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Research Subject	Educational system and environment with computers and networks		
Keywords	Educational system, Intelligent CAI, ITS, interface, e-Learning		

[Outline]

In many schools, using computers and networks in their lessons are becoming popular. In these situations, educational system and environment with computers and networks (e-Leaning) are expected to provide new learning styles.

E-Learning system has great advantages. For example, each learner can learn anytime and anywhere the system is available. Individualized learning is possible. To get these benefits, it is not enough to present fixed teaching texts and figures and/or exercises in which the system checks true or false only.

AI (Artificial Intelligence) technologies introduce *intelligent* mechanism to overcome the above issues (ITS: Intelligent Tutoring System). Our research contains "*domain knowledge*" which enables system to solve problems in target domain by itself as human being, "*problem generation*" which generates adequate problems for learners, "*teaching knowledge*" which analyzes learners' solving processes, identifies error origin if there are errors and determine adaptive and individualized guidance, and "*student model*" which is comprehension models of each learner including personal learning history.

[Features]

For adaptive guidance and support to individual learners, it is fundamental to determine appropriate responses in each situation. Not only study in laboratories but also go out, observe and analyze learning processes carefully, communicate with teachers and learners are indispensable.

Human interface makes important role to communication between educational systems and learners. Input devices in most systems are restricted on standard input devices such as keyboards and mousse. Handwriting interface with electronic pens and LCD tablets using on-line symbol recognition technology, spoken dialogue interface using voice synthesis and speech recognition technologies are also included in our research.

Intelligent, adaptive and friendly educational systems and environments with computers and networks are demanded.

Recent research results are in our WWW pages
(http://www.ai.is.saga-u.ac.jp/~okaz/okaz-en.html).