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Combating stress risks with the Job Stress Self Diagnostic Method

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Combating stress risks with the Job Stress Self Diagnostic Method

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Abstract

The content and uses of the Job Stress Self Diagnostic Method (JSSDM) are described. The JSSDM aim is (a) to diagnose work processes to determine the presence of conditions for control problems and stress risks, and (b) to develop solutions to combat stress risks on organisational level. The method is based on three theories of job and organisation design and on the insight to combine viewpoints from sociology, management science, and psychology. The method provides measures of (a) job design, ergonomics and working conditions, (b) group behaviour and individual behaviour, (c) organisational and human resources management, (d) extra-organisational factors, and (e) personal factors. Evaluation data are presented for six organisations who have tested the method on its utility. Consequences for the sociology of work and organisation are glanced at.

Introduction

Three problems with research on stress in organisations hampers change agents. First, research into stress risks is a rather time-consuming activity for organisations who want to combat these risks immediately. A survey or action research takes several weeks to months. Second, several diagnostic instruments focus on the health effects and personal satisfaction of workload, instead of looking at the causes of workload, and, therefore, overlooking opportunities for solutions. Third, conflicts of interests between management and workers obstruct organisational change to solve problems.

To counter these general problems, a method for diagnosing and eliminating organisational stress risks has been developed.[1] The present article reports the development and evaluation of this method, the Job Stress Self Diagnostic Method. The conceptual basis of the method is described; an outline of the method itself presented; the empirical application is evaluated; and the use and limitations of the method are discussed.

Conceptual basis of the method

The Job Stress Self Diagnostic Method is based on three theories and one additional common sense insight. These theories are the 'job demands – job control model' by Karasek (Karasek, 1979, 1992, 1997; Karasek and Theorell, 1990), the theory of

[1] The author expresses his thanks to Dutch colleagues Ben Fruytier, Ellis Lourijsen, Anja Klomps, Ank Overbeek and Carlijn Vis who helped to develop the method. The development was prepared for and supported by the Funds Organisation for the Sector of Care and Welfare in the Netherlands (Sector Fondsen Zorg en Welzijn).

'complete tasks' or 'whole tasks' by Hacker et al (1983, 1993), and the theory of modern sociotechnology by Sitter et al (1986, 1994, 1997).[2]

Karasek's model combines the two dimensions job demands and job control. Job demands are related to psychological and physical job demands, whereas job control refers to worker craftsmanship and autonomy. The balance between these demands determine stress risks and learning opportunities of jobs. Combining both dimensions in Figure 1, results in four types of jobs: active jobs, passive jobs, high strain jobs, and low strain jobs.

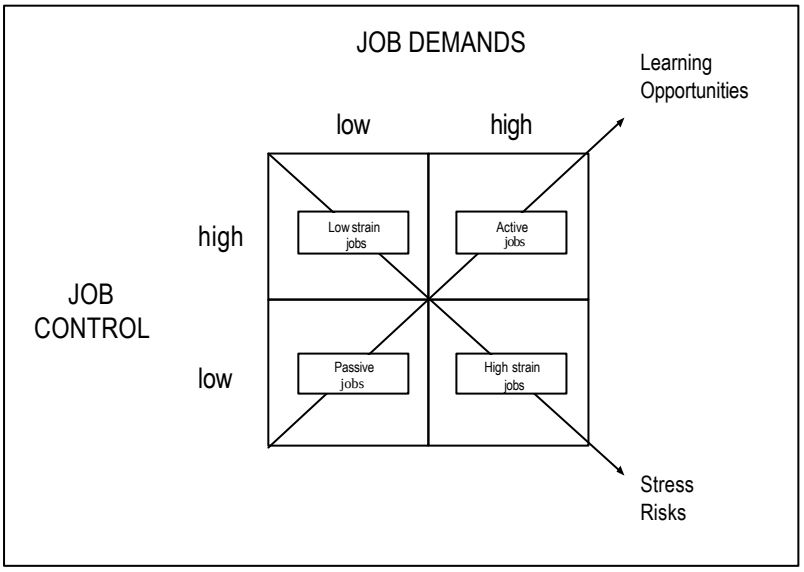

Figure 1. The Job Control-Job Demands model by Karasek

Figure 1 predicts stress risks in high strain jobs and learning opportunities in active jobs. Analysis of data of the Third European Survey on Working Conditions among European workers supports the validity of these predictions. Workers in low strain jobs have the lowest percentage of reported health and safety risks, whereas workers in high strain jobs show the highest percentage of such risks. In addition, high strain jobs are positively related to self reported stress, musculoskeletal problems and lower levels of job satisfaction (Dhondt e.a., 2001).

Hacker argues that jobs are 'sequentially complete' if they consist of a coherent set of tasks. Coherence is reached in the combination of six activities in tasks, to prepare, to organise, to control, to retrieve, to communicate, and to get feedback. Jobs are 'hierarchically complete' if they consist of tasks which alternately demand mental efforts on different levels, namely, the variation of thinking preceding execution, thinking during execution and routine actions. In Hacker's view, tasks are incomplete if not both types of completeness are present. Incomplete tasks increase stress risks and limit learning opportunities (Vaas et al, 1995: 14; Christis, 1998: 54-55).

Modern sociotechnology states that it is not so much the problems themselves which lead to stress but the absence of control options in the working situation to solve these problems. Instead of complex organisations with simple jobs, sociotechnologists advocate simple organisations with complex jobs. Stress risks can be reduced by enhancing control options like Karasek suggests, and learning opportunities can be

[2] Based on these sources the 'Method well-being at work' has been prepared for the Dutch Ministry of Social Affairs and Employment, to prevent workload and work stress (Pot et al, 1989; Vaas et al, 1995; Christis, 1998).

enhanced by making jobs more complex and 'complete' in Hacker's sense (Sitter et al, 1997; Vaas et al, 1995: 15; Christis, 1998: 39-51).[3]

The additional common sense insight refers to the self evident argument to use practical knowledge about reducing stress. A controversy – at least in the Netherlands - between sociologists and management scientists on the one hand and psychologists on the other hand hampers the collaboration of these disciplines. Plainly put, sociologists and management scientists reproach psychologists in their study of effects of work design that too much attention is being paid to individually oriented issues, and hardly any reflections are made on the effects of structural and institutional factors. Psychologists blame sociologists and management scientist of the opposite: too much focus on structure and a neglect of human behaviour. As a consequence, opportunities for interdisciplinary convergence are underused (Oeij et al, 1998a; 1998b, 107-108; Oeij et al, 2000: 7; see also Christis, 1998: 269-270).[4] For this reason, the presented method distincts both the structural (job design) and behavioural factors as sources for stress risks. Another additional insight which has been incorporated in the method is to regard organisational policy (management) as a source for stress risks. The combination of job design, behaviour, and management in one method can be seen as a novelty.[5] These three aspects refer to conditions for stress risks inside organisations and are part of the conceptual model which is the basis of the Job Stress Self Diagnostic Method (Oeij et al, 2000: 17-27).

The conceptual model of the method is presented in Figure 2. Conditions for stress risks are directly determined by organisational factors (2, 3, 4), which themselves are partly determined by extra-organisational factors (1). How does this work? Conditions for stress risks (5) are work situations that contain control problems. Control problems are problems in work situations which are unsolvable for a functionary, unless a disproportionate (strainful) effort is performed, ánd in which the functionary cannot affect the cause of the problem (Christis, 1998: 39; Vaas et al, 1999: 8; Oeij et al, 2000: 10; Klein Hesselink et al, 2001: 12). An example of a control problem is a too demanding workload. Control problems are a function of work situations. Control is a function of the balance between job demands and job control (autonomy). In this case, the high workload, defined here as too many things to do (Broadbent, 1987: 9), implies an imbalance because there is not sufficient job control.

Extra-organisational factors such as political and legal decisions (e.g., social laws, general agreements between social partners), the economic situation (globalisation, growth / decline), social trends (individualisation) new technology (ICT) and the labour market situation (growth / decline, qualifications), each influence corporate strategies and organisational design. Thus, in turn, these factors determine the design of work situations (2): job design (control – demand balance), ergonomics and working conditions. Work situations are characterised by the presence or absence of stress risks. That is why we opt for a 'conditional approach' toward risks: risky

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[3] For theory and examples of sociotechnical design see Sitter et al, 1986, 1994. For an example in service industries see Oeij and Vissers, 1994.

[4] Christis (1998: 256) summarizes Lazarus' criticism on stress definitions by stating that stimulus definitions give no information on the response, whereas response definitions do not inform us on the stimulus or the cause. This can be used as a metaphor to illustrate the controversy between sociologists and management scientists (stimulus oriented) and psychologists (response oriented).

[5] The before mentioned Method well-being at work (see note 2) has a focus on job level (especially job design). Referring to 'behaviour' this method is limited to social and functional human interactions. Management and organisational policies are not taken into account.

situations are a feature of organisations (Christis, 1998: 27-36). As a consequence, worker experienced work stress, the experience orientation, is not seen as a cause for control problems, but as an effect, a symptom.

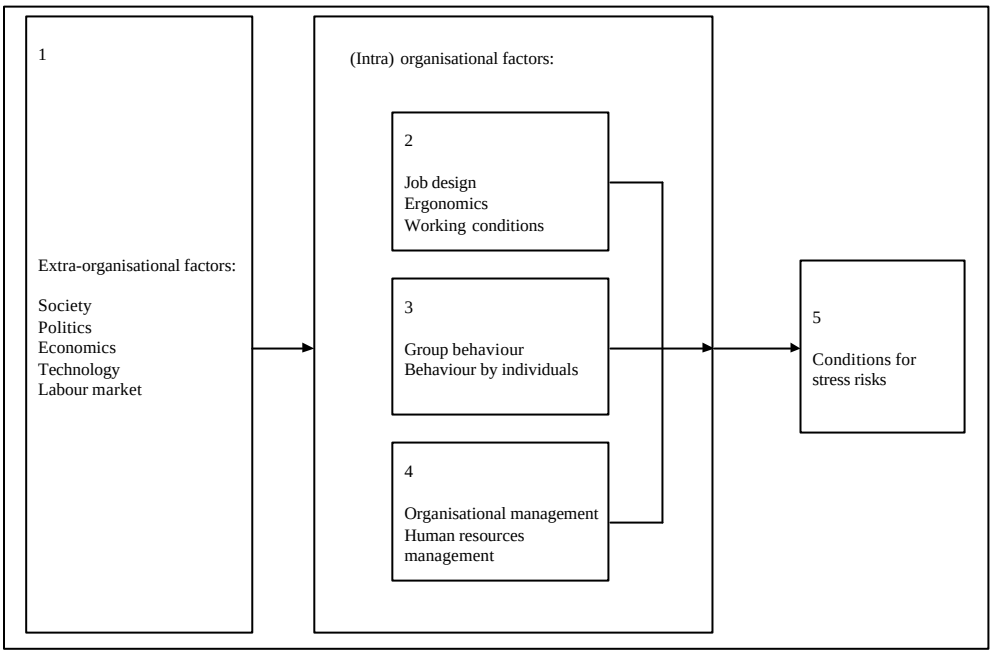

Figure 2: Causes for conditions for stress risks

The design of work situations is directly related to the policy of organisations (4): organisational management (e.g., policy of innovation, downsizing, economical decision taking) and human resources management (e.g., opportunities for personal development and enhancing control skills). These policies 'moderate' the presence or absence of stress risks in work situations.

A third central variable is behaviour (3), either on group level or by individuals, be they workers or managers. Behaviour has relevance in the sense of coping with, or, controlling conditions which contain stress risks. Examples of such 'controlling behaviour' are leadership (style), social support, communication behaviour, and learning behaviour ('employability'). Behaviour in organisations is conditional in the sense that one's behaviour may contain risks for others. In this specific situation, behaviour is a feature of organisations. A too task oriented leadership style, for example, can be a stress risk to employees in work processes demanding creativity without clear-cut output standards. Such jobs can be found in various sectors, like health care, publicity companies, and science.

How stress risks result in work stress (Oeij et al, 2000: 8-17) is illustrated in Figure 3. Having defined conditions for stress risks (1) as an imbalance of job demands and job control in work situations, subsequently, work stress (3) is a human condition that results when such work situations lead the individual to perceive a discrepancy between the demands of a situation and the person's resources to control work situations (Lazarus and Folkman, 1984). In most cases, work stress follows the situation in which the demands are exceeding the person's resources (overload), but the opposite (under-using someone's resources) also occurs (e.g., in boring jobs due to a lack of challenge). Whether work stress will be perceived or not is influenced by a person's coping mechanism (4). The coping mechanism has two central elements that interact; someone's biopsychosocial resources (biological, psychological and social systems) and a person's cognitive appraisal, preceding his or her interactions between

the person and the environment ('transactions'). Each functionary assesses whether the condition for stress risks (demand) threatens their well being and assesses their resources available for meeting the demand. The underlying assumption is that a functionary loses control if the work situation is assessed as stressful (the demands are too high). The consequence of working under uncontrollable working conditions are negative effects on health, well being, sick leave, productivity, social costs and so on (5). It negatively affects job satisfaction and the meaning of work.

A final point to mention about Figure 3 are the stress risks that are caused by private situations (2). More and more, work situations and private situations today have become intertwined. People wish to combine work with sound possibilities for family tasks, hobbies, recreation and such. Their consequences become apparent in flexible working and living conditions. Demands from the private sphere, therefore, can no longer be fully separated from stress risks which appear in the work situation.

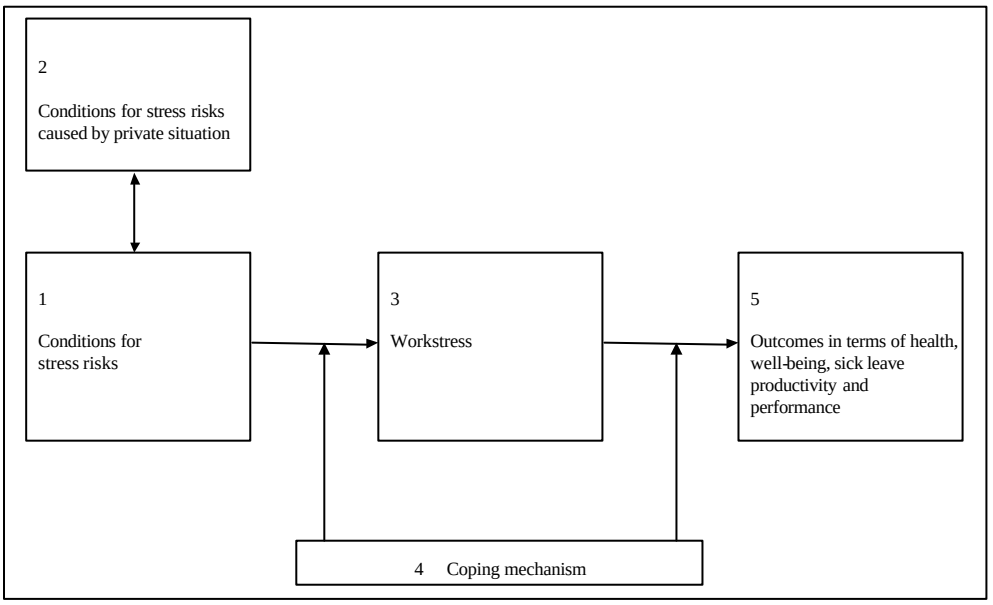

Figure 3: Mechanism of stress

Description of the Job Stress Self Diagnostic Method

The Job Stress Self Diagnostic Method is a 'participative action research' approach. We have used the method as a kind of research-based consultancy, which involved diagnosing situations, problem-solving and action planning. The users – employees and managers - helped in gathering the data about their own and their colleagues work situations. They played a major role in assessing the control problems and their solutions by vivid and intense discussions which were sometimes conducted by us.[6]

The method has two objectives. First, to assess the presence of control problems through the diagnosis of the working process. Such a diagnosis can be made on

[6] The Job Stress Self Diagnostic Method gathers information through individual and group interviews and groups discussions. The diagnosis of control problems and stress risks can also be executed with a survey, e.g., if one, first, wishes to broadly measure the present situation and, subsequently, zoom in into the process of problem-solving with smaller groups. For this purpose, several questionnaires are available (related to the Method of well-being at work [note 2] see Kraan et al, 2000; for an extension of the Questionnaire Method of well-being at work towards the JSSDM see Oeij, 2000).

departmental or company level. Second, to develop solutions to combat the drawn up control problems. Both objectives are described here. Besides these objectives as regard to content, there is an action side to it, as regard to its process, outlined at the end of this section.

The method provides an elaborated checklist to assess the presence of control problems. Derived from Figures 2 and 3, conditions for stress risks can be tracked down on the level of work-related organisational factors, work-related organisational external factors and non work-related personal factors, summarised in Table 4.

Central sources	**Central themes**	**Sub themes**
Work-related organisational factors	Part 1: Work situation	Job design Ergonomics & Working conditions
	Part 2: Behaviour	Group behaviour Behaviour by individuals
	Part 3: Management	Organisational management Human resources management
Work-related organisational external factors	Part 4: Organisational external factors	Society Politics Labour market
Non work-related personal factors	Part 5: Personal factors	Personal traits Private household situation

Table 4: Conditions for stress risks and control problems

The method's checklist is organised in five parts around the central themes (Table 4). The checklist consists of 25 questions (Oeij et al, 2002). Each question deals with one of the sub themes. In answering the question the user is assessing whether the sub theme in his or her job contains a condition for stress risks and if this stress risk has become a control problem. If this is the case, the user has located an uncontrollable situation. Answering all questions leads to an inventory of control problems on job level. Subsequently, the discussion with all team members results in an inventory on departmental level. The list of control problems is then prioritised by evaluating the importance and urgency of each control problem in the combat of stress risks. Appendix A reports the items of the checklist and gives an example of a question.

The development of solutions for the prioritised control problems starts with locating the sources of each control problem with the aim to determine how to redesign its cause. It is remembered that this conditional approach locates stress risks in features of the organisation in order to repair organisational failures. For this purpose, the user can benefit from Figure 5, 'Follow the way back from control problem to its cause'. Having its arrows in a reverse direction, Figure 5 partly mirrors Figure 2 (Oeij et al, 2000: 24-26; see also Klein Hesselink et al, 2001: 134-135).

The most important criteria, in order to evaluate whether the solutions that are being developed are feasible and effective, are to determine the executors (problem-keepers), the persons and departments involved (facilitators), the means (time, money, people), planning and, once again, the priority of each solution. Eventually, an implementation plan containing several specific actions and measures should be the final result.

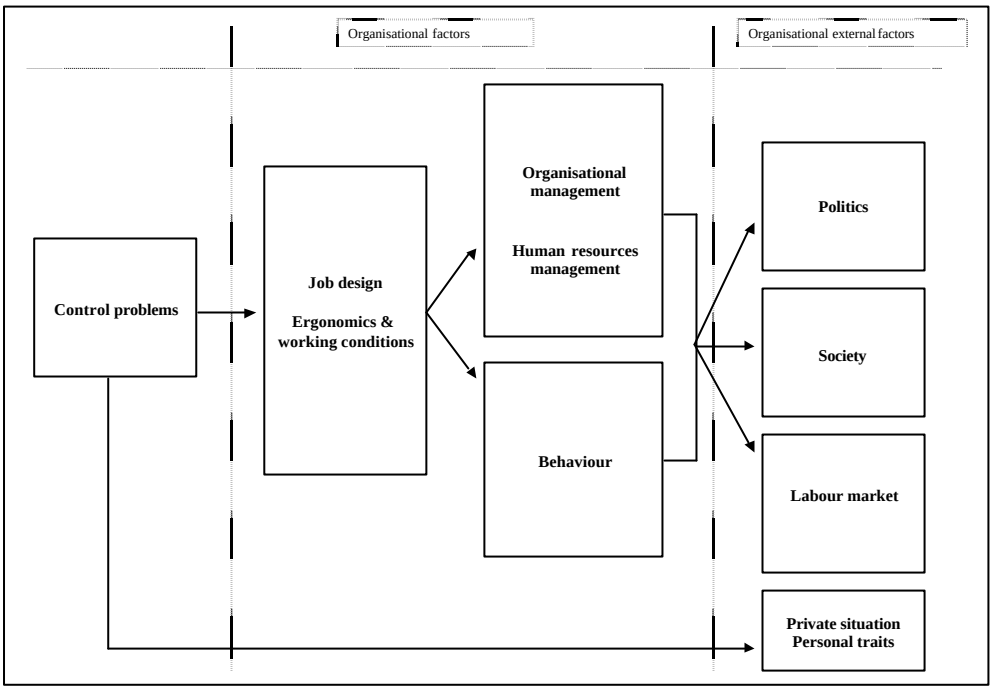

Figure 5: From control problem to its cause

In order to prevent a hampering process, characterised by a conflict of interests between management and workers, it is recommended to install a project team that uses the starting points of a 'coalition approach' (Lange, 1989: 79-83). For this purpose, the project team can choose to frame its activities within a 6-step plan[7] as in Figure 6 (Oeij et al, 2000: 76-80), for the joint cooperation of management and employees. Within the project team two 'teams' are being installed, a 'team of managers' and a 'team of employees'. All team members first answer the questions of the checklist for themselves. Within in each team, then, a discussion is being held to establish the differences and agreements. Subsequently, both teams go into discussion with each other in order to reach agreement on the inventory of control problems as much as possible. An independent person, e.g., the project manager, could best chair this discussion. In the discussion sessions which follow the inventory, both teams work together in developing solutions for the prioritised control problems. Commitment and a common basis which will help to facilitate the implementation process should be established this way.

[7] Figure 6 is a general policy, research or management cycle that needs no further comment.

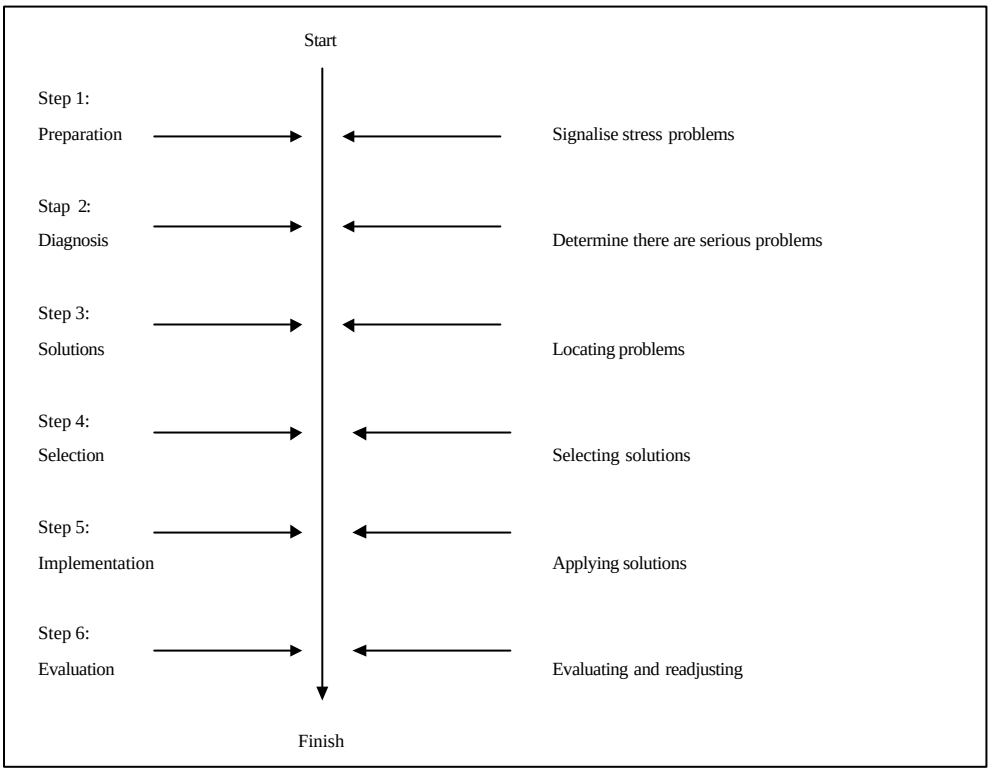

Figure 6: 6-step plan

Evaluation of empirical applications

Methodology

The Job Stress Self Diagnostic Method was used in six welfare organisations in the Netherlands. In two organisations a pilot study was set up to test the method's utility. The four remaining organisations used the method with the support of a consultant, to which we shall refer as advisory trajectories. All six organisations defined their goal as to improve work situations by reducing stress risks by implementing measures. The aim of the researchers was to test the method on two objectives. Does the content of the method guarantee a valid analysis of control problems as stress risks, and does the method work as a self-help instrument? All organisations had set up a project team with a project manager. Each project team consisted of 6 to 12 persons. Results reported here are based on face-to-face interviews with the users of the method (i.c., the project managers and a few project team members) in all organisations and on four questionnaires (a pre test and post test) filled in by the project managers of the four advisory trajectories (Oeij et al, 2002). The pilot study organisations applied the method to several departments, involving circa 45 employees; organisations in the advisory trajectories each selected one department, involving altogether circa 30 employees.

The evaluation of the utility of the method included six topics. 1] Clearness was determined by examining the users' evaluation of the clearness of the method's goal, its concepts and formulation of questions in its checklist; 2] usefulness was investigated by checking how users evaluated the content, user friendliness and workload it caused for project members and the organisation as a whole; 3] effect was inquired by the way users judged the quality of the diagnostic process to establish control problems, clarity of points of application for measures of improvement, quality of developed measures of improvement, progress of the process, achievement of a

common basis, and fit with user expectations; 4] performance of the consultants was established by measuring the necessity of the consultants' presence during the diagnostic process and their presence during the problem-solving process, and the effectiveness of user self-activity. In addition, the users were invited to make suggestions for improving the method and to formulate recommendations for the principal who commissioned to develop the method.[8] Topics 1, 2, and 3 are relevant to evaluate the researchers' goal on the content; topic 4 gives insight in the method as a self-help instrument.

Evaluation

1. Clearness. Users evaluated the method to a large extent as clear in its goal, concepts and questions. A minor point was the use of abstract language, due to the application of systems theory, which is basic to the theory of modern sociotechnology. As a consequence, some users found it difficult to apply the method to their own work situation.

2. Usefulness. The content of the method and the topics which were covered resulted in solid analyses of control problems, according to users. They found the method thoroughly analysing work processes, which is also basic to the systems approach of modern sociotechnology. Users had positively judged the coalition approach, project team setting, and 6-step plan. The coalition approach led to open, constructive discussions. This of course is not so much a feature of the method, but relates strongly to the atmosphere within these organisations. Nevertheless, the manner of dealing with the job, by forming two teams who first made their own analysis before they met to discuss their findings, has been advantageous in at least two ways. First, all participants got the opportunity to unfold their view on the problems, which certainly benefited persons with a relatively weaker position. Second, in the problem-solving step the teams had to cooperate, which reduced the risk of enlarging the conflicts of interests. Should this precede the problem-solving, it would have been much more difficult to reach a common basis for solutions. The coalition approach, therefore, positively affected the process. The process was further facilitated by the structure that was offered by using the project team setting and the 6-step plan. A point of criticism concerned the workload for users and the organisation. The pilots took six months and the advice trajectories three. Some participants in the pilot studies found this too long. Moreover, the pilots went on longer than expected because top management dawdled in deciding what to do with the advice of the project teams. It took quite some time to organise discussion sessions with the 'rank and file' colleagues, analyse all the gathered information, turn problems into solutions, and plan a trajectory to implement all these ideas, let alone the process of implementation itself, for which the help of the researchers / consultants was not intended. On the other hand, any change process demands a substantial effort. Although it was clear to users that such an effort was inevitable, it apparently was difficult to look ahead and make a sound planning for such change processes. Despite the criticism on the length of the process, users evaluated the answering of the questions of the checklist and attaining the overview of control problems as a quick and efficient way to get results.

3. Effect. A strong point of the method according to the users was its completeness in covering all relevant topics which relate to control problems and conditions for stress risks. Many users stated that the method, by taking job design, behaviour, and management into account, did not omit any important issues. The following of the steps of the method resulted in a manageable overview of control problems evaluated

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[8] The Funds Organisation for the Sector of Care and Welfare – who is the commissioner - represents the interests of social partners and is largely financed by them.

on their relevance and urgency. Users regarded the overview as a practical starting point for the phase of problem-solving. Many users were very positive about the possibilities for open discussions about 'causes and effects' of control problems and about experienced high workloads and work stress. The solutions that were being proposed, were seen as their own, which not only enhanced the sense of commitment of the participants but also their experienced job control within the change process. As regard to the content, therefore, it comes as no surprise that the method met user expectations, despite its 'misfit' with the unexpected high effort of participants.

4. Performance of the consultants. As a self-help instrument, the method failed to achieve its objective. All six organisations said that they could never have used the method as thoroughly without the help of the researchers / consultants.

The conclusion can be drawn that the users positively evaluated the content of method and their project, but as a self-help instrument the method has two disadvantages. Its system approach was too difficult for some users. The necessary consultancy support was not intended to be part of the method.

Discussion

Empirical characteristics of the evaluation

Based on the data in the previous section, it is too early to formulate firm conclusions about the practical use of the method. The number of users and organisations is very small. Yet, these indications thus far show that the method has satisfactory practical results, and that its variables cover all relevant possible sources for stress risks.

The evaluation carried out, however, was not meant to meet the strict demands of a scientific research design. A scientific test of the method according to the paradigm of causal explanation should include the validity of the concepts, their relations and their predictive value for the presence of conditions for stress risks (Figure 2). The same can be said about the validity of solutions in reducing stress risks (see also Figure 5). Finally, the extent to which these various stress risks result in work stress among employees should be established (Figure 3).

A question related to the former point is, what kind of information do we actually need to evaluate the usefulness of the method? Some methods are evaluated on how they predict effects, for example, if they are meant to measure how jobs affect the health of employees. Methods that deal with psychological issues belong to this category. Contrary to this, the JSSDM aims to locate stress risks and control problems in the design of jobs and departments, organisational-specific behavioural aspects and management policies of work organisations, in order to solve such risks and problems by redesign. The JSSDM does not primarily deal with psychological issues, but, like sociotechnology (Christis, 1998: 384, 392), with social problems, especially with the sociological issue of the division of labour.[9] Therefore, the main stream of psychologists who are working within the paradigm of causal explanation are using factor models with many variables trying to establish correlations between variables in evaluating the usefulness of methods with a focus on psychological issues. A central criticism on such factor analytical research is its weakness in causal explanations (Christis, 1998: 104). The sociological systems theory, within which modern sociotechnology is focussing on work processes, uses the paradigm of functional analysis, developed by Luhmann (1984). Since the paradigm of causal explanation still cannot discover the scientific laws which unravel the causal complexity of the social world, functional analysis reduces this complexity by transforming the cause-and-

[9] The division of labour, of course, in its turn, affects worker health also.

effect scheme into a means-and-goal scheme. From all of the possible *effects* of a certain *cause*, there are only a few desired effects, and this is the *goal* to be achieved. Its *cause* is regarded as the *means* by which the *goal* can be attained. Moreover, functional analysis implies problem-solving when such a goal is achieved. In such cases, *means* are a *function* of problem-solving (Christis, 1998: 86). If, for example, an organisation enhances control options in the design of jobs, it reduces breakdowns in the work process by which the process becomes more effective and the quality of work improves. In this case, the design of jobs due to low control options *caused* inefficiency; redesigning jobs was a *means* to solve this problem. Functional analysis assumes a 'realistic concept of causality'. By analysing the relation between job design, behaviour and management and their stress risks one by one, complexity is being reduced. A typology about organisational conditions for stress risks is constructed step-by-step in this way. Evidence-based common sense about origins of control problems is the practical starting point for selecting the relevant variables (reducing complexity) for such a typology. Such a realistic typology, which helps to explain relations between causes and effects with the use of structural characteristics (i.c., the conditional approach), is superior in diagnosing organisational stress risks and in problem-solving on the level of organisational conditions for these risks, compared to the factor models that do not succeed in establishing stable cause and effect relations in data-sets with a substantial number of variables (Christis, 1998: 103-104).[10] An important viewpoint from functional analysts is their contest of the criticism (from psychologists) of using not well-elaborated constructs and insufficient psychometrical standards, by their statement that a conditional or structural approach pertains a(n) (sociological or management scientific) analysis of the characteristics of work situations which cause (conditions for) stress risks (Ouwerkerk et al, 1994: 103-104; Christis, 1998: 334).[11] The JSSDM is a method developed within the functional analysis tradition, which should not be evaluated as an example of the paradigm of causal explanation.

Conditions for the use of the method

Self-help in the sample of six organisations was too low for successfully applying the Job Stress Self Diagnostic Method. It should be mentioned that these organisations are relatively small. Only one of them has a staff functionary who is responsible for personnel management. It is suggested that larger organisations should have no insurmountable competence problems in applying the method. The evaluation of the empirical use does imply, however, first, that the method consists of a proper set of questions to arrive at a valid diagnosis of control problems and a problem-solving procedure to develop valid solutions. A second implication is that the method itself is an insufficient condition to effectively combat stress risks. Process consultancy or some kind of supervision is a necessary condition. Consultancy has a double function in this case. On the one hand, a consultant can introduce the expertise on organisational conditions which can lead to work stress, but this may be dispensable

[10] Functional analysis does not replace causal explanatory research, but is seen as a condition for causal research by systems sociologists (Christis, 1998: 367-371). Further, notice that systems theorists study structures and conditions and not the individual judgments of these structures and conditions.

[11] The distinction between psychological factor analytical research and sociological functional analytical research is in the object of study (psychological effects vs. social risk situations), method of analysis (empirical, statistical analysis vs. evidence-based, explanatory analysis), and the goal of analysis (establishing correlations between constructed variables vs. logical location of causes to solve control problems).

for larger organisations. On the other hand, a consultant can have a major contribution as a 'process facilitator' in creating the right situation for open discussions and a common basis and to ensure that the project team will end up with a sound implementation plan. It should be mentioned that a consultant does not have to be a non-member of the organisation, as long as he or she is not too involved with the department or work process under study.

Conditions for a successful application of the method are 1] strong leadership of the project manager, 2] commitment with the project and its outcomes from top management, 3] motivation and analytical competences by all project members, 4] expertise in organisational change and on the theme of work stress risks, 5] availability of means (time, money, persons), 6] process consultancy skills (present at the project manager or having a consultant with these skills at the disposal of the project manager), and 7] (direct or indirect) participation of employees on shop floor level.

Results of the method

The theoretical background of the Job Stress Self Diagnostic Method implies a fixed sequence in the diagnostic phase. First, to assess control problems among work-related organisational factors, second, to investigate work-related organisational external factors, and finally, to take non work-related personal factors into account (Table 4) (Oeij et al, 2000: 24). As a consequence, the personal experience of work stress is given limited attention in the diagnosis,[12] since experience of individuals nor occupational safety and health effects,[13] are regarded as a source for organisational redesign. From the pre test and post test questionnaires it is observed that users shifted in their opinion from an experience orientation to a conditional orientation. While asserting that high work load was more often caused by personal factors than by organisational factors at the pre test, they claimed the opposite by the post test. The change may be a learning effect of the use of the method (Oeij et al, 2002).

The main causes for control problems according to the participants of the four organisations using the advice trajectory were job design (unclear balance of job demands and task responsibilities, high output standards), work process interferences (unplanned tasks, express orders), and the consequences of political decisions and legislation (which reduces organisational management control). Additionally, participants of the two pilot studies mentioned problems with communication and leadership style. Project teams have developed feasible solutions to combat these control problems on the level were they originated. In general, job design problems were combated with redesign proposals enhancing control options, behaviour problems were countered with procedures describing testable desired behaviour repertoires and with training programmes, and organisational management control problems were fought with human resources management policies to enlarge employee career opportunities and improved personnel planning. Effects of these measures on the reduction of stress risks are unknown at present and no evaluations are planned in these organisations yet.

Sociology of work and organisations

Which organisations predict high stress risks is a question not only relevant to the sociology of work and organisation, but also to management science and various sub disciplines in the field of psychology. The discussion here is limited to the field of

[12] Like methods in the tradition of the Position Analysis Questionnaire (McCormick et al, 1972).

[13] Like methods in the tradition of the Job Diagnostic Survey (Hackam and Oldham, 1975).

sociology. Organisations can be characterised by management concepts, with the help of the 'decentralisation-human factor orientation model' (Oeij and Wiezer, 2002). The decentralisation-human factor orientation model distinguishes the dimensions extent of decentralisation of decision taking, on the one hand, and, on the other hand, extent of focussing on high human factor orientation as a crucial production factor (knowledge orientation vs. efficiency orientation). When combining these two dimensions, four organisational types appear (Figure 7): rigid efficiency (includes Taylorism), social rigidity (includes Human relations), flexible efficiency (includes Lean production) and humanised flexibility (includes Sociotechnology).

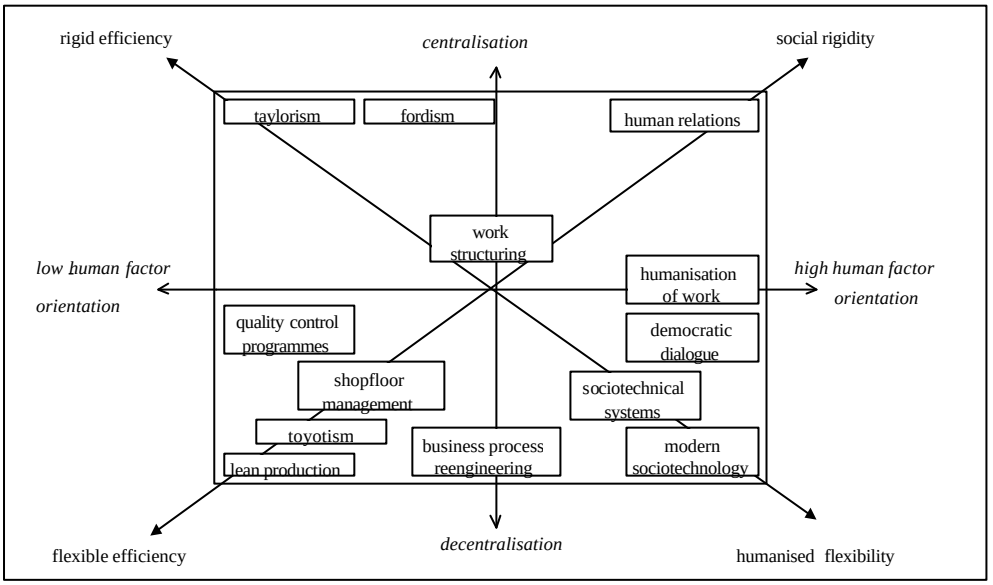

Figure 7: Management concepts positioned in the decentralisation – human factor orientation model

Theoretically, the four types of jobs in Karasek's job demands-job control model (Figure 1) correspond with these four management concepts in Figure 7. In a previous section it was concluded that high strain jobs contain the highest percentage of workers with reported stress risks. A literature study (Oeij and Wiezer, 2002) indicates that high strain jobs go together with the lean production model, and that active jobs are coinciding with the sociotechnology model. Furthermore, it was observed in this study that most of the organisational changes that took place in Europe, United States and Japan are probably directed towards the management concept of flexible efficiency (i.c., lean production-like concepts). Since lean production-like organisations and high strain jobs contain relatively high risks for worker health (Landsbergis et al, 1999), future sociological research could focus on the mechanism of organisational change and how selected organisational designs based on distinct management concepts affect conditions for stress risks.

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Appendix A: Items of the JSSDM-checklist

Table A.1: Sources for control problems on sub theme level

Control problems in central themes	*Items of the checklist*
Part 1: work situation:	
Job design	1 Job demands, tasks and control options
	2 Requirements / output standards
	3 Information and feedback
	4 Clarity (material)
	5 Presence working facilities
	6 Unplanned error / breakdown in process
	7 Attunement with persons / departments
Ergonomics & working conditions	8 Working conditions and lay-out
	9 Safety & health
Part 2: behaviour:	
Group behaviour	10 Communication
	11 Functional support
	12 Social support
Individual behaviour	13 Leadership
	14 Vocational/professional competence
	15 (Readiness) broad deployment
Part 3: management:	
Human resources management	16 Quality terms of employment
	17 Quality of personnel planning / occupation
	18 Quality of personnel policies
Organisational management	19 Organisational policies vs. personal interests
	20 Organisational change vs. personal interests
Part 4: organisational-external factors:	
Politics	21 Organisational adaption to politics
Society	22 Organisational adaption to social developments
Labour market	23 Organisational adaption to labour market
Part 5: personal factors:	
Personal traits	24 Person Environment Fit
Private household situation	25 Private situation Work Fit

Example of a question:
'If you think that the sub theme does *not* contain conditions for stress risks or control problems, encircle P(ass) and go on to the next question (? ..). If you think the sub theme causes a control problem, encircle F(ail). Subsequently, describe the control problem first; second, explain why this sub theme causes a control problem by giving its underlying cause.'

1. Are the job demands (job contents, tasks, responsibilities) and the control options (autonomy) clear to you; are they in balance?	encircle your choice
yes, this does not cause a control problem	P ? ..
no, this indeed causes a control problem	**F**
The following control problem is being caused: *because of an unclear definition of tasks I do not know what exactly is expected as my output. I have more work than I can handle during my shift.*	
What is the underlying cause of this control problem?: *there is no clear leadership on the shopfloor; nobody knows who is responsible for what.*	

Questions in the checklist sometimes contain more than one item, which is not the case in the survey version. The reason why this is the case in the checklist is to prevent the checklist from becoming too long. The goal of the questions is to establish whether there is a control problem or not. If there are control problems, users will have to discuss them to determine its relevance and urgency. Therefore, it is not essential if more than one issue per question is marked as a problem that needs to be discussed.

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