

Theoretical perspective on the interplay between ICT and quality of life

Gunilla Bradley

Royal Institute of Technology, Stockholm, Sweden, Bradley@it.kth.se

Abstract: An interdisciplinary research program on "Computer technology and work life" was initiated and led by the author at Stockholm University from 1974 to 1988. The program inspired many other research programs in Sweden in the field. A theoretical framework was developed including two theoretical models, one more general and one where the concepts and their interrelationships were specified. The models were tested empirically in three large work organisations in Sweden, representing three main historical periods of computer technology. It was also used as a model in discussing what might be desirable goals in the information society. The present fourth period, the "Network period", is characterised by a *convergence* of three main technologies: computer technology, telecommunication technology, and media technology (ICT). ICT is used in almost every activity and embedded in many things around us. The author proposes a superimposed theoretical model reflecting "ICT and psychosocial life environment", a revised model of her initial models. Finally, future research is discussed with reference to theoretical models revised, and conclusions address major psychosocial processes, psychosocial life environments and a call for synthesis.

Key words: Information Society; Work Life; Network; Social impact; Quality of Life, ICT

1. BACKGROUND

The development of new technology - advanced and widespread use of computer technology and telecommunications and the integration of these technologies - have a profound impact on organizational and quality aspects

of our lives today both at work and at home. New application areas within information technology industry are emerging at the convergence of communications, computer, and media. IT and ICT are used synonymously in the following context.

The paper consists of two parts. The first is a description of the theoretical model. The second is a presentation of trends and visions for the quality of life in the future.

2. THEORETICAL MODEL ON COMPUTER TECHNOLOGY AND WORK LIFE

The RAM research programme on "Computer technology and work life" was an interdisciplinary research programme initiated and led by Bradley at Stockholm University from 1974 to 1988. RAM referred to the Swedish expression for "Rationalisation" and "Work Environment". A theoretical framework was developed by G. Bradley entitled "Computer Technology and Working Environment" (first published in 1977). The framework included two theoretical models, one more general (figure 1) and one model where the concepts and their interrelationships were specified (Bradley 1977, 1989). The models were empirically tested in three large work organisations in Sweden, representing three main historical periods of computer technology – from systems with batch processing to microcomputerisation. The psychosocial work environment was considered in terms of the following perspectives:

- three levels of analyses (individual, organisational, societal)
- objective and subjective work environments
- interplay between levels
- interplay between objective and subjective work environments
- interplay between working life and private life
- a life-cycle perspective.

The content of some of the concepts in the models may be summarised as follows. The *objective work environment* refers to areas of work that are germane to large groups of employees. The *subjective work environment* consists of perceptions and attitudes related to corresponding sets of factors in the objective work environment. The subjective work environment is closely linked to the concept of job satisfaction.

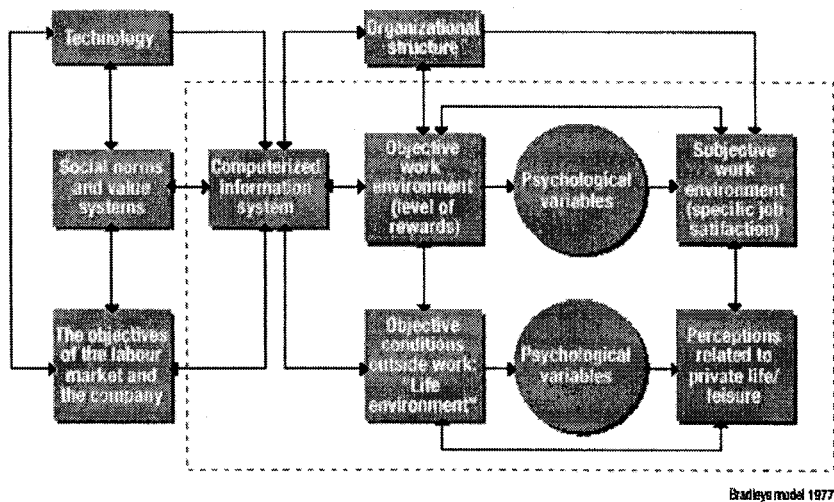


Figure 1. Theoretical model on Computer technology and work environment (Bradley 1977, 1989)

Psychological variables is a general term covering a number of intermediate, psychologically relevant variables such as the level of aspiration and the weight attached to specific work-environment areas. These variables are essential if one wishes to understand and explain the subjective work environment and its dynamics and also the perceptions of the conditions that govern our lives in general. They are crucial in the analysis of subgroups of employees and cultural variations.

The concept of psychosocial refers to the process involving the interaction between the objective environment and the subjective one. *Essential concepts within the psychosocial work environment* include factors such as contact patterns and communication, organisational structure and design, work content and workload, participation in decision-making, promotional and development patterns, salary conditions and working hours.

The term psychosocial work environment is used to signify the course of events or the process that occurs when objective factors in the environment are reflected in the individual's perception (either positive or negative) of work and conditions of work. Its essence is the interaction between the environment and the individual. Thus work environment factors exist at different levels – the level of society, the level of the company and the level of the individual – and they interact with one another. But there is also a distinction between the objective and the subjective work environment, which also interact (Bradley 1989).

Objective conditions outside work refers to behaviour and consumption, the conditions that prevail during the hours spent away from work. These

may be affected by change related to the use of computerisation at work. Certain attitudes, values and experiences related to private life/leisure and family life were also analysed against the background of the introduction of computer technology into the individual's work.

The theoretical models used in the RAM programme can also be used as models in discussing what *structure* a computerised society should have (see the two-way arrows in the figure) and what might be desirable *goals*. This was also done in a special chapter on actions strategies in Bradley (1986) and also in my chapter in the book *Computers and Society* (Beardon 1993).

An extensive research strategy was applied with qualitative and quantitative methods for collection and analysis of data. Indices were created through multivariate analysis, and they corresponded well to the theories in the field of work and organisational theory. I limit myself to give the structure of indices and a shortened description of the content of the indices (p. 217, Bradley 1989): Work Psychosocial Environment Factors (16 indices); Physio-ergonomic Work Environment (4 indices) Democracy at Work (5 indices); Effects of the Display Terminal Information system (14 indices); Effects of the Personal Computer system (11 indices); Health Problems at Work (5 indices); Health Problems during Leisure Time (6 indices); The Effects of Work on Leisure /Time/Family Life (3 indices); The Weight Attached to Specific Work Environment/ Factors and the General Attitude to Work (4 indices).

From the empirical experiences a checklist was developed to be used in the evaluation of a project for implementing computer systems or systems in use, to give a rapid assessment of which aspects of the work and working conditions are to improved and developed. Key words, were specified and were complemented with examples of areas to be selected for analysis, design and action. These measures and tools are still relevant for studies of the social and organisational impact of ICT. Theories, methods and results from the RAM programme are summarised in "Computers and the psychosocial work environment" (Bradley 1989). In later projects a fourth period in the evolution of computer technology both the psychosocial and the societal impact of ICT has been in focus, best referred to in our research programme entitled "Interplay ICT – Humans – Society".

The broader view in the RAM project was early presented at international conferences and the tools were early translated to English. It inspired both research in Sweden and in other countries. Many projects focused specific aspects of the organisational work environment related to computerisation and IT. In Bradley 2001 some main international research projects are summarised focusing on the changes in work and quality of work.

3. THEORETICAL MODELS REVISITED

The fourth and present period of computerisation I would like to refer to as the "Network period", very much based on *the convergence* and integration of three main technologies. ICT is more and more being used in almost every activity and *embedded* in most of things around us. The graphical representations in the models need to be changed.

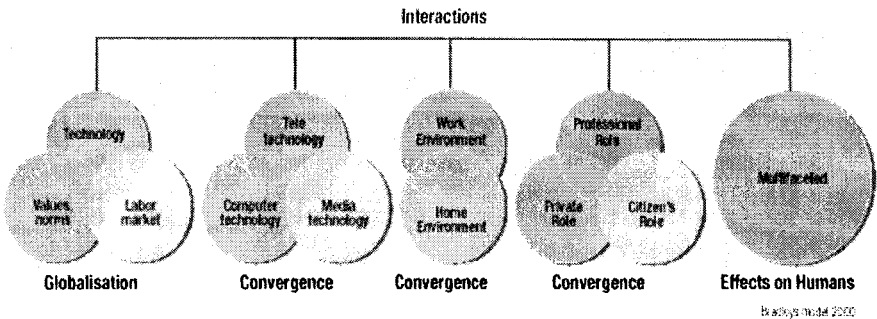


Figure 2. Convergence Model - ICT and Psychosocial Life Environment

(Source: Bradley 2001)

Comments to the model:

- A convergence of computer technology, telecommunication technology and media is occurring
- Professional Role (Work Life) and Private Role (Private Life) and Citizen's Role also converge
- Work Environment and Home Environment are converging to become Life Environment
- Effects on the Individual become more multi faceted and complex. This is valid both regarding the psychological and the physical effects.
- Technology, Norms and Values and Labour Market - interact in the globalisation process
- *A new emphasis* on certain dimensions in the psychosocial environment.
- New *dimensions* are appearing in the psychosocial environment. Openness for unforeseen implications is required.

Within informatics a discussion of focus is taking place: both analysis and design need to address not only the work process and management connected to the sphere of production life, but also people's life environment. Not only professional roles but also our roles as citizens and private persons are crucial. In the next section this area will be addressed under the heading "The home as a virtual and physical space".

<http://www.springer.com/978-1-4020-7185-0>

Human Choice and Computers

Issues of Choice and Quality of Life in the Information
Society

Brunnstein, K.; Berleur, J. (Eds.)

2002, XVI, 336 p., Hardcover

ISBN: 978-1-4020-7185-0