

## The Correspondence between Self-regulated Learning, Learning Efficiency and Frequency of ICT Use

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**Abstract :** The authors have been concerned with research on learning since 1998. Recently, the focus of our interest is how prevalent use of information and communication technology (ICT) influences students' learning abilities, skills of self-regulated learning and learning efficiency. Nowadays, there are three dominant theories about the psychic effects of ICT use: According to social optimists, modern ICT devices have a positive effect on thinking. As to social pessimists, this effect is rather negative. And, regarding the views of biological optimists, the change is obvious, but these changes can fit into the mankind's evolved neurological system as did writing long ago. Mentality of 'digital natives' differ from that of elder people. They process information coming from the outside world in an other way, and different experiences result in different cerebral conformation. In this regard, researchers report about both positive and negative effects of ICT use. According to several studies, it has a positive effect on cognitive skills, intelligence, school efficiency, development of self-regulated learning, and self-esteem regarding learning. It is also proven, that computers improve skills of visual intelligence such as spacial orientation, iconic skills and visual attention. Among negative effects of frequent ICT use, researchers mention the decrease of critical thinking, as permanent flow of information does not give scope for deeper cognitive processing. Aims of our present study were to uncover developmental characteristics of self-regulated learning in different age groups and to study correlations of learning efficiency, the level of self-regulated learning and frequency of use of computers. Our subjects (N=1600) were primary and secondary school students and university students. We studied four age groups (age 10, 14, 18, 22), 400 subjects of each. We used the following methods: the research team developed a questionnaire for measuring level of self-regulated learning and a questionnaire for measuring ICT use, and we used documentary analysis to gain information about grade point average (GPA) and results of competence-measures. Finally, we used computer tasks to measure cognitive abilities. Data is currently under analysis, but as to our preliminary results, frequent use of computers results in shorter response time regarding every age groups. Our results show that an ordinary extent of ICT use tend to increase reading competence, and had a positive effect on students' abilities, though it didn't show relationship with school marks (GPA). As time passes, GPA gets worse along with the learning material getting more and more difficult. This phenomenon draws attention to the fact that students are unable to switch from guided to independent learning, so it is important to consciously develop skills of self-regulated learning.

**Keywords :** digital natives, ICT, learning efficiency, reading competence, self-regulated learning

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