25 Evaluation of the Quality of Job Design with the Action-Oriented Software Tool REBA – Recent Developments and Applications

Peter Richter, Uwe Debitz, Andreas Pohlandt

1 Action Regulation Theory as Basis for Human-Centered Job Design

The basic axioms and features of the action-regulation theory (ART), developed primarily in German, are described in English by HACKER (1985, 2003), and FRESE and ZAPF (1994). Human-centered job design should follow three goals simultaneously (HACKER 2003, HACKER & RICHTER 2006): enhancement of efficiency, from the point of view of both enterprises and employees, optimization of psycho-physiological strain, and enhancement of physical and mental health, including personality development due to the learning potential of the job.

The development of abilities and skills takes place through active processing of tasks. Personality development is to be understood in the sense of:

(1) Preservation and enlargement of qualification, and, especially, of abilities.
(2) Preservation and stimulation of work motivation.
(3) Preservation and strengthening of health as complete physical, mental and social well-being.

This so-called “completeness of regulation structure” (HACKER 2003, HACKER & RICHTER 2006) has a high predictive value for optimization of strain, personality enhancement and work effectiveness. The sequentially complete work structure includes preparation (goal-setting, planning, action programs, autonomous decision-making), execution, checks and organization.

Design deficits in this structure can bring negative consequences, such as stress, fatigue, vital exhaustion, and increased risk of coronary heart disease, depression and higher back pain.
1.1 Mental Workload

The emphasis of the dynamic and self-organizing process of action regulation is to provide a valid framework for describing the active process of strain regulation and predicting the negative consequences of mental overload and underload. Coping processes for the stabilization of unstable regulation structures could be; reduction of the level of goals and aspirations, reduction of task-specific activation and changes in working strategies. Despite these coping processes, if the regulation structure of actions cannot be stabilized mental overload will have negative effects.

Consequences of negative strain are differentiated as mental fatigue, monotony, mental satiation and reduced vigilance. This system corresponds to the international classification of mental workload consequences in ISO EN DIN 10 075. In this standard stress is defined as the input variable for mental load factors. Therefore, this extended approach will implement stress as highly emotional negative consequence in contrast to mental fatigue. An EU-agreement defined work-related stress “as a state, which is accompanied by physical, psychological or social complaints or dysfunctions and which results from individuals feeling unable to bridge a gap with the requirements or expectations placed on them” (SOCIAL DIALOGUE 2004).

According to these distinctions, the quality of strain consequences and their intensity can be evaluated by means of behaviourial and psycho-physiological parameters. Diagnosis of various subjective phenomena is particularly suitable. An interval-scaled questionnaire has been developed for the diagnosis of perceived workload (PLATH & RICHTER 1984). This BMS-questionnaire, meanwhile translated into 6 languages, has proven to be a reliable and valid instrument for rating mental fatigue, monotony, mental satiation and work-related stress, according to the distinctions.

1.2 Human-Centered Job Design

The following ART-oriented recommendations for job design can be derived (e.g. PARKER & WALL 1998):

- allow people a high level of goal-setting in their work
- increase the degree of freedom, giving employees the possibility to control work processes and develop their own work strategies
- ensure task-specific qualification, enabling employees to cope efficiently with work demands
- ensure that the task itself provides feedback loops
- overall: ensure sequential (goal setting, execution, organization of cooperative actions, feedback) and hierarchical completeness of actions.

Human-centered job design is possible by defining the division of function between humans and machines (computer, programs, etc.), the division of labour between different persons, and the forms of cooperation between different employees.