“New Approach of Activity Theory in Highly Safety-Critical Industrial Organizations”

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With the progress of computer control and information processing technologies, the machine systems for maintaining various organizational and societal activities have become much more networked and complicated. This tendency has brought about many difficulties for both an individual and an organization to secure systemic functions successfully as they were originally planned. As a result, more people working in an organization not only suffer from physical and psychological disorder but also are more likely to commit human error that might cause a fatal accident. Furthermore, human-caused accidents would decline trust of the vast majority of citizens in the operation of industrial plants. One of the most promising approaches to these problems is an ecological study in which human and environment should be taken as constituting an integrated system along with the assumption that any actions of an individual person should be taken in a collective activity that is always embedded in a historical and cultural context. In this session, two speakers who share human sciences as their specialized discipline and activity theory as their theoretical background will present their own practical studies, which will be followed by discussion with audience on possible development of research in the future.

(1)Prof. Leena Norros will focus on an ecological perspective to treat human-environmental interaction as an integrated unity without conceptually separating the two. ‘Meaning’ plays a central role in her conception but, importantly, it is never a product of mental functions. Activity theory integrates two types of meaning, one is located in physical environment and another is located in human habits. Her theoretical efforts have culminated in a new practical method to analyze high-technology work in risky environments, which is called Core-Task Analysis. It has been utilized in many industrial and medical workplaces including operation rooms in a nuclear power plant.

(2) Prof. Sugiman will focus on a concept of ‘organizational learning’ to grow safety-culture in a nuclear power plant. Depending on but also revising an original version of activity theory, he has formulated a comprehensive conceptual model of organizational learning. In the model, everyday organizational activities are conceptualized with the use of two kinds of activities, i.e., performance and learning, while transformational activity is defined as an activity that transforms existing everyday activities into new activities standing on quite different premises from the previous ones. Specific instances that are taken as contributing to facilitating

organizational learning will be described while locating each instance in the model.

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CV

Prof. Sugiman graduated from Faculty of Education, Kyushu University in 1974 and received Ph.D. from Faculty of Human Sciences, Osaka University in 1987. He has been working for Kyoto University since he was enrolled in College of Liberal Arts and Sciences as an associate professor in 1988. He became a professor of Faculty of Integrated Human Studies in 1996 and a professor of Graduate School of Human and Environmental Studies in 2003. He has held an additional post of professor in Graduate School of Energy Sciences. He stayed in UCLA and University of Michigan in 1984-85 as a Fulbright researcher. He was awarded a Fellow of the International Association of Applied Psychology in 2006.