The Development of Teaching Strategy for the ICT Utilized Technical Curricula,  
Based on the Gangne's Instructional Theory 

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Abstract

The educational environment is changing rapidly, thanks to the development of the ICT. Accordingly, the self-initiated learning can be activated and the various, flexible learning activities which respect the learner's self-controlling and characteristics can be implemented through the ICT activities in the technical education, as well as other curricula. So we have developed the instructional strategy that can utilize the ICT in classes for the technical education in accordance with the instructional theory by objective and 9 teaching types, based on the teaching theory of Gagne. The ICT selection should consider the characteristics of the learner, learning subjects and each ICT to utilize them in classes, paving the way toward the realization of the experience oriented experiments in the technical curricula. When it comes to utilize the ICT in classes, we can select and utilize the media adequate to the character and the contents of the subject units, based on the models suggested so far.

I. Introduction

The education is interested in making change of the human behavior. The change of the human behavior includes the psychological characteristic, such as knowledge, thought, sense of values, personal characteristics and self-consciousness, etc., and the change of the appearing behavior. We are particularly interested in teaching what and how, how effectively with any tool. As the information age comes, the massive knowledge and information communicated through books, periodicals and electronic media are increasing rapidly every year. The development of the IT network and the explosive increase of knowledge have brought the increase of knowledge to process another information and knowledge. These changes have changed the values of society, economy and individuals, and the quality and style of life. The educational paradigm is changing due to the development of the ICT, too. Accordingly, the teaching/learning educational environment is changing rapidly. Our future society requires students to have the capabilities of independent learning, critical and creative thoughts, etc. to be able to search information, select appropriate information to solve problems, analyze and evaluate it by themselves. (SCANS, 2000, p. 6).
It is possible to implement various teaching-learning activities, activate the self initiated learning, respect the learners' independence and characteristics and perform various flexible learning activities in the technical education, as well as other curricula. Therefore, we would like to review the teaching theory by target and the educational meaning of the ICT, together with developing the technical subjects teaching strategy which can accommodate the ICT to be utilized in classes in accordance with the general 9 teaching types, based on the teaching theory of Gagne.

II. ICT Utilization Teaching Situations and Criterion for the Selection of Media

First of all, we need to consider the characteristics of the teaching situation to select the ICT in accordance with the teaching theory. The technical curricula education shall train students to have technical background and to enhance the problem solving power and the thinking power through the experience oriented learning activities by the experimentation practice activities. It is recommended to check the learning target in advance and utilize the ICT considering the ICT status in the school, characteristic of the learners and the learning subjects as well as the characteristics of the ICT to select the adequate ICT, enabling the experience oriented experimentation at the technical subjects. After the learning objective is described clearly in the form of definite activities and the learning contents to achieve the objective is organized systematically, we need to select the adequate ICT to achieve the learning objective and utilize it appropriately at the learning stages. Figure 1 shows the standard for selecting the media in accordance with the ICT utilized teaching situation.

![Diagram](image)

*Figure 1. ICT utilization teaching situations and criterion for the selection of media*