



EDUCATIONAL EFFECTS OF CODING NOTES FOR COMPUTATIONAL THINKING

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Abstract

Computational thinking for the 4th industrial revolution is a hot issue in the education world. Its educational purpose is not to make a student to be a programmer, but to train a student to logically solve any given problem. Usually, coding is used as the meaning to make a computer program. Since a program has logical structure and its development process requires subsidiary abilities which analyze a problem and devise the stepwise procedure for that, its coding has been understood to be a good training method for computational thinking. Ministry of Education in South Korea recognized the importance of coding education and remodeled the curricula for elementary, middle, and high school to include the SW subject in 2015. According to the new educational policy, SW-related education will be started since 2018. During last three years, the Ministry of Education has developed the educational methodologies of computational thinking and reported some materials for teachers. When government made an effort to educate computational thinking, private educational market has also grown right along with these efforts. A matter of some concern is whether public and private contents for coding education are proper to the educational purpose of computational thinking. I think that some of this content is not proper. To compensate this concern, we developed the coding notes with a predefined format, which includes the general coding steps. We taught how to use the coding notes for 10 freshman students of computer engineering division in our university and surveyed the educational effects in five points of view. As a result, understanding ability of computer principle is improved to 20% point, that of logical structure of a computer program to 10% point, programming ability to 10% point, analysis ability of a problem to 30% point, and procedural thinking ability of a problem solution to 30% point. Conclusively, our coding notes are useful to teach SW coding to beginners and to train students to think computationally.

Keywords: Computational Thinking, Coding notes, Logical Problem Solving, SW Coding.