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### **Individualized Adaptive Learning**

**Problem setting.** The global trends of education reformation demonstrate needs in individualization of learning, as well as in mutual adaptation of a human and a System [1], including learner and learning tools [2].

**Analysis of recent research and publications.** The solution of the problem is based on the features of the balance between individual and general learning [3], the need to take into account the emerging problems of student safety [4], their cognitive workload [5], as well as changes of intellect and personality structure in the micro-age intervals [6].

**The goal of the work.** To describe main features of adaptive learning based on a learner psychophysiological dynamic changes.

#### **Results.**

Adaptive learning is an educational method which uses ITC as interactive teaching devices, and to orchestrate the allocation of human and mediated resources according to the unique needs of each learner. Computers adapt the presentation of educational material according to students' learning needs, as indicated by their responses to questions, tasks and experiences.

It is known that human cognitive abilities (stability, resistance, resilience etc/.) are not stable in time and depend on external and internal factors that could be revealed in cognitive test performance results, as well as perception and balancing of vegetative regulation in human organism vary under psychological stress (situational and cumulative) that could be used as an integral predictor of human deviate behavior. But external impact on a human when he/she is included in network activity is not studied, especially if that impact is not stochastic, but controlled and network-depended. This is a problem of not so technical (information) security, as a human (human factors) safety, that could be depended on a human genetic and psychophysiological regulation. The problem to be solved is to expand an understanding of new network technologies, their effectiveness, potential risks, and the potential benefits of new ways to work and collaborate. Psychophysiological variables' importance

for performance is strongly moderated by functional gene variants. Such variants will be genotyped and the project will assess the possibility to use this information for screening purposes.

It is proposed:

(1) To study psycho(physio)logical mechanisms of deviate learners' performance and/or behaviour (DB) at perceptual and cognitive level, as well as when decision making.

(2) Human-System Integration (HSI) and deviate behavior risk when a human works in networks.

(3) To develop prototype of computer system for DB detection.

(4) Validation and evaluation of predictive possibilities of the system developed in experimentation with subjects of different categories.

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