

Abstract

Research in the digital game-based learning domain has so far shown mixed results as to the use of narrative in educational games. The aim of this thesis is to help to answer the question of whether and to which extent it is reasonable to employ the narrative feature in educational games for young children. In addition to a literature review, the thesis presents an experimental study comparing two versions of a maths game that are the same except for for the richness of the game's story (a value-added study). The participating children ($N = 67$) from school year 2 and 3 (mean = 8.67 years, $SD = 0.4$ years) were given the opportunity to play a game for two weeks on touch devices: a game version with a simple narrative frame, or a game version with a rich story narrated through an interactive voiced comic, or a "placebo" game (control group). No significant effect of the rich narrative on the children's engagement, as reported by parents, was found ($d = 0.45$, $p = .245$). Furthermore, the two narrative condition groups did not differ in terms of in-game progress (Cliff's $\delta = 0.01$), and the difference was neither significant for the number of solved game tasks ($d = 0.08$, $p = .857$), nor the learning gains ($d = -0.25$, $p = .691$) measured using a near-transfer maths skill test (pre-post design). Both narrative groups had significantly greater learning gains than the control group (narrative frame: $d = 1.00$, $p < 0.01$; rich story: $d = 0.74$, $p < 0.05$). The conclusion, based on the findings and the literature review, is that providing a basic context for game mechanics of an educational game in the form of a simple story (as opposed to a rich story) may engage young learners just enough to reap the benefits without increasing the risk of distraction from learning. The thesis describes the conducted experiment in detail and discusses the results in the context of other related research.

Keywords: game-based learning, digital games, serious games, narrative, mathematics, engagement, children