Course title: Typical & Atypical Cognitive Development
Institute: School of Educational Sciences, Tallinn University
Semester: Spring 2019
Course code: KAE7037.HR
Responsible lecturers: Paul Seitlinger, Kati Aus, Grete Arro

Final Exam

Name:

Write your answers to the following 6 questions into a text file and save it as "CoDev_Exam_YourName".
Try to be as concise as possible and please **do not use more than 150 words per answer**.
The deadline for sending your **individual answers** to paul.seitlinger@tlu.ee is **27 April 2019**.

Question 1 (2 points)
At the very beginning of the course, the assumption was made that cognitive development involves the development of "neural communication structure".

- Q1a. What does "what fires together, wires together" in this context mean?
- Q1b. What does "use it or lose it" in this context mean?

Question 2 (2 points)
Why does the transactional model (on the influence of genes and environment on cognitive development) help to reconcile the stance of nativists with that of empiricists?

Question 3 (2 points)
The meta-analysis of Plomin (1988; see Unit 2) reports on the similarities (in form of correlation coefficients *r*) of IQ scores (performance in intelligence tests) for different samples of identical twins (IT). The correlation coefficient for IT raised together is very high ($r = .86$). Briefly explain at least one potential reason for why the coefficient is substantially smaller for IT raised separately (i.e., $r = .74$).

Question 4 (2 points)
Discovery learning is typically characterized as a type of learning, where students engage in self-guided activities, such as generating and testing hypotheses on their own. Based on this characterization and according to the developmental stages as suggested by Piaget, which minimum age would you roughly suggest for this type of learning for not to be cognitively overwhelming? Briefly explain your answer.

Question 5 (2 points)

There is some evidence of the Neo-Piagetian assumption that the developmental progress along consecutive stages can be attributed to an increasing working memory capacity. Name at least one study, which we have discussed in this context, and briefly explain its key results.

Question 6 (3 points)

Some parents ask for your advice because their 10-year-old child seems to increasingly have concentration difficulties: While showing more or less normal performance in reading and math as well as in tasks that require creative thinking, it is difficult for the child to restrain from mind wandering and to stay focused in a noisy environment. Before suggesting some individualized training exercises, you'd first like to make a more specific diagnosis in terms of executive functions (EF).

- Q4a. Which types of EF will you consider?
- Q4b. What measurement instruments will you select?
- Q4c. On which instruments do you expect the child to exhibit typical / atypical performance?