

Abstract

This thesis examined the use of gamification in the teaching of computer architecture, with a particular focus on the topic of instruction-level parallelism. In recent years, gamification has become an increasingly discussed topic, although it is not yet clear which gamification elements have which effects. Here, this work especially focuses on the influence of adding quiz elements. For this purpose, an A/B test was carried out in a bachelor's course on computer architecture using two versions of a game about building CPU pipelines. The versions differed in that one of them contained quizzes that queried the player about previously taught content, while the other version consisted entirely of levels where the player had to build pipelines. In the thesis, a game called "CPU Architect" was first conceptualized and then implemented using the open source game engine Godot. Finally, the data that was collected in the aforementioned playtest was analyzed in order to determine whether the inclusion of quizzes increased the students' engagement. However, no differences were found between the two groups.