Computational Thinking:
A New Direction of ICT Literacy Education

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For last 30 years since information-based society made its appearance, it has evolved into knowledge-based society, and now into info/knowledge-based 'fusion' society. Boundaries between academic subjects and between industries get blurry, and it is due to ICT and computational thinking. Computational thinking makes great ideas and contributions for almost every academic subjects and industries these days.

Definition of 'ICT literacy' has been changed as the society has changed. In information society, the ICT literacy referred to whether they could use PC/internet and PC/internet-based (public or business) services. In knowledge-based society, it emphasized whether they could use the ICT tools for their own problems at work or at home. However, in info/knowledge-based 'fusion' society, it is important whether they have creative problem solving capability based on ICT skills and computational thinking, which is considered to be 'ICT literacy' for the upcoming fusion society.

The new trend is reflected in the new Korean national K-12 info/computer curricula which will begin in year 2010. While current national curricula include PC/internet uses as tools, the new curricula include algorithm and programming, not for professional programmer education, but for computational thinking education.

More details about the new K-12 national curricula will be introduced. Also, based on the idea, we developed K-6 ICT literacy assessment items with support of KERIS(Korean Education & Research Information Services; 韓國敎育學術情報院) in 2007. Some examples of the items will be explained.

For successful application of the new Info/Computer curricula, it is very important to introduce many new great ideas and tools for the computational thinking education in K-12. One of them will be EPLs(Educational Programming Languages) which attract many attentions recently in Korea. This talk will introduce the types of EPLs and their requirements, and case studies and their implications that we have made.