited communication with the client communities was not geographically constrained.

Implications for research administrators were discussed. Consistent with attitudes of the respondents toward the roles of research administrators, the findings of this study suggest that the most important role of research administrators should be in facilitating communication, contacts, and the provision of resources.

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