

SUMMARY OF Ph.D. DISSERTATION

School School of Science for Open and Environment Systems	Student Identification Number	SURNAME, First name TORIIZUKA, Takashi
Title Characteristic and Application of Skillwork on Industrial Plant Maintenance		
Abstract <p>There are a lot of tasks that require advanced skill such as delicate power adjustment. The tasks largely depend on the worker's experience and skill. However, there have been few researches concerned with human factors for effective improvement of worker's performance.</p> <p>In this thesis, under the above issue, the skillwork on maintenance was re-categorized in Chapter 2, and Chapter 3 showed the frame of the behavior model of skillwork from the viewpoint of the cognitive flow. At the same time, the mechanism of the repertoire of behavior on the skillwork of assembly was clarified, and the problem in the task has been extracted. In addition, the countermeasure for the problem was led, and the effect of that was verified.</p> <p>In Chapter 4 to Chapter 7, the adjustment task by stroke was taken to be a theme of the higher-order skillwork, and the mechanism of this was clarified. In Chapter 4, The system that measured the physical power of the stroke was developed, and the experiment using this system was conducted. Through this experiment, the model was made exquisite by considering the cognitive flow of the skillwork of this type, based on the model shown in Chapter 3. And the prototype of the model, which expresses the mechanism of the repertoire of the behavior, was shown. In addition, the model had been improved in Chapter 5 to Chapter 7. In Chapter 7, the relation between the target value (power thought to output) and the measurement value (power to actually output) was made an expression, and the part of the model could be expressed by the function. Based on this finding, the problem of skillwork of this type was pointed out, that is, the problem that there was inevitably difference between the power thought to output and power to actually output. And the inducement instruction was proposed as one of the countermeasure. Receive them, in Chapter 8, the effect of the inducement instruction using the above-mentioned was verified, therefore the effect was admitted. Moreover, the method for deriving the above function was developed.</p> <p>In Chapter 9, a common problem to the skillwork of the above two types, discussed in this thesis, was pointed out. And the countermeasure was discussed.</p>		