

Handling the Unexpected

Jörn Messeter

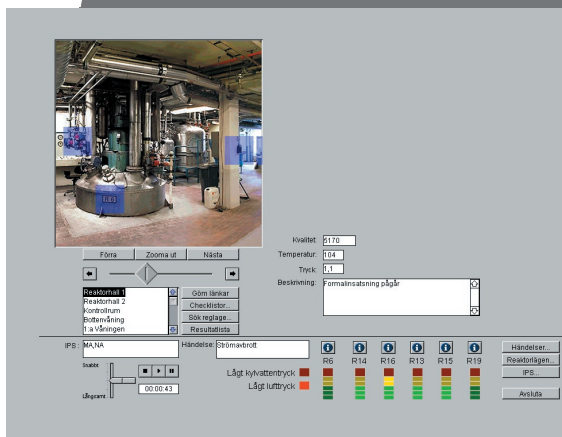
Arts & Communication, Malmö University

supporting collaborative learning in process control with »thin« interactive problem scenarios (TIPS)

Studies in process control automation show that manual control skills are important in handling situations where the automatic control system fails. The fact that these skills are particularly difficult to maintain and develop in automated production environments is usually described as one of the ironies of automation. This work explores new roles for computer support in developing and maintaining work knowledge in a local community of practice.



Manual process control in the factory studied relies heavily on tacit knowledge



The TIPS-tool facilitates learning by evoking and sharing work knowledge in discussions of interactive problem scenarios

A computer based tool has been designed to support collaborative learning among operators in a chemical plant, in order to improve their skills in handling production disturbances where manual operations are needed. The tool allows operators to create interactive problem scenarios based on experienced problem situations in a model of the production environment. An information format for describing problem settings – thin interactive problem scenarios (TIPS) – has been developed that utilises the highly context specific work language developed in a local community of practice.

Evaluation of the tool in use showed that experienced operators were successful in using their work knowledge to establish shared authentic experiences of modelled problem situations that went beyond the actual content of the scenario descriptions. Interaction among operators in constructing a shared understanding of the problem showed signs of learning in the form of collaborative sense-making, and also indicated discoveries of flaws in work practice. The results suggest that local work language can be an important resource in designing learning support for work settings.



The TIPS-tool was designed as an integrated part of the process control environment